RATH, R. (Praha-Krc, Budejovicka 800); MASEK, J.; PETRASEK, R.; Technicka spoluprace: MUNCLINGEROVA, M.; Statisticka spoluprace: ZVOLANKOVA, K., inz.

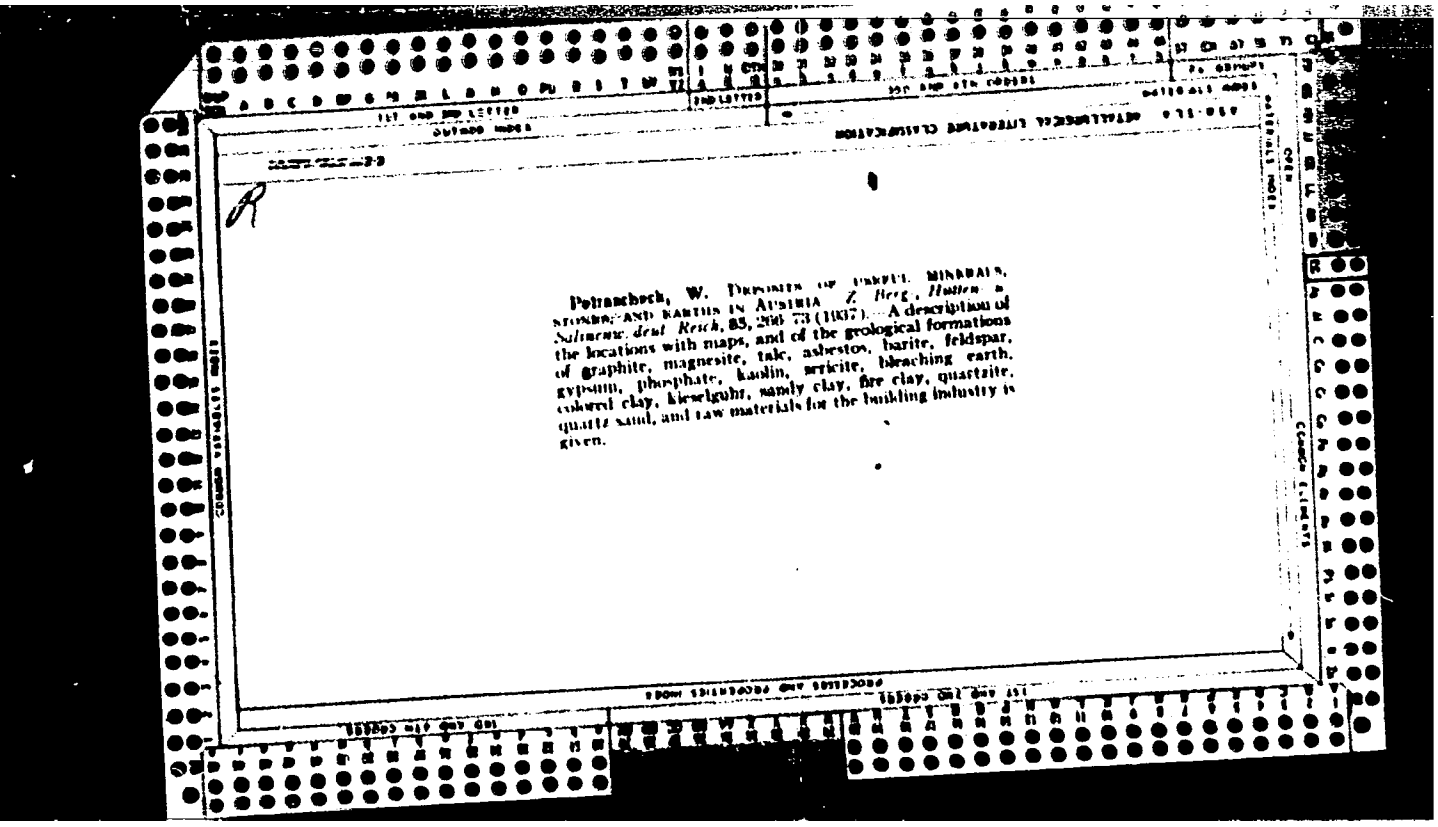
Some problems in obesity and body composition. Cas. lek. Cesk. 104 no.51:1386-1389 17 D '65.

1. Ustav pro vyzkum vyzivy lidu v Praze (reditel prof. dr. J. Masek, DrSc.). Submitted January 1965.

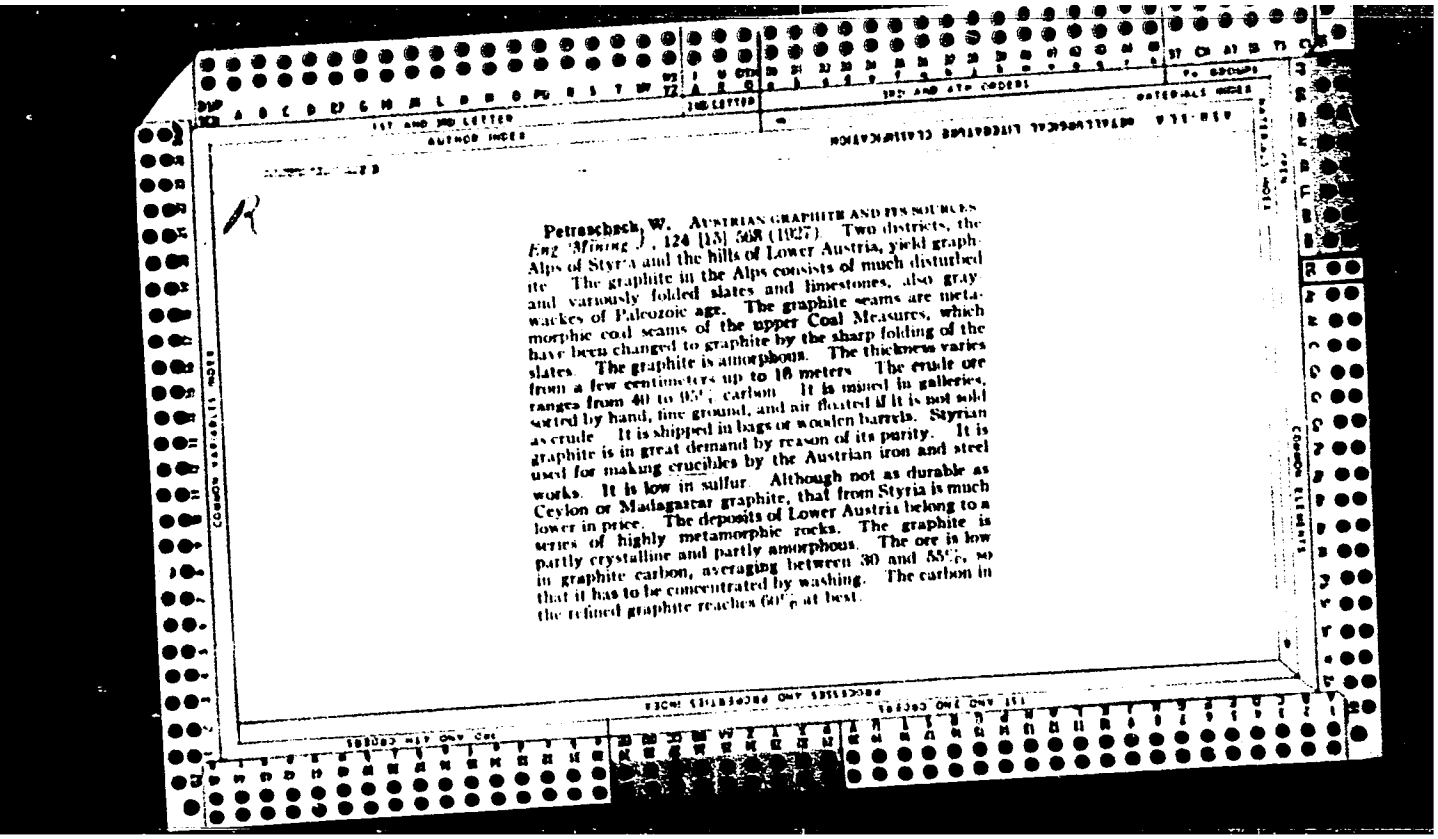
PLACER,Z.; VESELKOVA,A.; PETRASEK,R.

Interaction of antioxidants in biochemical processes. Cesk. hyg. 10 no.3:260-264 My '65

1. Ustav pro vyzkum vyzivy lidu, Praha.2. Z.Placer's address: Praha-Krc, Budejovicka 800.



Petrascheck, W. Deposits of useful minerals, stones, and earths in Austria. *Z. Berg-, Hütten- u. Salinenw. deut. Reich*, 85, 208-73 (1937). A description of the locations with maps, and of the geological formations of graphite, magnesite, talc, asbestos, barite, feldspar, gypsum, phosphate, kaolin, sericite, bleaching earth, colored clay, kieselguhr, sandy clay, fire clay, quartzite, quartz sand, and raw materials for the building industry is given.



Petraschek, W. AUSTRIAN GRAPHITE AND ITS SOURCES. *Eng. Mining J.*, 124 [13] 508 (1927). Two districts, the Alps of Styria and the hills of Lower Austria, yield graphite. The graphite in the Alps consists of much disturbed and variously folded slates and limestones, also graywackes of Paleozoic age. The graphite seams are metamorphic coal seams of the upper Coal Measures, which have been changed to graphite by the sharp folding of the slates. The graphite is amorphous. The thickness varies from a few centimeters up to 10 meters. The crude ore ranges from 40 to 95% carbon. It is mined in galleries, sorted by hand, fine ground, and air floated if it is not sold as crude. It is shipped in bags or wooden barrels. Styrian graphite is in great demand by reason of its purity. It is used for making crucibles by the Austrian iron and steel works. It is low in sulfur. Although not as durable as Ceylon or Madagascar graphite, that from Styria is much lower in price. The deposits of Lower Austria belong to a series of highly metamorphic rocks. The graphite is partly crystalline and partly amorphous. The ore is low in graphite carbon, averaging between 30 and 55%, so that it has to be concentrated by washing. The carbon in the refined graphite reaches 60% at best.

PETRASH, G.G.

81922

S/051/60/009/01/025/031
E201/E691

24.3410

AUTHOR: Petrash, G.G.

TITLE: The Width and Profile of Infrared Absorption Bands

PERIODICAL: Optika i spektroskopiya, 1960, Vol 9, Nr 1, pp 121-123 (USSR)

ABSTRACT: The author recorded very carefully the following infrared bands: 1006 cm-1 of solid naphthalene, 1030.7, 1147.4, 1217.6 cm-1 of pyridine, 903 cm-1 of cyclohexane, 1036.8 cm-1 of benzene and 918 cm-1 of acetonitrile. They were recorded using a double-beam spectrometer with an echelette grating with 500 lines/mm (Ref 2). Employing slits of 0.4-0.7 cm-1 width and a low rate of scanning, all these bands were recorded practically without any systematic distortions. The samples were placed in NaCl cells. The accuracy of band-width measurements amounted to 5%. The results (table on p 122) showed that only the 903 cm-1 band of cyclohexane and 1147.4 cm-1 band of pyridine (the latter is shown in a figure on p 122) had simple profiles which agreed closely with the

Card 1/2

The Width and Profile of Infrared Absorption Bands

dispersion formula. These two bands can be used to estimate distortions of infrared spectra by optical instruments.
Acknowledgments are made to P.A. Bazhulin, V.I. Malyshev and S.G. Rautian for their advice and to V.Ya. Balakhanov for his help in measurements. There are 1 figure, 1 table and 7 references, 4 of which are Soviet and 3 international.

