

S/186/60/007/005/005/007
A051/A130

The extraction of rare earth ...

Taking into account that the analytical concentration of the extracting agent will be twice that of the concentration of its dimer form, equation (4) is rewritten for the equilibrium constant in the following form: ✓

$$\lg q = \lg K_p + 3 \lg [H^+]_B - 3 \lg [HA]_{org} + 3 \lg C \quad (5)$$

Equation (5) was used to evaluate the equilibrium constant for itrium, without taking into account the hydrolysis and dissociation phenomena. Table 3 shows the values of the equilibrium constants obtained for itrium. At higher acidities of the water phase, the drop in the distribution coefficients of the rare earth elements is slowed up, and then a certain increase in their values is noted. The latter is explained by the fact that with an increase in the concentration of the hydrogen ions, the mechanism of extraction itself is changed. An assumption is made that at high concentrations of hydrogen ions another extraction mechanism is present to that indicated. There are three tables, 5 figures and 10 references: 1 Soviet-bloc and 9 non-Soviet-bloc. The four recent English language pub-

Card 6/12

The extraction of rare earth

S/186/60/002/005/005/017
A051/A130

lications read as follows: D. Dyrssen, Acta Chem. Scand., 11, 7, 1277, 1957; L. Selmi, F. Fuss, Chim.ind., 40, 193, 1958; C. F. Coleman, J. Phys. Chem., 62, 2, 129, 1958; J. R. V. Warer, Phosphorus and its Compounds, 1, N.Y.L., 1958.

Table 1: (1) Relationship of the distribution coefficients of ittrium and europium to the concentration of the nitric acid. (2) Element, (3) Concentration of HA (in M); (4) Diluent; (5) Equilibrial Concentration of HNO_3 in the water phase, (in M); (6) Distribution Coefficient K_p ; (a) kerosene; (b) benzene; (c) benzene.

Card 7/12

KORPUSOV, G.V.; YESKEVICH, I.V.; IATRUSHEVA, Ye.N.; YERCHET'KOV, V.V.;
ALEKSEYEVA, L.R.

Regularities in the extraction distribution of rare earth elements
in neutral solutions. Ekstr.; teor.,prim.,app. no.2:117-140 '62.

(MIRA 19:9)

(Rare earths)

(Extraction (Chemistry))

LEVIN, V.I.; KORPUSOV, G.V.; MAN'KO, N.M.; PATRUSHEVA, Ye.N.; PROKHOROVA, N.P.;
PLATNOV, G.F.

Extraction of tetravalent cerium by organic solvents. Atom. energ.
15 no.2:138-146 Ag '63. (MIRA 16:8)
(Extraction (Chemistry)) (Cerium)

ACCESSION NR: AP4011239

S/0286/64/000/002/0014/0014

AUTHOR: Korpusov, G. V.; Patrusheva, Ye. N.; Kry*lov, Yu. S.

TITLE: A method of europium extraction. Class 12, No. 159811

SOURCE: Byul. izobret. i tovarn. znakov, no. 2, 1964, 34

TOPIC TAGS: europium, europium extraction method, element extraction method, rare earth element, rare earth metal, rare earth metal extraction europium extraction

TRANSLATION: The patent describes a method of extracting europium from a mixture of rare earth elements by treating their aqueous water solutions with a reducer, for example with zinc dust. For raising the separation factor of the europium, the aqueous water solutions, after reduction of the europium, are subjected to extraction by means of an agent such as tributyl phosphate.

DATE ACQ: 14Feb64

SUB CODE: EL

ENCL: 00

SUBMITTED: 27Nov62

NR REF SOV: 000

OTHER: 000

Card 1/1

PATSAYEVA, V.A.

Calculating the fluctuations of the horizontal velocity of the
wind in the free atmosphere based on radiowind observations.

Trudy TSAO no. 41:82-85 '62.

(MIRA 16:10)

RPFZHNEVA N.Ya., LEVIN V.I., MOSEVICH A.V., PATRUSHEVA, Ye.A.,
MAN'KO, N.Ye.: KHC 60890 1.7.