SUBMITTED: February 12, 1960

Card 2/2

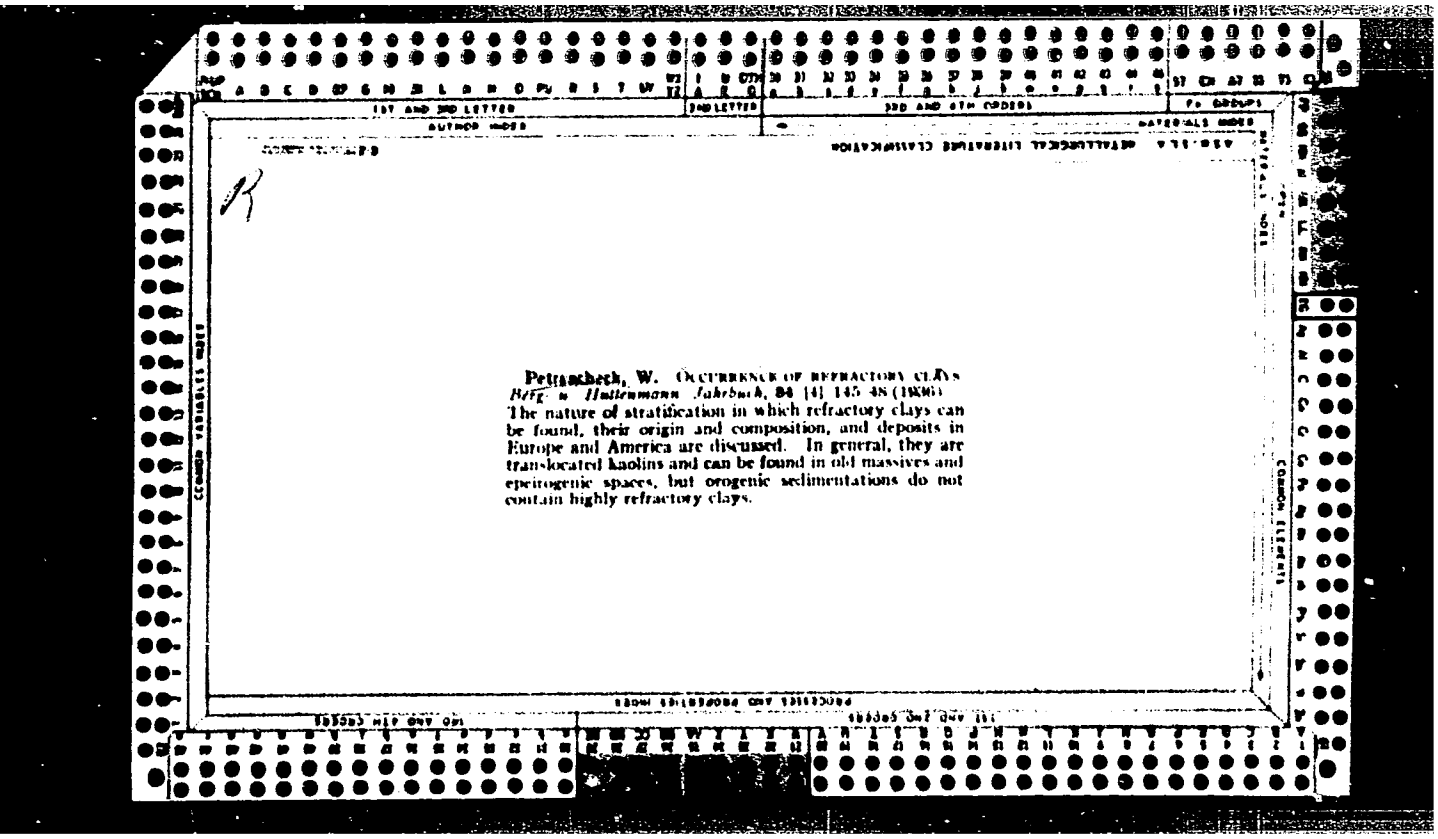
ALEKSANDROVA, V.I., kand. ist. nauk, starshiy nauchnyy sotr.; PETRASH, V.V., starshiy nauchnyy sotr.; BOGDANOVA, A.A., starshiy nauchnyy sotr.; LIVSHITS, I.A., starshiy nauchnyy sotr.; NIKUL'CHENKOV, K.I., polkovnik, red. [deceased]; SOLOV'YEV, N.I., red.; SOKOLOVA, G.F., tekhn. red.

[M.P.Lazarev; documents] M.P.Lazarev; dokumenty. Pod red. K.I.Nikul'chenkova. Moskva, Voen. izd-vo M-va obor. SSSR. (Russkie flotovodtsy). Vol.3. 1961. 576 p. (MIRA 15:2)

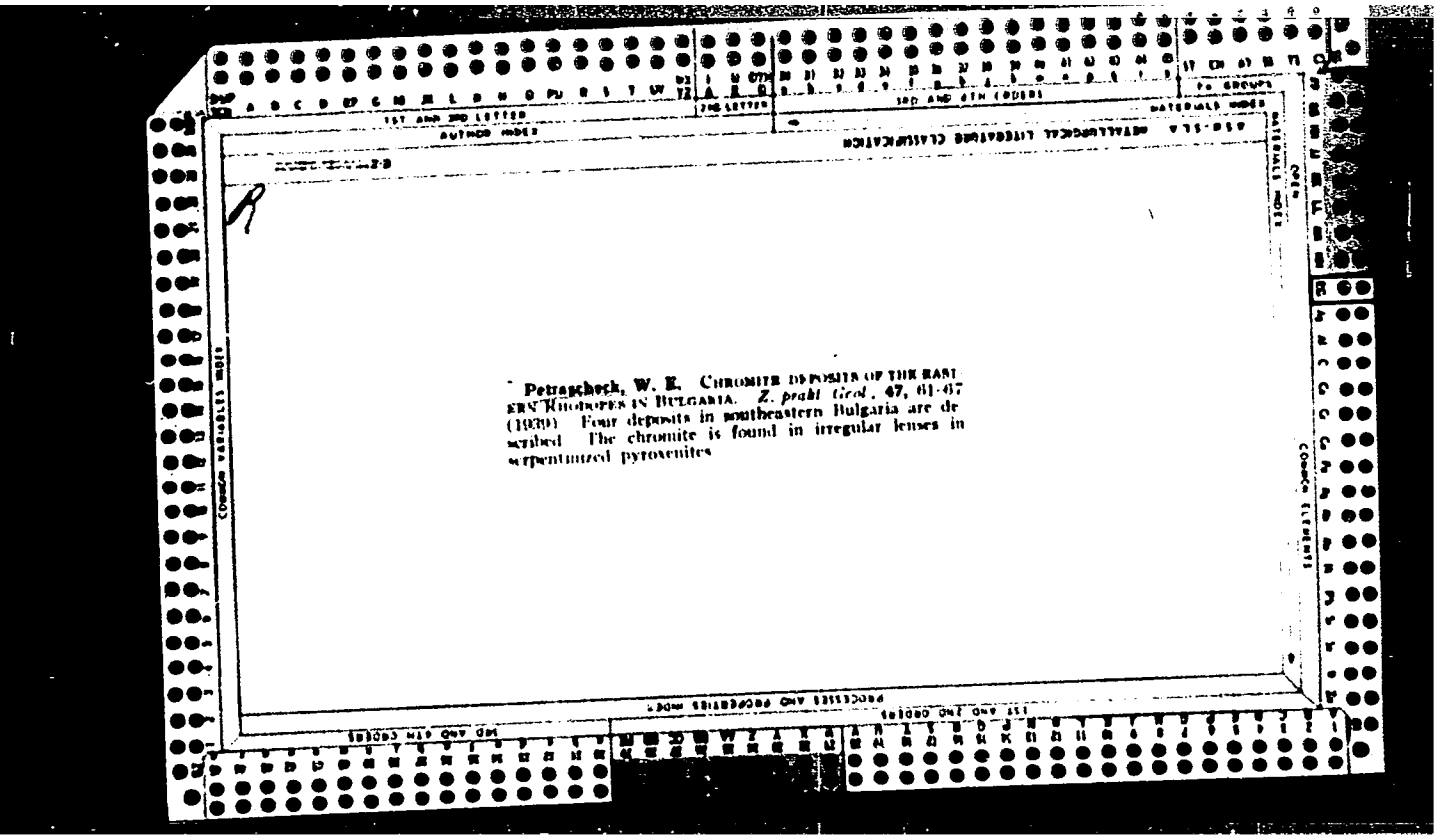
1. Russia (1923- U.S.S.R.) TSentral'nyy gosudarstvennyy arkhiv Voyenno-Morskogo Flota. 2. TSentral'nyy gosudarstvennyy arkhiv Voyenno-Morskogo Flota SSSR (for Aleksandrova, Petrash, Bogdanova).

(Lazarev, Mikhail Petrovich, 1778-1851)

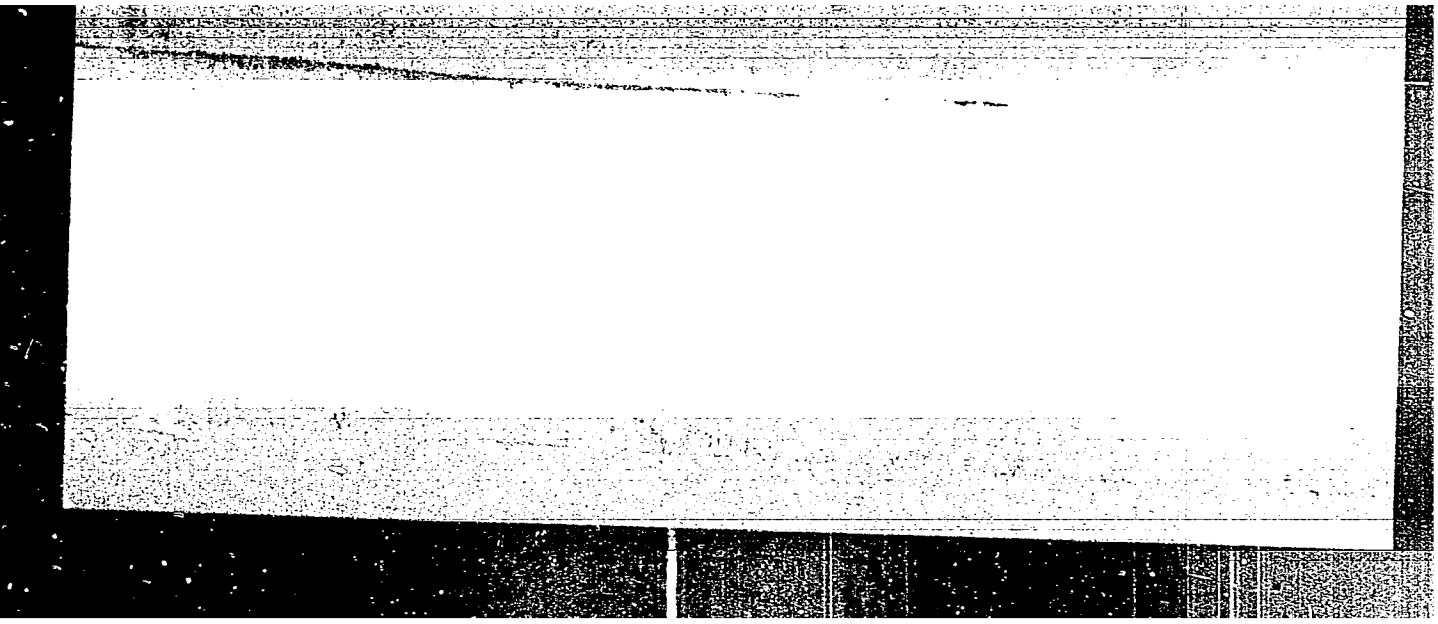
PETRASCHECK, W.,
GUIDO CIVRAN, Sitzber. Akad. Wiss. Wien, Math. naturw. Klasse, Abt. 1, 152, 177-242 (1943)