Separation of promethazine from a mixture
of fission products by the butyl phosphate extraction. Radiokhimiya
vol. 15, no. 6, 1968, p. 114. UMLA 8, 1968

PATRUSHEVA, Ye.N.; SHEKHNEVA, N.Y.; KOPPELOV, G.V.

Regularities in the distribution of cesopium between nitric
acid solutions and some organophosphorus compounds. Radiokhimiya
6 no.3:276-280, 1964. (MIRA 18:3)

ACCESSION NR: AT4035164

S/0000/63/000/000/0195/0210

AUTHOR: Korpusov, G. V.; Patrusheva, Ye. N.

TITLE: Extraction methods for the separation of the rare-earth elements

SOURCE: AN SSSR. Institut geokhimi i analiticheskoy khimii. Redkozemel'nyye elementy* (Rare-earth elements). Moscow, Izd-vo AN SSSR, 1963, 195-210

TOPIC TAGS: rare earth, rare earth extraction, rare earth analysis, cerium, promethium, europium, yttrium, tributyl

ABSTRACT: In an extensive review of the extraction and separation of the rare-earth elements (cerium, promethium, europium, yttrium) with neutral organophosphorus compounds such as tributyl phosphate and diisamylmethyl phosphonate, the authors discuss the equilibrated separation of the nitrates between two phases, the kinetics of the establishment of this equilibrium and the dynamics of the separation process. A study of the distribution of the individual elements gives basic information as to the composition of the extracted compounds the relationship between the distribution coefficient and the composition of the phases, and other characteristics of the system. Data on the variation in the tributyl phosphate ratio during the extraction of rare-earth elements of the cerium subgroup in relation to the concentration of the salting-out agents are tabulated. The

Card 1/2

BREZHNEVA, N. Ye.; KORNEICOV, I. V.; LAFIENBERG, Ye. N.; PROKHOROVA, N. I.; KRYLOV, V. I.

"Extraction of radioactive fission products."

report submitted for print. Izv. Vsesoyuzn. Nauch. Tsentra Atomn. Energii, Seriya
31 Auk - September.

PATRUT, ION

Geology and tectonics of the region: Valea de Munte-
 Carminis-Busteni. Ion Patrut, *Ascar, com. geol.*
Rep. populara Romina 28, 9-98(1956). A lenticular
 calcite (I) found in this region contains: total carbonate
 91.7%, MgCO₃ 4.0%, and FeCO₃ 0.40%. This I furthermore
 contains Fe₂O₃ 19.64 and silicates 18.01%, thus the I
 ought to be classified as sphaeroiderite. A cinerite (II) of
 this region contains SiO₂ 20.00, TiO₂ 0.25, Al₂O₃ 13.78,
 Fe₂O₃ 2.35, FeO 0.84, MgO 2.10, MnO 0.03, CaO 1.74,
 Na₂O 2.13, K₂O 1.33, Li₂O 0.03, BaO 0.05, P₂O₅ 0.025,
 SO₃ 0.06, H₂O - 7.08, H₂O + 7.07%, with C and CO₂
 not detd. This analysis shows that this II is closely related
 to andesite. 123 references. Werner Jacobson

M1

P. 4.

Production of ammonia from natural gas. Jean Vergues
and Marcel Patry. *Mémoires* 4, No. 0, 31-5(1950), cf. C.A.
44, 110930--A 600,000 cu. m. per day plant is described
Albert E. Soria

PATRYAS, W.

Influence of oxygen and hydrogen on the thermodynamic properties
of an impregnated cathode. Paper Inst. Electron. Phys. 5, no. 12, 1975
16..

Department of Vacuum Physics of the Industrial Institute of
Electronics, Warsaw. Submitted February 1975.

KORTHALS, Edmund; PATRYCY, Lech

Contribution to the study of air-borne infections in stomatological practice. Wiad. lek. 18 no.11:931-934 1 Je '65.