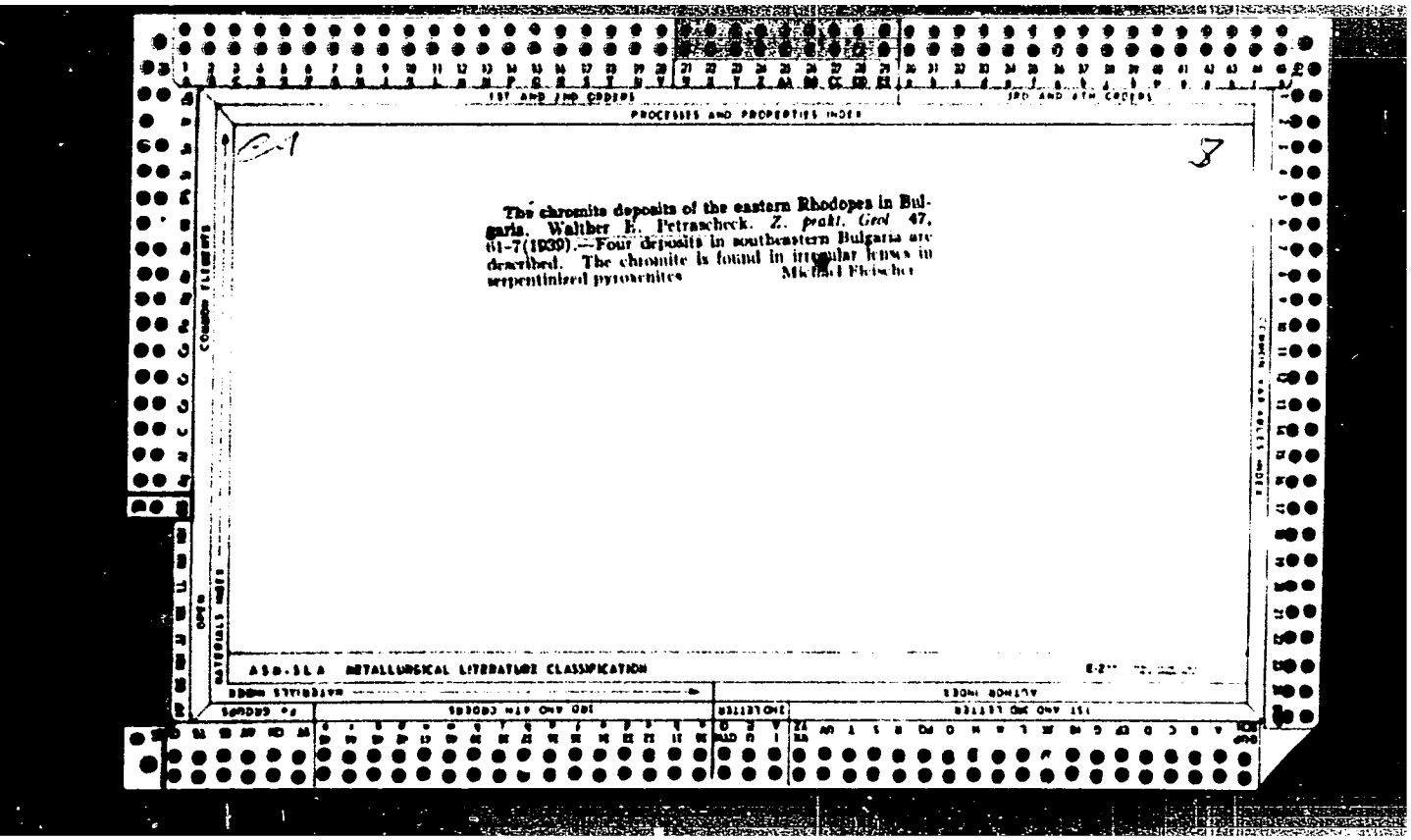
Petraschek, W. Occurrence of refractory clays
Berg- u. Hüttenmänn. Jahrbuch, 84 [4] 145-48 (1936)
The nature of stratification in which refractory clays can be found, their origin and composition, and deposits in Europe and America are discussed. In general, they are translocated kaolins and can be found in old massives and epeirogenic spaces, but orogenic sedimentations do not contain highly refractory clays.



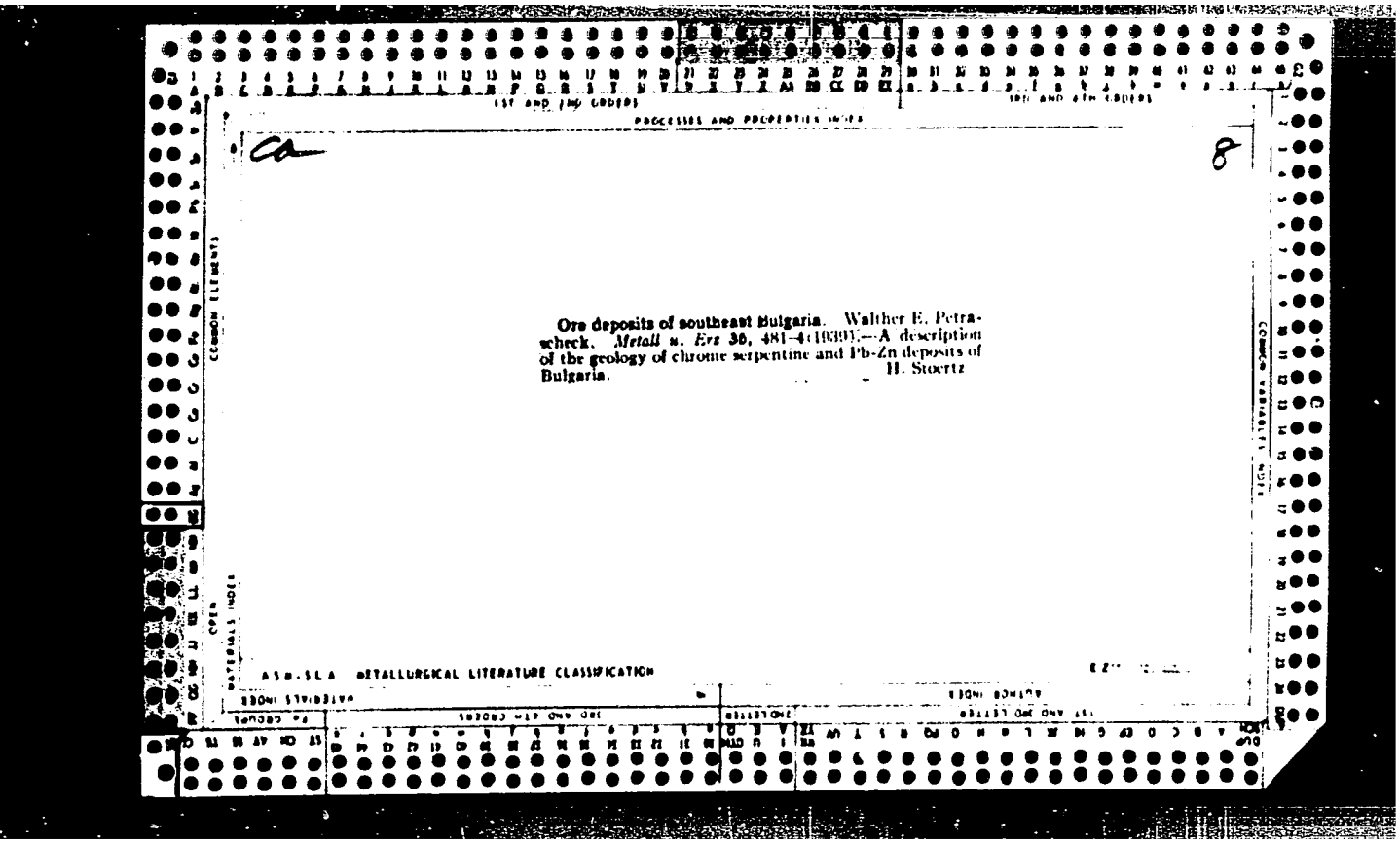
Petrascheck, W. E. CHROMITE DEPOSITS OF THE EASTERN RHODOPES IN BULGARIA. *Z. prakt. Geol.*, 47, 61-67 (1939). Four deposits in southeastern Bulgaria are described. The chromite is found in irregular lenses in serpentinized pyroxenites



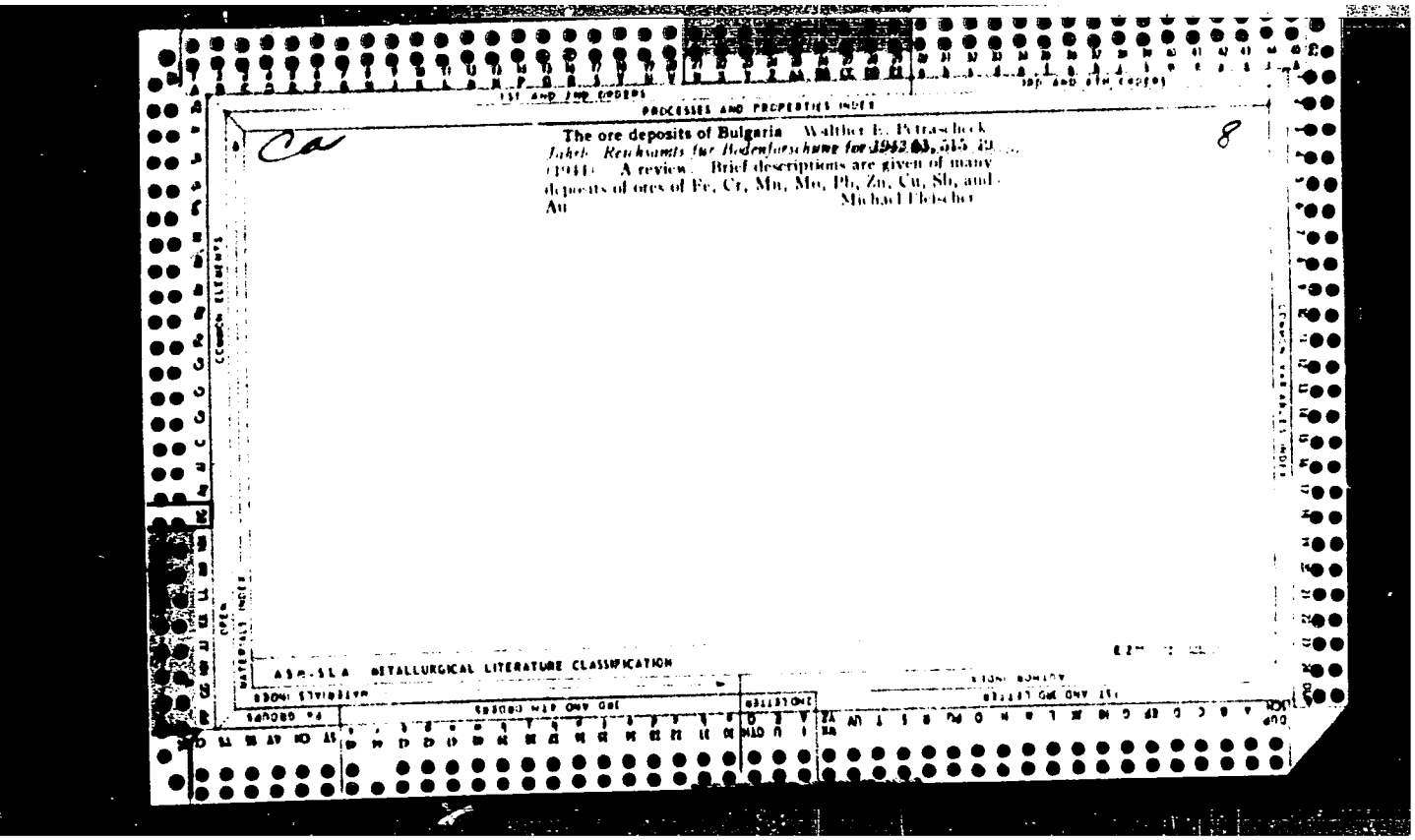
APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001240



The chromite deposits of the eastern Rhodopes in Bulgaria. Walther E. Petraschecck. *Z. prakt. Geol* 47, 61-7(1939).—Four deposits in southeastern Bulgaria are described. The chromite is found in irregular lenses in serpentinized pyroxenites Michael Fleischer



Ore deposits of southeast Bulgaria. Walther E. Petraschek. *Metall u. Erz* 36, 481–4 (1939).—A description of the geology of chrome serpentine and Pb-Zn deposits of Bulgaria. H. Stoertz



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8

The geology of the nickel and iron ore deposits of Lokris, in eastern Greece. Walther Emil Petraschek, Jr. (Leoben, Austria). *Berg- u. hüttenmänn. Monatsh. montan. Hochschule Leoben* 96, 76-83(1951).—Descriptive; 14 references. M. Hartenheim

PETRASCU, FIL.