1. Z Katedry Stomatologii 2 Centr. Szpitala Klin. Wojskowej AM
(Kierownik: doc. dr. E. Korthals).

PATRYN, Janusz

Retroperitoneal cyst originating from the urogenic rudiment.
Pol. przegl. chir. 36 no.8:1025-1027 Ag '64.

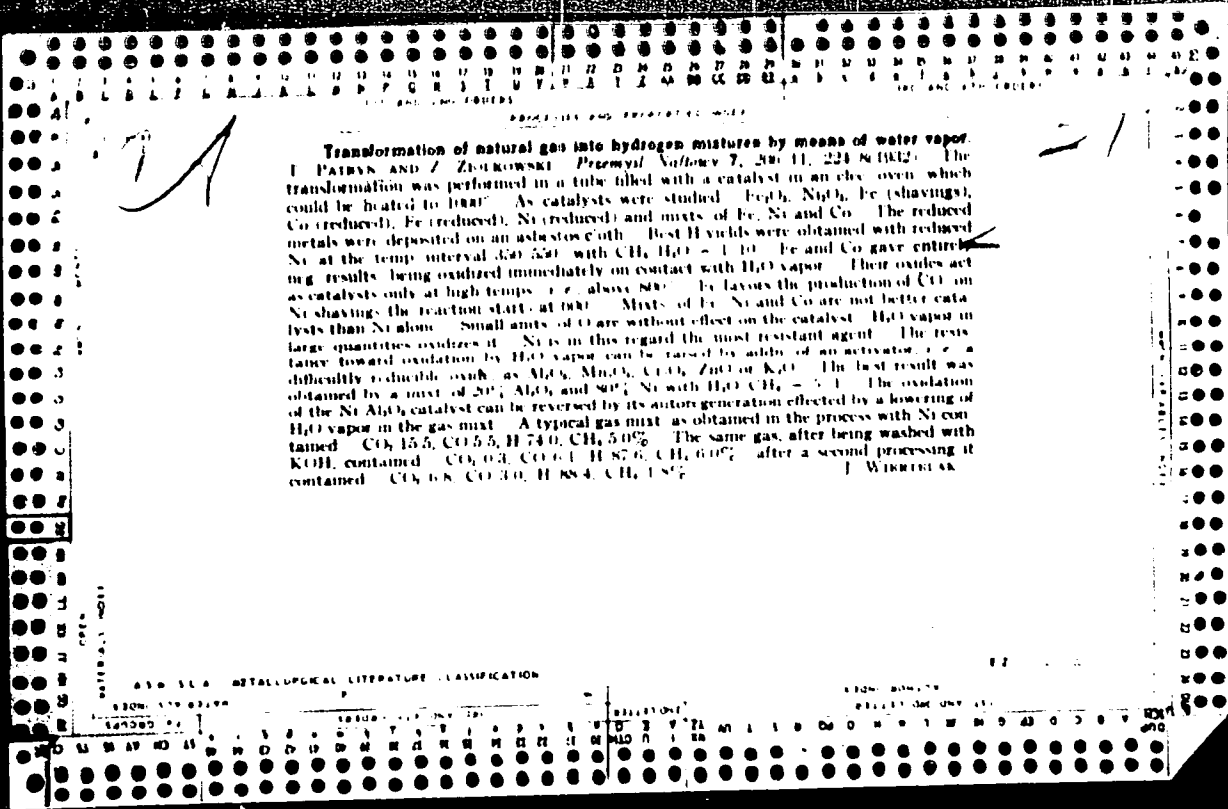
1. Z Oddziału Chirurgicznego Szpitala Miejskiego w Wieluniu
(Ordynator: dr Z. Patryn).