PETRASCU, FIL. Tuburi electronice si functiunile lor in radiotelegrafie si radiofonie. Bucuresti, Editura Tehnica, 1956. "Electronic tubes and their functions in radiotelegraphy and radiophony. illus., bibl. "
MN Not in DLC

TECHNOLOGY
RUMANIA

So: East European Accession, Vol. 6, No. 5, May 1957

COJOCARU, V.; IVANCEANU, I.; MARINESCU, L.; MIHAI, I.; PETRASCU, M.

Detector of scintillations in gas with technical argon. Studii cerc fiz 16 no.8:917-921 '64.

1. Institute of Atomic Physics, P.O.Box 35, Bucharest.

PETRASCU, M.G

Determining Z with β-rays. C. Bogdan and M. G. Petrascu. *Acad. rep. populare Romîne, Inst. fiz. atomică, Studii cercetări fiz.* 10, 37–45(1959); cf. *C.A.* 23, 4880; 43, 1643g; 50, 10431g.—A formula has been evolved, enabling detn. of Z for the light nuclei, by measurement of the no. of β-rays, N and N_0, between 2 de., φ and φ_0, belonging to the track of an unknown Z and a standard track of known Z_0, resp. The formula is: $N/N_0 = Z^{n(\varphi-\varphi_0)}/Z_0^{n(\varphi-\varphi_0)}$, where $n = 2$ or $n = 1^1/_2$. This method applies to cases where tracks do or do not stop within the emulsion. It is independent of the free path. The formula has been proven theoretically and exptl. for 6 protons and 6 α-particles, attaining an accuracy of 4–17%. M. Lapidus

RUMANIA/Nuclear Physics - Nuclear Reactions.

Abs Jour : Ref Zhur Fizika, No 12, 1959, 26922 C

Author : Mihul, A.C., Petrascu, M.G.

Inst : -

Title : Fission of U^{238} by Negative Muons.

Orig Pub : Studii si cercetari fiz. Acad. RPR, 1958, 9, No 4, 465-468

Abstract : See Abstract 26921

Card 1/1

ABS. JOUR. : [illegible]

AUTHOR : Petrascu, S.; Poliţu, A.

INST. : [illegible]

TITLE : Petroleum Chemistry in Plant Protection

ORIG. PUB. : Rev. chim., 1957, 8, No 12, 763-767

ABSTRACT : A survey on the application of different petroleum distilletion products in plant protection. Achievements obtained in the given area in Rumania give reasons for the application of these products on a wide scale. Bibliography of 71 titles.

CARD: 1/1

PETRASCU, Sever; GROU, Elvira; BALLIF, Gabriela

Analysis of the phenoxyacetic acomounds by indirect method. Studii cerc chim 7 no.4:549-568 '59. (EEAI 9:7)

1. Institutul de cercetari agronomice, Laboratorul de fungicide-insecticide, Bucuresti.
(Mixtures) (Phenoxyacetic acid)

PETRASCU, S.

A colorimetric method for the determination of dinitrophenols. p. 93.

STUDII SI CERCETARI DE CHIME

Vol 4, No. 1/2, Jan./June 1956

Rumania

SOURCE: EEAL, Vol 5, No. 10 Oct. 1956

PETRASCU, S.

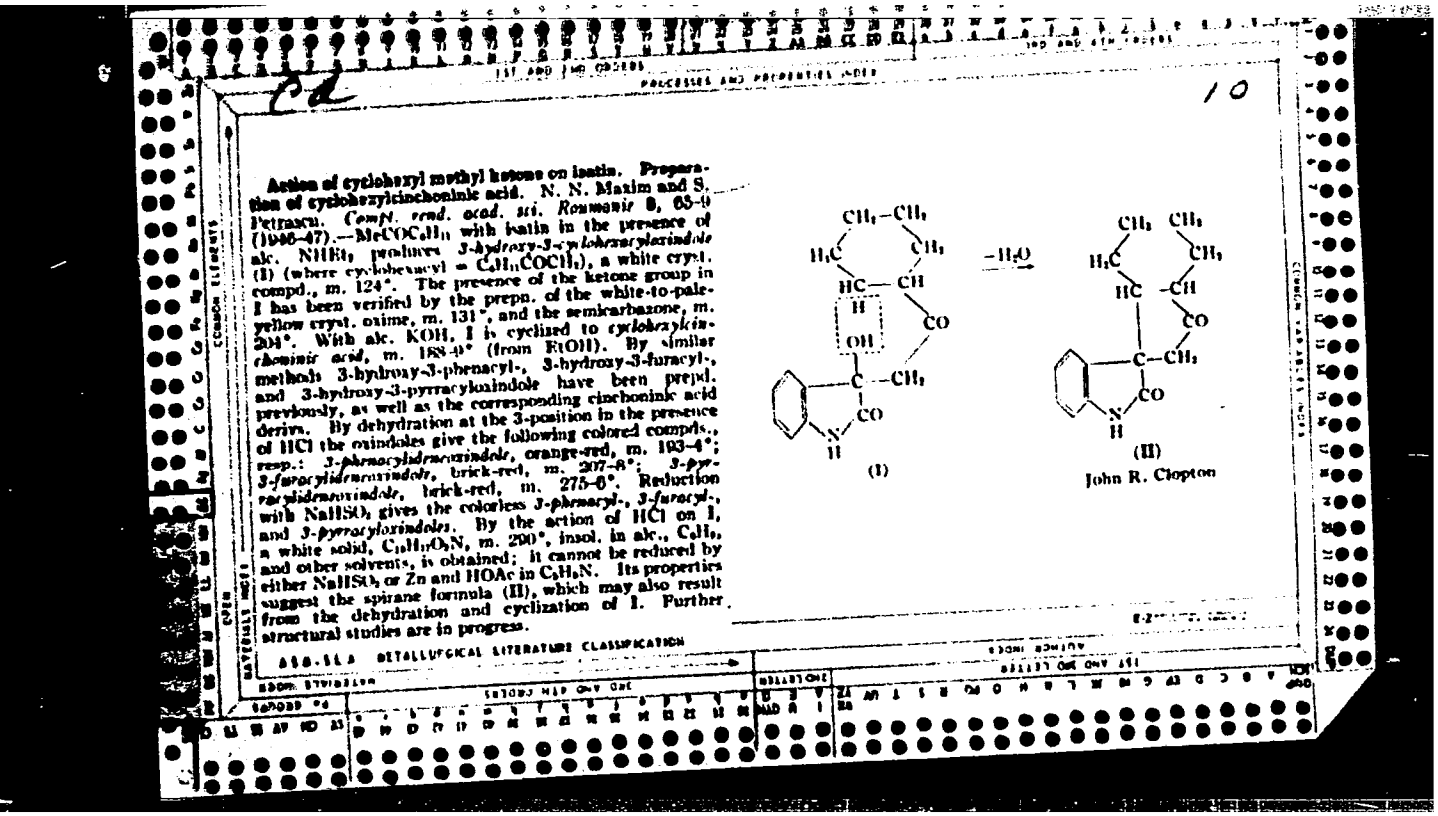
Synthesis and physico-chemical study of certain anion-active compounds. [illegible]

STUDII SI CERCETARI DE CHIME

Vol. 4, No. 1/2, Jan/June 1956

Rumania

SOURCE: EEAL, Vol 5, No. 10, Oct. 1956



10

Action of cyclohexyl methyl ketone on isatin. Preparation of cyclohexylcinchoninic acid. N. N. Maxim and S. Petrascu. *Compt. rend. acad. sci. Roumanie* **9**, 65-9 (1946-47).—MeCOC$_6$H$_{11}$ with isatin in the presence of alc. NHEt$_2$ produces *3-hydroxy-3-cyclohexacylacetindole* (I) (where cyclohexacyl = C$_6$H$_{11}$COCH$_2$), a white cryst. compd., m. 124°. The presence of the ketone group in I has been verified by the prepn. of the white-to-pale-yellow cryst. oxime, m. 131°, and the semicarbazone, m. 204°. With alc. KOH, I is cyclized to *cyclohexylcinchoninic acid*, m. 188-9° (from EtOH). By similar methods 3-hydroxy-3-phenacyl-, 3-hydroxy-3-furacyl-, and 3-hydroxy-3-pyrracyloxindole have been prepd. previously, as well as the corresponding cinchoninic acid derivs. By dehydration at the 3-position in the presence of HCl the oxindoles give the following colored compds., resp.: *3-phenacylidenoxindole*, orange-red, m. 193-4°; *3-furacylidenoxindole*, brick-red, m. 207-8°; *3-pyrracylidenoxindole*, brick-red, m. 275-6°. Reduction with NaHSO$_3$ gives the colorless *3-phenacyl-*, *3-furacyl-*, and *3-pyrracyloxindoles*. By the action of HCl on I, a white solid, C$_{15}$H$_{17}$O$_2$N, m. 290°, insol. in alc., C$_6$H$_6$, and other solvents, is obtained; it cannot be reduced by either NaHSO$_3$ or Zn and HOAc in C$_5$H$_5$N. Its properties suggest the spirane formula (II), which may also result from the dehydration and cyclization of I. Further structural studies are in progress.

(I)

(II)

John R. Clopton

PETRASCU, S.

Determination of dinitroorthocresol in insecticides. S. Petrascu and E. Grou (*Anal. Inst. Cerc. agron. Romîn*, 1952—3, [1955], 23, 509—517).—The respective drawbacks of the Knecht–Hibbert ($TiCl_3$ titration) and Fischer (colorimetric reaction with KCN) methods are discussed. A new method is proposed in which the dinitro-*o*-cresol is converted (Zn + 30% H_2SO_4) into diaminocresol which is then oxidised to aminoquinoneimine by a Mayer reaction (with $K_2Cr_2O_7$), and extinction measured with a spectrophotometer or photoelectric colorimeter. Within certain (undefined) concn. limits the colour developed follows the Lambert–Beer law. The accuracy of the method is between 1 and 5% (mean 4%), i.e., that it is comparable with that of the two older methods considered. The coloration produced remains constant for 24 hr. (From French summary.)

I. S. C.

PETRASCU, S

Indirect analysis of binary mixtures of polychlorinated compounds. Sever Petrascu and Elvira Grov. *Acad. rép. populare Române, Studii cercetări chim.* 6, 127–38(1958).—Mixts. of hexachlorocyclohexane with DDT and hexachlorobenzene have been analyzed by detg. the total Cl present and the hydrolyzable Cl. Equations have been found for calcg. the per cent of each component in the mixt. The relative accuracy of analysis for pure materials is ±0.56%, and independent of the ratio between the components.

J. Segall

COUNTRY : RUMANIA H
CATEGORY : Chemical Technology. Chemical Products and Their Application. Pesticides.
ABS. JOUR. : RZhKhim., No 17, 1959, No. 61985

AUTHOR : Petrascu, S.; Grou, E.
INSTITUTE : -
TITLE : Indirect Analysis of Binary Mixtures of the Polychlorinated Compounds.
ORIG. PUB. : Studii si cercetari chim., 1958, 6, No 1, 127-138

ABSTRACT : On the example of a mixture of HCCH and DDT, the method of analysis involving binary mixtures of polychlorinated compounds is generalized. Presented are general formulas for calculation of th the content of both components in mixtures. With the aid of the developed coefficients, it is possible to derive numerical expressions, applicable for any specific instance. Necessary requirements in making this method effective is precise determination of the total (Bush's method) and of the effective chlorine (dehydrochlorination at approx. 20° with alcoholic KOH solution with subsequent determination of chlorine by the potentiometric titration).

Card: 1/1

H - 81

PETRASCU, S.

RUMANIA / Chemical Technology, Chemical Products and Their Application, Part 3. - Pesticides. H

Abs Jour: Ref Zhur-Khimiya, No 18, 1958, 62037.

Author : Sever Petrascu, Maria Ilie.
Inst : Not given.
Title : Study of Physical Properties of Mineral Powders as Insecticide and Fungicide Fillers.

Orig Pub: Studii si cercetari chem., 1957, 5, No 3, 389 - 394.