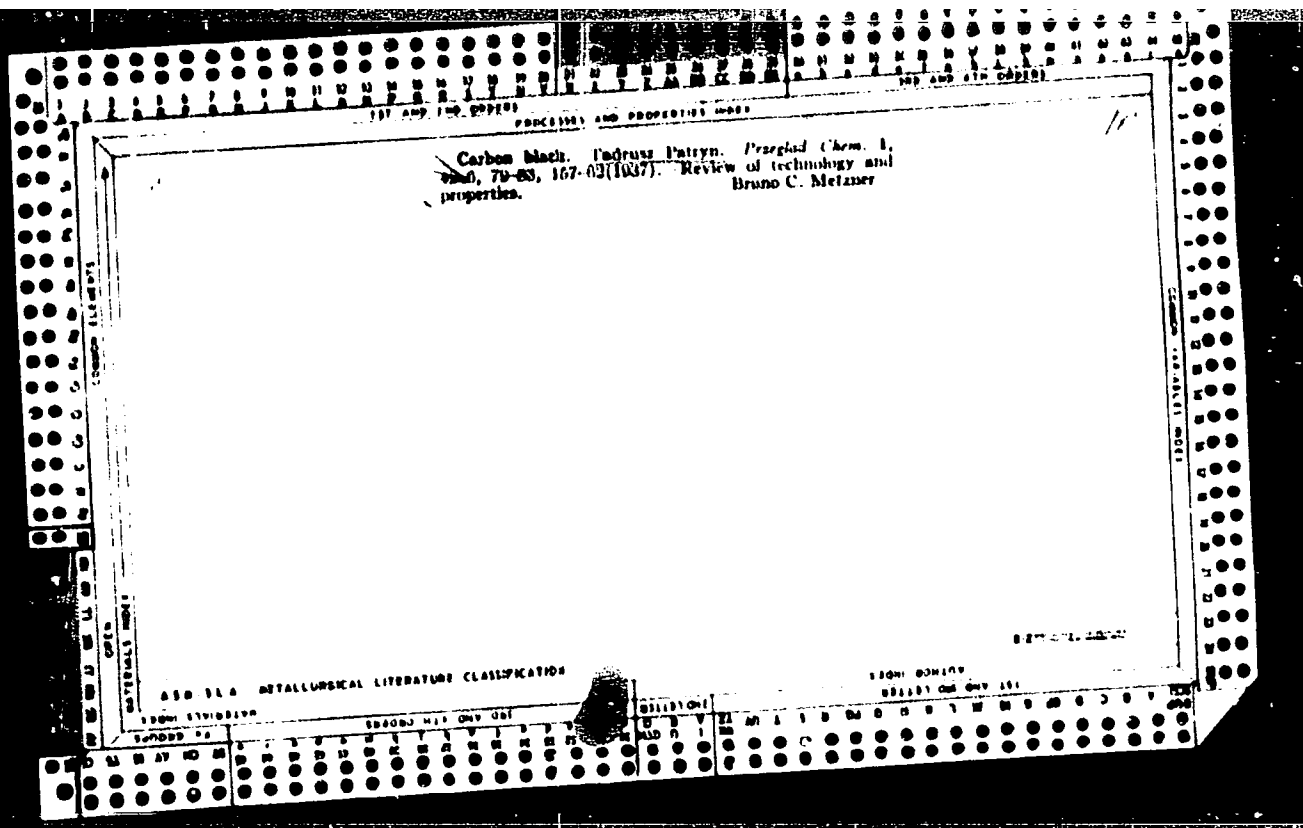
~~SECRET~~, R.

The following information was obtained from a review of the files of the
radio plant in Moscow.

1. 931 (tele-radio). 7. 2, n. 1, 1. 1. 1. 1. 1. 1. 1. 1.

Length, Index: 1. 2. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.
February 1, 1968





BC

B-I-2

Determination of the activity of lampblack, based on determination of its adsorptive power for carbon tetrachloride vapour. T. PATRYN (Pracmysl Chem., 1938, 22, 444-448).—The activity (with respect to rubber) of lampblack is \propto its adsorptive power for CCl_4 . R. T.