Abstract: The density, the volumetric weight, the porosity and the natural slope of fillers (bentonite, kaolin, diatomite, talc) were determined. The granulometric analyses were carried out with a microscope, as well as by elutriation and screening through standard screens.

Card 1/1

PUBLIC/Chemical Technology. Chemical Products and Their Application. Pesticides

Abs Jour: Ref Zhur-Khim., No 13, 1956, 44363

Author : Petrascu S., Poliza A., Paltac Margareta.
Inst :
Title : Petroleum Chemistry in the Service of Plant Protection.

Orig Pub: Rev. chim., 1957, 8, No 12, 763-771

Abstract: A review. The use of the products of petroleum chemistry as herbicides, insecticides, fungicides, and also as solvents and dispersing agents in the manufacture of pesticidal preparations. Bibliography 71 references.

Card : 1/1

RUMANIA / Chemical Technology. Fats, oils, waxes, soaps, detergents, flotoreagent H-25

Abs Jour : Ref. Zhur-Khimiya, No 12, 1958, 41189

Author : Potrashku.

Inst : Not given

Title : Theoretical principles for application of surface active agents.

Orig Pub : Standardizarea, 1957, 9, No 11, 536-543

Abstract : Theoretical principles of the modern conception of surface active phenomena is briefly stated (wetting, foam, fog, emulsion, suspension, floatation, washing properties of the surface active agents). Certain mathematical equations are cited, which express the relationship between various values in systems having a liquid as one of the phases. Thirteen library references are given.

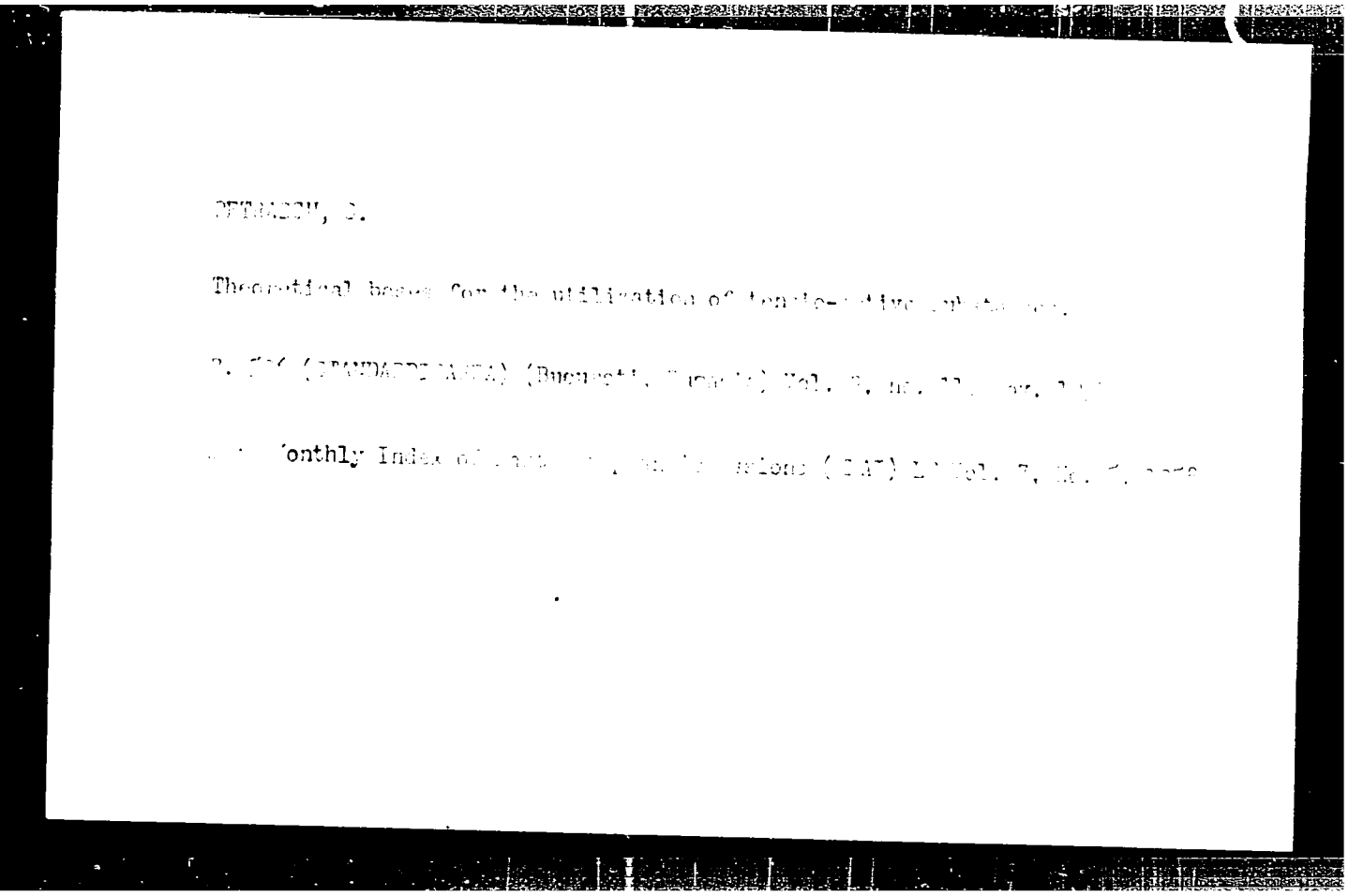
Card 1/1

PETRASCU, S.; POLIZU, A.; BALTAC, M.

Petroleum chemistry in the service of plant protection.

P. 763 (REVISTA DE CHIMIE) (Bucuresti, Rumania) Vol. 8, No. 12, Dec. 1957

SO: Monthly Index of East European Accessions (EEAI) LC Vol. 7, No. 5. 1958



PETRASCU, SEVER

The analysis of hexachlorocyclohexane. Sever Petrascu, Silvira Groza, Nicolae Baiesiu, Ileana Ruiu, and Atanasiu Mihailescu. *Comun. Acad. Rep. Populare Romine*, 4, 307-13(1954).--Different methods for detg. the γ-isomer of hexachlorocyclohexane were compared. The results are given and an official analytical procedure the method - Granger and Zwilling is proposed (cf. *C.A.* 45, 2371c).

Ivan A. Halasz

PETRASEK, F.

AGRICULTURE

Periodical SBORNIK. RADA ZEMEDELSKA EKONOMIKA. Vol. 31, no. 10, Oct. 1958.

PETRASEK, F. "Zootechnical Improvement Service" as a means to improve the breeding of stock, especially cattle. p. 717.

Monthly List of East European Accessions (EEAI) L , Vol. 8, no. 3, March, 1959. Uncl.

PETRASEK, F.

Use of electroerosion for production and restoration of worn-out dies. p.365

STROJIRENSKA VYROBA Vol. 3, no. 9, Sept. 1955

Czechoslovakia

Source: EAST EUROPEAN LISTS Vol. 5, no. 7 July 1956

PETRASEK JAN

MD

Attempt of elaboration of acetylation test for the diagnosis of hyperthyroidism. Milan Vavrečka and Jan Petrášek (III. int. klin., Prague). *Časopis Lékařů Českých* 94, 493–7(1955).—One g. *p*-aminobenzoic acid (I) was administered together with 0.5 l. tea and both free and total I estd. in urine collected at 1-hr. intervals. Glycine and glycuronic acid conjugates are also included as the method used measures all diazotizable amines. The difference between free and total I represents acetylated derivatives and is expressed as % of total I. The acetylation test was performed in 13 patients with manifest hyperthyroidism and in 13 control subjects. The av. % of acetylated I in hyperthyroid patients is significantly lower in the urine collected in the first and second periods. The scatter of the values decreases when urines of the first two, three, or four collection periods are combined; significance of the difference between controls and hyperthyroid patients increases. Acetylation in the urine collected during the first 3 hrs. after I intake is recommended for diagnostic purposes, the av. being 61.8 ± 0.5 in controls, 33.0 ± 0.3% in hyperthyroid patients. A decrease of available active acetate in hyperthyroidism is suggested by the fact that the difference between controls and hyperthyroid patients is higher in the first hours of the test while the aromatic level is high.

I. M. Hais

(1)

PETRASEK, F.

"Use of electroerosion machining." p. 304.

STROJIRENSKA VYROBA. (MINISTERSTVO TEZKEHO STROJIRENSTVI, MINISTERSTVO PRESNEHO STROJIRENSTVI A MINISTERSTVO AUTOMOBILOVEHO PRUMYSLU A ZEMEDELSKYCH STROJU.) Praha, Czechoslovakia, Vol. 7, no. 7, July 1959.

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

PETRASEK, F.

5161* Use of Electrocrosion Method for Intricate Parts and for Rehabilitating Worn Dies. Využití elektroerose pro tvarové výbory a pro obnovu opotřebených zápustek. (Czech.) F. Petrášek. *Strojírenská výroba*, v. 3, no. 9, Sept. 1955, p. 365-367.

MG Development of electrocrosion for machining complex slots and splines for steam-turbine vanes and for renewing worn dies and inserts. Equipment and operating instructions, including electrode, voltage, and cooling liquid. Photographs, diagrams.

PETRASEK, J.

Stress and catecholamines. Cas. lek. cesk. 103 no.28:772-778 6 Jl '64

1. III. interni klinika fakulty vseobecneho lekarstvi KU [Karlovy university] v Praze; prednosta: akademik J.Charvat.

HOLECEK, V.; PETRASEK, J.; KOCKETOVA, V.

Pharmacological effects of amyl nitrite on the secretion of antidiuretic hormone. Cesk.fysiol. 9 no.3:233-234 My '60.

1. III interni klinika lek.fak. KU a Laborator pro endokrinologii a metabolismus, Praha.
(NITRITES pharmacol)
(VASOPRESSIN physiol)

PETRASEK, J.; ZARUBA, Q.

Use of geodetic methods in the investigation of the sliding movement in the area between Sucany and Klacany. p. 33.

STAVEBNICKY CASOPIS. (Slovenska akademia vied) Bratislava, Czechoslovakia. Vol. 7, no. 1, 1959.

Monthly list of East European Accessions (EEAI) LC, Vol. 8, no. 10, Oct. 1959. Uncl.

SONKA, J.; PETRASEK, J.

On regulations of fat metabolism and their relation to obesity. Cas. Lek. Cesk. 101 no.6:179-184 9 F '62.

1. III interni klinika KU v Praze, prednosta akademik J. Charvat.

(FATS metabolism) (OBESITY metabolism)

HORKY, K.; DVORAK, L.; PETRASEK, J.

Cardiovascular changes in increased elimination of pressor amines.
Sborn. lek. 66 no.10:304-315 O '64.

1. III interni klinika fakulty vseobecneho lekarstvi University Karlovy v Praze (prednosta akademik J. Charvat).

PETRASEK, J.; DUBOVSKY, J.

Excretion of 3-methoxy-4-hydroxy mandelic acid (vanillin-mandelic acid). IV. Metabolic diseases. Sborn. lek. 44 no.3:93-97 Mr '62.

(MANDELIC ACID urine)
(LIVER CIRRHOSIS urine)
(DIABETES MELLITUS urine)

DUBOVSKY, J.; PETRASEK, J.

Phenolic acids in the urine. I. Report on current research, personal observations. Sborn. lek. 44 no.3:69-74 Mr '62.

1. III interni klinika fakulty vseobecneho lekarstvi University Karlovy v Praze, prednosta akademik Josef Charvat.

(PHENOLS urine)

PETRASEK, J.; DUBOVSKY, J.; PACOVSKY, V.

Excretion of 3-methoxy-4-hydroxy-mandelic acid (vanillin-mandelic acid). III. Hyperfunction and hyperproduction state. Sborn. lek. 44 no.3:88-93 Mr '62.

(PHEOCHROMOCYTOMA urine) (MANDELIC ACID urine)

DUBOVSKY, J.; PETRASEK, J.

Phenolic acids in the urine. II. Observations on the method of determination. Sborn. lek. 44 no.3:75-79 Mr '62.

(PHENOLS urine)

PETRASEK, J.; DUBOVSKY, J.

Excretion of 3-methoxy-4-hydroxy mandelic acid (vanillin-mandelic acid). II. Hypertension. Sborn. lek. 44 no.3:84-88 Mr '62.

(MANDELIC ACID urine) (HYPERTENSION urine)

PETRASEK, J.; DUBOVSKY, J.

Excretion of 3-methoxy-4-hydroxy mandelic acid (vanillin-mandelic acid). II. Hypertension. Sborn. lek. 44 no.3:84-88 Mr '62.

(MANDELIC ACID urine) (HYPERTENSION urine)

PETRASEK, J.; DUBOVSKY, J.

Excretion of 3-methoxy-4-hydroxy-mandelic acid (vanillin-mandelic acid). I. Healthy subjects. Sborn. lek. 44 no.3:80-84 Mr '62.

(MANDELIC ACID urine)

L 45749-66 EWP(t)/ETI IJP(c) JD
ACC NR: AP6005480 (A) SOURCE CODE: CZ/0078/66/000/001/0004/0004

INVENTOR: Regner, Karel (Engineer; Prague); Petrasek, Josef (Prague)

30
B

ORG: none

TITLE: [A device for the high frequency, high speed zone melting of semiconductor materials] CZ Pat. No. PV 2281-65

SOURCE: Vynalezy, no 1, 1966, 4

TOPIC TAGS: zone melting, semiconductor alloy, melting furnace, metalworking machinery

ABSTRACT: A device for the high frequency, high speed zone melting of semiconductor materials is described in which the high frequency coil, the coaxial drive and the condenser battery are arranged as one consolidated mechanical whole constituting the oscillatory circuit of which the power supply is positioned outside the operating space itself and is connected to the oscillatory circuit by a flexible lead-in or cable. In the operating space itself and separated from the remaining space of the device there is a part of the oscillatory circuit consisting of the high frequency coil and part of the coaxial line which pass through the plate constituting the base of the operating space itself. The support with the holder for the bar of semiconductor material to be melted is fixed to this plate and also the motor for rotating

Card 1/2

PETRASEK, Karel

"Design of a low-voltage switch" by Rudolf Musil. Reviewed by Karel Petrasek. Elektrotechnik 17 no.12:363 D '62.

40315

S/194/62/000/006/078/232
D413/D308

B3.2732

AUTHOR: Petrasek, Karl-Heinz

TITLE: Sealed cases for electrical instruments

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika, no. 6, 1962, abstract 6-3-22 e (Pat. GDR, kl. 21c, 34, no. 21615, 31-06-61)

TEXT: A design of sealed instrument case is patented, having vacuum tight inlets and sealing gaskets making it possible to either evacuate or fill the case with a protective gas after sealing. During the storage or use of the instrument, it is possible to measure the pressure inside it or to change the state of the gas filling it without disturbing the seal. For this purpose a sealing gasket, made of an elastic material, is placed between the cover of the case and the clamping plate; it can readily be penetrated by an injection needle. The elasticity and thickness of the gasket and the diameter of the needle are chosen in such a way that after removal of the needle the orifice made by it in the gasket is completely closed up (by swelling) and the internal space of the case is dis-

Card 1/2

RATH, R.; PETRASEK, R.; Technicka spoluprace: MUNCLINGEROVA, M.

Apropos of body weight standards. Ratio of body fat and its relation to body height in women with normal weight. I. Cas. lek. cesk. 103 no.43:1182-1185 23 O '64.

1. Ustav pro vyzkum vyzivy lidu v Praze, (reditel prof. dr. J. Masek, DrSc.).

PETRASEK, R.; FABRY, P.

Changes in total and coronary hemodynamics in the hypotensive phase after the infusion of noradrenalin. Cesk.fysiol. 9 no.3: 256 My '60.

1. Ustav pro vyzkum vyzivy lidu, fysiol. odd., Praha.
(NOREPINEPHRINE pharmacol)
(CORONARY VESSELS pharmacol)
(VASOMOTOR SYSTEM pharmacol)

PETRASEK, R.; FABRY, P.

Effect of exogenous cholesterol on fat utilization. Cesk.fysiol. 9 no.3:257-259 My '60.

1. Ustav pro vyzkum vyzivy lidu, fysiol. odd., Praha.
(CHOLESTEROL pharmacol)
(FATS metab)

FABRY, P.;PETRASEK, R.;KRULICH, L.;HOESCHL, R.;SONKA, J.;WARISCH, J.H.

Effect of a temporary distribution of food intake on the nature of nutritionally-induced adaptation changes. Cesk. fysiol. 9 no.1: 9-10 Ja 60.

1. Ustav pro vyzkum vyzivy lidu, Fysiologicky ustav lek. fak. KU Vyzkumny ustav endokrinologicky, III interni klinika lek. fak. KU a Thomayerova nemocnice, Praha.
(ADAPTATION PHYSIOLOGICAL)
(HUNGER)

VAVRECKA, M.;VOKAC, V.;PETRASEK, R.;VACRINKOVA, H.;BROWN, T.

Effect of chlortetracycline on fat metabolism. Cesk. fysiol. 9 no.1:95 Ja 60.

1. Ustav pro vyzkum vyzivy lidu, Praha.
(CHLORTETRACYCLINE pharmacol.)
(FATS metab.)

PETRASEK, R.

Liver hexokinase activity in rats adapted to excessive cold. Cesk. fysiol. 8 no.3:232-234 Apr 59.

1. Ustav pro vyzkum fyzivy lidu, Praha. Predneseno na III. Fysiologickych dnech v Brne dne 15. 1. 1959.

(TRANSPHORPHORYASES,
hexokinase in liver in rats adapted to hypothermia (Cz))
(LIVER, metab.
hexokinase in rats adapted to hypothermia (Cz))
(HYPOTHERMIA, eff.
on liver hexokinase (Cz))

PETRASEK, R

"Adaptation of metabolism to various caloric intakes of food."

CESKOSLOVENSKA FYSIOLOGIE, Praha, Czechoslovakia, Vol. 7, no. 4, July 195?

Monthly list of East Europe Accessions (EEAI), LC, Vol. 8, No. 6, Sept 59
Unclas

CZECHOSLOVAKIA/Human and Animal Physiology. Thermoregulation

Abs Jour : Ref Zhur - Biol., No 14, 1958, No 65059

Author : Kohout M., Petrasek R.
Inst : -
Title : Thermoregulation and Changes in Oxygen Utilization in the Golden Hamster

Orig Pub : Vast. Ceskosl. spolec. Zool., 1957, 21, No 1, 83-92

Abstract : O_2 utilization was measured by means of a respirometer with automatic O_2 replacement. Body temperature was determined by means of a thermoelement in the rectum. The development of the capacity for thermoregulation appeared by degrees, corresponding to O_2 utilization and changes in body temperature. These stages were noted at about the seventh day of life (O_2 utilization and temperature), the 13th day (temperature only) and the 18th day (O_2 utilization and body temperature). From the 19th or 20th day the animals were able to maintain body temperature at a fixed level at an environmental temperature of 25°. Evidently chemical

Card : 1/2

CZECHOSLOVAKIA / Human and Animal Physiology. Metabolism. T

Abs Jour : Ref Zhur - Biol., No 15, 1958, No. 69791

Author : Petrasek, Richard
Inst : Not given
Title : Oxygen Consumption of Golden Hamsters (Mesocricetus auratus)

Orig Pub : Vest. Ceskosl. spolec. zool., 1957, Vol 21, No 4, 300-310

Abstract : In hamsters kept at 25 degrees and on standard rations of wheat, cabbage, and milk, the basal metabolism (BMR) over the course of a day rose significantly at nine to eleven P.M., less significantly at ten to eleven A.M., and declined at one to five P.M. In winter the BMR fell, especially in males (by ten percent). Reduction of the temperature of the surrounding environment (15-30 degrees) by one degree produced a five percent elevation in the BMR. The BMR was higher in males than in females in winter by

Card 1/2

FABRY, [illegible]; BRAUN, T.; PETRASEK, R.; HORAKOVA, E.; KONOPASEK, [illegible]

The effect of the pattern of food intake on the [illegible] composition of rats receiving diets with varying fat content. [illegible] Bohemo-slov. 13 no.4:333-340 '64.

1. Department of Physiology, Institute of Human Nutrition, [illegible].

FABRY, P.; BRAUN, T.; PETRASEK, R.; FRANKOVA, S.; MASEK, J.; FODOR, J:

Some effects of high-fat diets in experimental animals. Cesk. gastroent. vyz. 16 no.3/4:178-182 Ap '62.

1. Ustav pro vyzkum vyzivy lidu v Praze, reditel doc. MUDr. J. Masek, DrSc.

(FATS) (DIET) (CENTRAL NERVOUS SYSTEM)
(TISSUE METABOLISM)

PECHAR, J.; KUHN, E.; MOSINGER, B.; SEGOVA, E.; VAVRINKOVA, H.; HROMADKOVA, V.; PETRASEK, R.

Effect of fat intake on tissue oxygen supply. Cesk. gastroent. vyz. 16 no.3/4:197-205 Ap '62.

1. Ustav pro vyzkum vyzivy lidu v Praze, reditel doc. MUDr. J. Masek, DrSc.

(FATS) (NUTRITION) (TISSUE METABOLISM) (HEMOGLOBIN)

FABRY, P.; PETRASEK, R.; KUJALOVA, V.; HOLECKOVA, E.

Adaptation to nutritional changes. Cesk. gastroent. vyz. 16 no.3/4: 246-251 Ap '62.

1. Ustav pro vyzkum vyzivy lidu v Praze, reditel doc. MUDr. J. Masek, DrSc.

(NUTRITION) (ADAPTATION PHYSIOLOGICAL) (FASTING)

PETRASEK, R.

Metabolic adaptation to various carious caloric food intake. Cesk. fysiol. 7 no.4:367-368 July 58.

1. Ustav pro vyzkum vyzivy lidu, fysiologicke oddeleni, Praha.
(NUTRITION
caloric intake, metab. adaptation in rats (Cz))
(METABOLISM,
metab. adaptation to caloric intake in rats (Cz))

PETRASEK, K.

VAVRECKA, M.; PETRASEK, R.; KOMARKOVA, A.

Citrate metabolism in human erythrocytes; preliminary report. Cesk. gastroenter. 11 no.5:383-384 5 Sept 57.

1. UVVL, Praha, red. doc. MUDr J. Masek.--Ustr. lav. SFN, Praha, pred. prof. MUDr J. Horejsi.

(CITRATES, in blood
in erythrocytes (Cz))
(ERYTHROCYTES, metab.
citrates (Cz))

PETRASEN, G. I.

1-F

Petrašen', G. I.; Martuk, G. L.; and Ogurcov, K. I. On Lamb's problem [in a half-space]. Uč. Zap. [illegible] (Russian)

The [illegible] seems to be [illegible] problem and [illegible] case of a pulse [illegible] boundary the sol[illegible] and the relations[illegible] complex sol[illegible] and Mellin [illegible]

PETRASH, A.A., dorozhnyy master

Switch ties must be delivered in complete sets. Put' i put.khoz. 7 no.12:40 '63. (MIRA 16:12)

1. Stantsiya Stanichnaya, Severo-Kavkazskoy dorogi.

PETRASH, A.A., dorozhnyy master

When shall we get the fastenings? Put' i put.khoz. 7 no.9:47 '63. (MIRA 16:10)

1. Stantsiya Stanichnaya, Severo-Kavkazskoy dorogi.

PETRASH, A.A.,
A. V. PAMFILOV, Zh F Kh 9, 2030-8 (1936)

PETRASH, A.D., inzh.

Magnitude of the expenditure coefficient of low overflow walls with trapezoidal profiles. Izv. vys. ucheb. zav.; energ. 8 no.1: 96-99 Ja '65. (MIRA 18:2)

1. Kiyevskiy inzhenerno-stroitel'nyy institut. Predstavlena kafedroy vodosnabzheniya i kanalizatsii.

PETRASH, F.T.

Electrical conductivity of cupric oxide. Uch. zap. GGPI no.8:125-132 '58. (MIRA 13:8)
(Copper oxide--Electric properties)

PETRASH, G. G.

PRIKHOT'KO, A F

24(7) P 3 PHASE I BOOK EXPLOITATION SOV/1365

L'vov. Universytet

Materialy X Vsesoyuznogo soveshchaniya po spektroskopii. t. 1: Molekulyarnaya spektroskopiya (Papers of the 10th All-Union Conference on Spectroscopy. Vol. 1: Molecular Spectroscopy) [L'vov] Izd-vo L'vovskogo univ-ta, 1957. 499 p. 4,000 copies printed. (Series: Its: Fizychnyy zbirnyk, vyp. 3/8/)

Additional Sponsoring Agency: Akademiya nauk SSSR. Komissiya po spektroskopii. Ed.: Lazer, S.L.; Tech. Ed.: Saranyuk, T.V.; Editorial Board: Lavlsters, G.S., Academician (Resp. Ed., Deceased), Neporent, B.S., Doctor of Physical and Mathematical Sciences, Fabelinskiy, I.L., Doctor of Physical and Mathematical Sciences, Fabrikant, V.A., Doctor of Physical and Mathematical Sciences, Koralitskiy, V.G., Candidate of Technical Sciences, Rayskiy, S.M., Candidate of Physical and Mathematical Sciences, Klimovskiy, L.K., Candidate of Physical and Mathematical Sciences, Miliyanchuk, V.S., Candidate of Physical and Mathematical Sciences, and Glauberman, A. Ye., Candidate of Physical and Mathematical Sciences.

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PETRASH, G.G.; RAUTIAN, S.G.

Consideration of distortions in the apparatus and the characteristics of infrared spectrophotometers. Inzh.-fiz.zhur. no.7:61-71 Jl '58. (MIRA 11:8)

1.Fizicheskiy institut imeni P.N. Lebedeva AN SSSR, Moskva.
(Spectrophotometer)

PETRASH, G.G.; KNYAZEV, I.N.

Pulsed radiation from a laser operating on and on a neon-helium mixture. Zhur. eksp. i teor. fiz. 45 no.4:833-839 O '63. (MIRA 16:11)

1. Fizicheskiy institut imeni P.N.Lebedeva AN SSSR.

PETRASH, G.G.

Effect of measurement errors on the resolving power of infrared spectrometers [with summary in English]. Inzh.-fiz. zhur. no. 9:74-81 S '58. (MIRA 11:10)

1. Fizicheskiy institut imeni P.N.Lebedeva AN SSSR, g.Moskva.
(Spectrometer)

PETRASH, G.G., RAUTIAN, S.G.

Optimal conditions for measuring optical density with reduction to an ideal instrument. Inzh.-fiz.zhur. no.11:80-91. N '58. (MIRA 12:1)

1. Fizicheskiy institut imeni P.N.Lebedeva AN SSSR, g.Moskva. (Spectrophotometer)

66374
SOV/120-59-5-27/46

24.3420
AUTHORS: Zubov, V.A., Petrash, G.G. and Sushchinskiy, M.M.

TITLE: A Double-beam Spectrometer for the Study of Combinational (Raman) Scattering of Light

PERIODICAL: Pribory i tekhnika eksperimenta, 1959, Nr 5, pp 119 - 120 (USSR)

ABSTRACT: A photo-electric spectrometer is described, which uses a diffraction grating having a dispersion of 5.5 Å/mm. The instrument works both in the single-beam and double-beam modifications. In the latter case, the ratio of the intensities of lines in the spectrum under investigation to the intensity of the exciting line is recorded, which excludes instabilities in the photomultiplier and the light source. The instrument is illustrated in Figure 1. In this figure, 1111 is the main beam, 2222 is the comparison beam, P is the diffraction grating, O_1 and O_2 are the collimator objectives, S_1 and S_2 are the input and output slits, ФЭУ is the photomultiplier, Л is a mercury lamp, K is a container with a scattering substance, ОК is an optical wedge, M is an interrupter,

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SOV/120-59-5-27/46

A Double-beam Spectrometer for the Study of Combinational (Raman) Scattering of Light

ПУ is a pre-amplifier, У is a selective amplifier, СД is a synchronous detector, Ф is a photo-resistor which is used to obtain signals which synchronise the work of the detector, $У_{пр}$ controls the reversing motor, З is a recording device (pen recorder), $П_1$ is a condenser and $П_2$ is a lens which focuses the light beam onto the photomultiplier photo-cathode.
A change in the photomultiplier voltage of ± 55 V, which in the single-beam set-up gives a change in the recorded signal by a factor of 2, has no effect on the double-beam apparatus. Figure 2 shows the 4358 Å mercury line obtained with the apparatus. The curve on the left shows the line under normal working conditions of the lamp.
There are 3 figures and 2 Soviet references.

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66374

SOV/120-59-5-27/46

A Double-beam Spectrometer for the Study of Combinational (Raman) Scattering of Light

ASSOCIATION: Fizicheskiy institut AN SSSR
(Physics Institute of the Ac.Sc., USSR)

SUBMITTED: August 21, 1958

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24(7) SOV/51-6-6-13/34

AUTHOR: Petrash, G.G.

TITLE: On the Selection of the Scanning Rate, Optimum Time Constant and Slit Widths in Spectrometric Measurements (O vybore skorosti skanirovaniya, optimal'noy postoyannoy vremeni i shiriny shcheley pri spektrometricheskikh izmereniyakh)

PERIODICAL: Optika i spektroskopiya, 1959, Vol 6, Nr 6, pp 792-797 (USSR)

ABSTRACT: The problem discussed by the author can be stated as follows: what are the values of the spectrometer parameters controlled by the experimenter which give the smallest total root-mean-square error in recording of a spectral characteristic such as the intensity of a line at its maximum or its half-width. The case of small systematic perturbations is discussed and formulae are given which are applicable to a wide range of spectral distributions, "apparatus" functions and properties of the recording system, such as the scanning rate, the time constant of the recording system or the slit width of a spectrometer. For a spectrometer working under the optimum conditions, as defined by the formulae given by the author, the smallest error is given by

$$U = \frac{Bv}{\gamma^5} = \frac{E}{t_0 \gamma^4} ,$$

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On the Selection of the Scanning Rate, Optimum Time Constant and Slit Widths in Spectrometric Measurements

where $t_0 = \gamma/v$ is the time necessary to scan a line of width γ at the rate v and E is a parameter of the instrument which depends on the properties of the radiation receiver, on the intensity of the light beam which passes through the instrument in the absence of a sample and on the wavelength. The precision U may be increased, when values of E and γ are fixed, by increasing the value of t_0, i.e. by decreasing the rate of scanning. The paper is entirely theoretical. Acknowledgments are made to P.A. Bazhulin, V.I. Malyshev and S.G. Rautian for their advice. There are 10 references, 7 of which are Soviet, 2 English and 1 Swiss.

SUBMITTED: July 18, 1958

SOV/51-6-6-30/34

24(7)

AUTHORS: Zubov, V.A., Petrash, G.G. and Sushchinskiy, M.M.

TITLE: Some Applications of a Spectrometer with High Dispersion in Molecular Analysis Using Raman Spectra (Nekotoryye primeneniya spektrometra s bol'shoy dispersiyey dlya molekulyarnogo analiza po spektram kombinatsionnogo rasseyaniya sveta)

PERIODICAL: Optika i spektroskopiya, 1959, Vol 6, Nr 6, pp 827-829 (USSR)

ABSTRACT: The authors describe a spectrometer for study of Raman spectra constructed at the Optical Laboratory of the Physics Institute, Academy of Sciences, U.S.S.R. A plane diffraction grating was used as the dispersing element. It was an echelette grating with 600 lines/mm, ruled area 140 x 150 mm, and it was prepared at the State Optical Institute. Collimators had objectives made at the State Optical Institute (focal length 1600 mm; relative aperture 1:12). The instrument was meant for use in the second order in the blue region and had dispersion of 5 Å/mm. A photomultiplier FEU-17 was used as a receiver. A PRK lamp or a low-pressure lamp could be used as a source. There are two ways of using this spectrometer. One is the 2-beam method described in detail earlier (Ref 4). In this case one records the ratio of the light signal coming from a cell with the scattering substance to the light signal proceeding directly from the lamp. The other way is the so-called differential method shown

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Some Applications of a Spectrometer with High Dispersion in Molecular Analysis Using Raman Spectra

schematically in Fig 1. Light from two different sources is directed alternately by a rotating mirror onto the entry slit of the spectrometer. When the intensities of the two light beams are the same the photomultiplier current is unmodulated and, therefore, blocked by a selective amplifier tuned to the modulation frequency. When one of the light beams is more intense the resulting photocurrent has an alternating component which is amplified and recorded. The spectrometer can be used to study line shapes (Ref 2) and structure of bands consisting of closely spaced lines. Other possible applications include: (i) studies near the wavelength of the exciting light (Fig 2), (ii) studies of mixtures (subtraction of the spectrum of one component from the spectrum of the mixture), (iii) studies of small changes of line widths and intensities. There are 2 figures and 5 references, 4 of which are Soviet and 1 English.

68322

SOV/51-8-1-23/40

24.3400

AUTHOR: Petrash, G.G.

TITLE: The Effect of Scanning and Selection of the Optimum Measurement Conditions

PERIODICAL: Optika i spektroskopiya, 1960, Vol 8, Nr 1, pp 122-123 (USSR)

ABSTRACT: This is a summary of a paper presented at the Conference on the Theory of Spectroscopic Instruments (Leningrad, March 5-7, 1959).
Fourier analysis is used to study systematic distortions in a spectrum $\varphi(\lambda)$ due to a spectral instrument as a whole (i.e. both the monochromator and the recording system). Assuming that these systematic errors are small we find that the spectrum $h(\lambda)$ at the output of the instrument is given by:

$$h(\lambda) = \varphi(\lambda + \Delta) + \varphi''(\lambda + \Delta)\{aS^2 + b\tau^2 v^2\} .$$

Here S is the width of the apparatus function of the monochromator, a is a coefficient which depends on the form of the apparatus function, τ is a parameter (a time constant) which represents inertia of the recording system (the latter is taken to include a receiver, an amplifier and a recorder proper), v is the scanning rate, b is a coefficient which depends on the form of the transient function of the recording system, Δ gives the shift of the spectrum as a whole. The above formula is valid for any form of $\varphi(\lambda)$ and for a wide range of apparatus

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The Effect of Scanning and Selection of the Optimum Measurement Conditions

functions and transient functions of the recording systems. The shift Δ may be easily allowed for on calibration and does not introduce further distortions, so that in the first approximation the systematic errors can be taken to be proportional to $\varphi''(\lambda)$ and to $\{aS^2 + b\tau^2 v^2\}$. In selecting measurement conditions we must remember that decrease of the systematic errors by decrease of S and τ always increases the magnitude of random errors. By considering both types of errors simultaneously we find that the total r.m.s. error in measurement of the optical density D with a typical infrared spectrometer is smallest when the following optimum conditions are satisfied. (1) Absorption should be approximately 50% (Ref 1). (2) Systematic errors due to scanning should be four times smaller than systematic errors due to the slits. (3) Total systematic errors should be approximately equal to random errors. (4) The optimum time constant should be related to the optimum slit width and the scanning rate by the relationship:

$$\tau_{mv} = \frac{S_m}{2}\sqrt{\frac{a}{b}}$$

Card 2/4 which does not depend on the form of $\varphi(\lambda)$. (5) The optimum slit

The Effect of Scanning and Selection of the Optimum Measurement Conditions

width S_m depends both on the properties of the instrument and on the width (γ) and form of $\varphi(\lambda)$. If $\varphi(\lambda)$ and the properties of the instrument are given, then:

$$S_m = \gamma c \left(\frac{Ev}{\gamma^5}\right)^{1/9}, \quad c = \text{const.}$$

The parameter E in the above expression is the r.m.s. value of the random error for unit slit width and unit time constant. If measurements are made under the optimum conditions listed above, then the total error in measurement of the optical density D is given by:

$$P_m^2 = \frac{\Delta D^2}{D^2} = A \left(\frac{Ev}{\gamma^5}\right)^{4/9},$$

where the parameter A depends on the properties of the instrument and on $\varphi(\lambda)$; a further decrease of A can be achieved only by reducing v, i.e. by increasing the duration of measurement. The following recommendations can be given for the case when errors do not exceed 10-20%. (1) When different values of v and τ are used it is necessary to allow for the change in the shift Δ (when the recording system is

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The Effect of Scanning and Selection of the Optimum Measurement Conditions

equivalent to an RC-circuit, this shift is given by $\Delta = \tau v$). (ii) Since systematic errors rise sharply when $\tau > \tau_m$ and the random errors increase comparatively slowly when $\tau < \tau_m$, it is possible to achieve near-optimum conditions by selecting τ in such a way that the scanning errors are small; for this purpose the product τv should be 5-10 times smaller than S. (iii) Selection of the slit widths should be governed by the width γ of the measured band or line and, to a lesser extent, by the form of $\varphi(\lambda)$ (Ref 2). The author does not recommend any method for minimizing the systematic errors due to scanning since this does not give any advantage compared with the simple decrease of the recording-system inertia. There are 2 Soviet references.

Note. This is a slightly abridged translation.

CHULANOVSKIY, V.M.; RAUTIAN, S.G.; PETRASH, G.G.; IOGANSEN, A.V.; GRIBOV, L.A.; NEPOMNYASHCHIY, B.S.

Discussion. Opt. i spektr. 8 no.1:126-127 Ja '60. (MIRA 13:7)
(Spectrum analysis)

AUTHOR: Petrash, G.G. SOV/51-8-1-29/40

TITLE: Discussion of Some of the Papers Presented at the Conference on the Theory of Spectroscopic Instruments

PERIODICAL: Optika i spektroskopiya, 1960, Vol 8, Nr 1, p 127 (USSR)

ABSTRACT: The method of selecting conditions of measurement described by V.A. Nikitin and O.D. Dmitriyevskiy does not reduce all possible errors to minimum and consequently does not give the optimum conditions. This is because: (a) random and systematic errors depending on the same parameters (s, τ) are limited by conditions which are independent for the two types of errors and (b) systematic errors due to the effect of monochromator slits, which play a predominant role, are not allowed for.

Note. This is a complete translation.

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PETRASH, G.G.

Width and shape of infrared absorption bands. Opt.i spektr. 9 no.1:121-123 Jl '60. (MIRA 13:7)
(Spectrum, Infrared)

ACC NR: AP7007682 SOURCE CODE: UR/0386/66/003/002/0088/0092

AUTHOR: Kaslin, V. M.; Petrash, G. G.

ORG: Physics Institute im. P. N. Lebedev, AN SSSR (Fizicheskiy institut AN SSSR)

TITLE: Rotational structure of ultraviolet generation of molecular nitrogen

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. Pis'ma v redaktsiyu, v. 3, no. 2, 1966, 88-92

TOPIC TAGS: emission spectrum, laser application, nitrogen, spectroscope, UV laser / DFS-13 spectrograph

ABSTRACT: The authors experimentally investigated emission spectrum of ultraviolet generation of molecular nitrogen.

An ordinary laser was used with external mirrors and with windows at the Brewster angle. The discharge was excited with voltage pulses up to 40 kV in a tube of 3 mm i.d. and a discharge length ~ 90 cm. The current pulse duration was ~1.5 μsec. Mirrors with multilayer dielectric coatings were used, having a transmission ~ 40% in the λ ≈ 3370 Å region, as well as sputtered-aluminum mirrors.

Generation was observed at two bands (0-0 and 0-1) of the second positive nitrogen system $C^3\pi_u \rightarrow B^3\pi_g$. The generation power in the 0-0 band (3371 Å edge) is many times larger than in the 0-1 band (3577 Å edge). A considerable super-radiance effect is observed in the 0-0

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UDC: none

band. Radiation with a single mirror has practically the same spectrum as the generation radiation, and differs only slightly in power. Investigation of the radiation from the tube without mirrors showed a sharp increase in several lines, compared with the normal spontaneous emission spectrum. This increase is apparently also connected with the super-radiance effect. Results were obtained at nitrogen pressures close to optimal: ~2 torr for the 0-0 band and ~1 torr for the 0-1 band. Spectrally pure nitrogen was used in the experiments, but impurities apparently play a minor role, since similar generation could be observed when the discharge tube was filled with air. The generation spectrum was investigated with a DFS-13 spectrograph with a 600 lines/mm grating. The spectrum of the 0-0 band was photographed in third order with dispersion ~1.3 Å/mm, and the 0-1 band in second order with dispersion ~2.0 Å/mm. In addition to the generation spectrum, to facilitate interpretation of the lines, the spectrum of the spontaneous emission was photographed. A comparison was made against the iron and titanium lines. To eliminate random shifts, the generation spectrum was measured with a large number of plates. The estimated wavelength measurement accuracy is $\Delta\lambda \approx 0.02$ Å for the 0-0 band and $\Delta\lambda \approx 0.04$ Å for the 0-1 band. It was found that the P-branches play the principal role in the generation and that the maximum of generation intensity corresponds approximately to J = 9. It must be noted, however, that unlike the usual situation, generation, albeit less intense, is observed in the 0-0 band for several R-branch lines. Orig. art. has: 2 tables.

SUB CODE: 20 / SUBM DATE: 01Dec65 /

ACC NR: AP6032019 SOURCE CODE: UR/0386/66/004/006/0210/0213

AUTHOR: Koval'chuk, V. M.; Petrash, G. G.

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TITLE: New Generation lines of a pulsed iodine-vapor laser 15

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. Pis'ma v redaktsiyu. Prilozheniye, v. 4, no. 6, 1966, 210-213

TOPIC TAGS: iodine, gaseous state laser, laser emission, emission spectrum, spectral line

ABSTRACT: The authors report the observation of four new generation lines in a pulsed discharge in iodine vapor. An ordinary laser was used with quartz windows mounted at the Brewster angle and with external mirrors. Glass tubes with internal cold aluminum electrodes were used. The tube was excited by current pulses from the discharge of a 0.01 μF capacitor through a controlled three-electrode discharge gap. The capacitor voltage was adjustable from 10 to 50 kv, the discharge current reached approximately 1 kiloampere. The iodine crystals were placed in a lateral stub separated from the discharge tube by a valve. In addition to the vapor of pure iodine, mixtures of iodine with inert gases and with nitrogen were investigated. Generation occurred only in the discharge in pure iodine at iodine-vapor pressure of the order of 10^{-3} Torr. Addition of the buffer gases interrupted the generation.

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ACC NR: AP6032019

Three generation lines were observed in the visible part of the spectrum and one in the infrared. The visible generation occurred at a capacitor voltage near 30 kv and its power increased with increasing voltage to 50 kv. The infrared generation was observed only at voltages near 50 kv and was unstable. No other lines were observed. The measured wavelengths were 4533.79 A, 4674.40 Å, 4934.67 Å, and 10,714.2 Å. In attempting to attribute the observed lines to definite transitions, it is shown that they do not belong to the spectra of I I and I II or to some possible impurities. On the basis of an investigation of the spontaneous discharge spectrum under the conditions at which the generation was observed (monitored with the aid of the superradiance) it is proposed that the generation lines observed in the present investigation belong to transitions in the spectrum of highly-ionized iodine. [02]

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ACC NR: AP6015590 SOURCE CODE: UR/0368/66/004/005/0395/0402

48
44
B

AUTHOR: Petrash, G. G.

ORG: none

TITLE: The Franck-Condon principle and mechanisms for production of inversion in molecular transitions

SOURCE: Zhurnal prikladnoy spektroskopii, v. 4, no. 5, 1966, 395-402

TOPIC TAGS: laser theory, optic transition, diatomic molecule, molecular generation, light excitation, electron transition, EXCITED STATE

ABSTRACT: The author summarizes briefly various transitions between excited states of several diatomic molecules (N_2, CO, H_2, D_2) in which laser action was effected recently and shows that the Franck-Condon principle can be used to explain the mechanisms whereby inversion is produced in these and in other molecular systems. The efficiencies of the mechansims in which inversion is produced by electron excitation from the ground state as a result of differences in the excitation cross sections and decay rates of the working levels, transitions without appreciable change in the mutual position and velocity of the nuclei in the molecule, and transitions between different electronic states. Only electronic transitions are considered, and the analysis is limited to diatomic molecules. It is shown that inversion can be produced between those electronic states whose potential-energy curves are shifted relative to each other and relative to the potential-energy curve of the ground state. The dif-

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ferent experimentally observed transitions are analyzed from this point of view. It is concluded that in all cases the principal role in inversion production is played by the direct excitation with electrons, and perhaps by cascade optical transitions. The possibility of other transitions in H_2 and CO capable of producing laser action are discussed. The prospect of producing inversion by optical excitation are discussed, with I_2 as an example. The author thanks the late Professor V. A. Bashmlin for interest in the work, and S. G. Rautian, I. I. Sobel'man, and I. M. Knyazev for useful discussions. Orig. art. has: 1 figure and 3 tables.

SUB CODE: 20/ SUBM DATE: 05Jan65/ ORIG REF: 010/ OTH REF: 022

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L 34068-66 FBD/EWT(l)/EEC(k)-2/T/EWP(k) IJP(c) WG

ACC NR: AP6019656 SOURCE CODE: UR/0368/66/004/006/0560/0561

61
B

AUTHOR: Knyazev, I. N.; Petrash, G. G.

ORG: none

TITLE: Pulsed generation in pure neon on the $2p_1$—$1s_4$ transition, λ = 5400 Å

SOURCE: Zhurnal prikladnoy spektroskopii, v. 4, no. 6, 1966, 560-561

TOPIC TAGS: microwave generator, quantum generator, gas laser

ABSTRACT: Pulsed laser action on the green line in pure neon is described and a probable mechanism for the formation of population inversion is given. The generation was observed at a neon pressure of 0.3 to 10 mm Hg. Optimum pressure was about 4 4 mm Hg. The laser, which was of standard design, was excited by high-voltage (up to 35 kv) pulses. A discharge tube with an inner diameter of 15 and 7.5 mm and an active length of 125 cm was used. The generation was observed at the beginning of the current pulse. The pulse duration was about 100 nsec. The gain, which was determined with the aid of absorbing filters placed in the cavity, reached 2 to 3 per meter. The measurements showed that the generation line coincided approximately with the neon line at λ = 5400.56 Å, corresponding to the $2p_1$—$1s_4$ transition. At not too small currents the 2p levels of neon are not occupied by transitions from the ground level, but primarily from the 1s levels. From this group of levels, $1s_2$ and $1s_4$ are resonance levels and $1s_3$ and $1s_5$ are metastable levels. It is supposed that

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L 61886-65 EWA(k)/FBD/EWG(r)/EWT(l)/EEC(k)-2/T/EEC(b)-2/EWP(k)/EWA(m)-2/
EWA(h) Pm-4/Pn-4/Po-4/Pf-4/Peb/Pi-4/Pl-4 SCTB/IJP(c) WW
ACCESSION NR: AP5019210 UR/0056/65/049/001/0016/0023

AUTHOR: Bazhulin, P. A.; Knyazev, I. N.; Petrash, G. G. 44 44 44 66 64 B

TITLE: Stimulated emission of hydrogen and deuterium molecules in the near-infrared spectral region

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 49, no. 1, 1965, 16-23

TOPIC TAGS: stimulated emission, laser, population inversion, gas laser 25, 44

ABSTRACT: Laser action was attained for the first time in D_2 and HD gases by means of a high-voltage excitation. The wavelengths of the emission lines from H_2 determined earlier by the authors (ZhETF, v. 47, no. 4(10), 1964, 1590) and redetermined with a greater degree of accuracy in the present experiments, and those of D_2 and HD observed for the first time are listed in a table together with the band and the transition data. The first three lines for H_2 and the two lines for D_2 in the table were measured with an accuracy greater than 0.03 Å. Comparison of the experimental results with those of G. H. Dicke (column 3 of the table) shows that for these five lines the discrepancy between the two sets of data does not exceed 0.06 Å. However, for the remaining three lines of H_2 marked by an asterisk the wavelengths were meas-

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