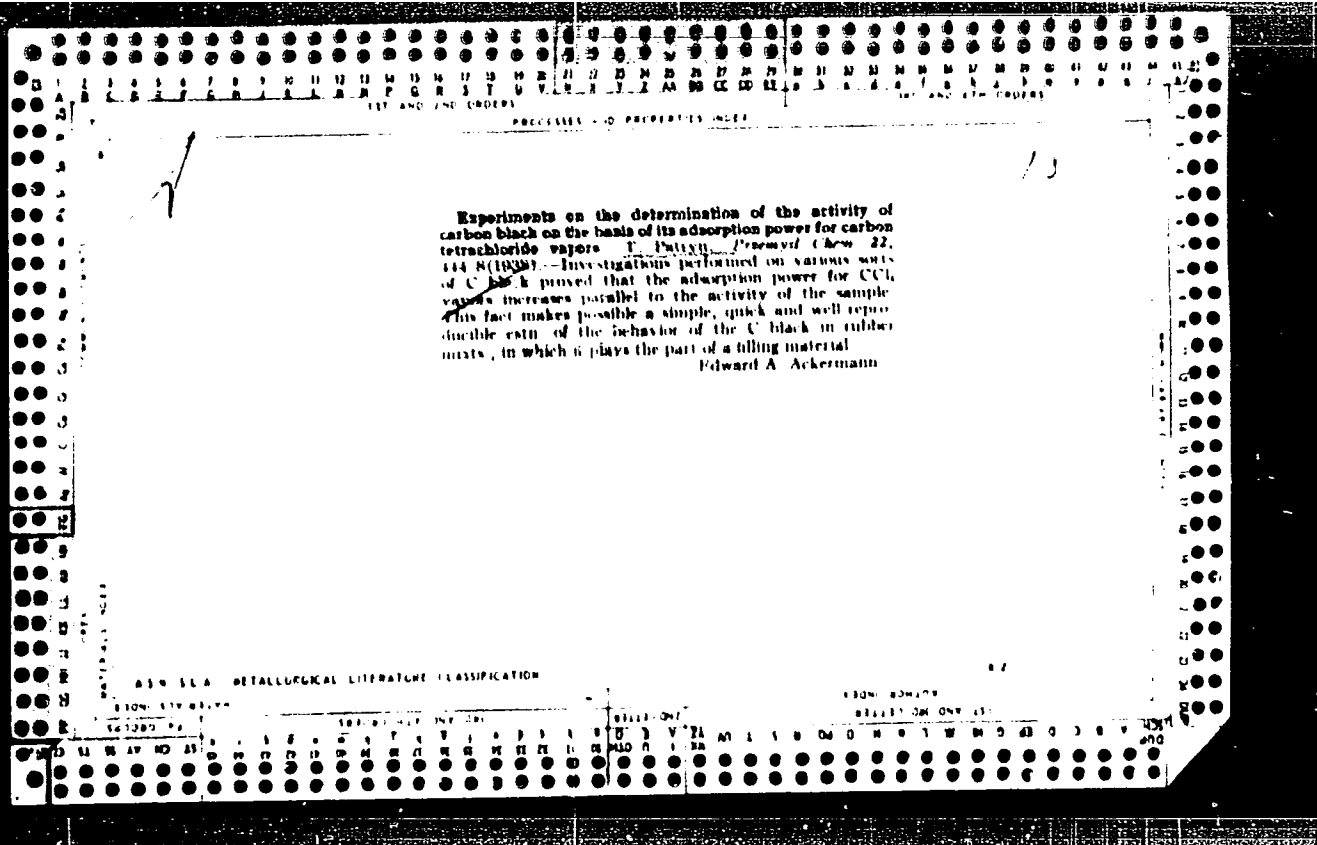
COMMON ELEMENTS

MATERIALS INDEX

ASD-3LA METALLURGICAL LITERATURE CLASSIFICATION

ROOMS

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CA

30

Some physicochemical characteristics of carbon blacks
 T. Patryn and S. Pilat. *Coal, Lignite and Rubber* (U. S. S. R.) 1960, No. 10, 11-16; cf. C. A. 33, 3076. Various types of C black, including those from CaH₂, C₂H₄ and natural gas, and also lampblack, were tested for their adsorption capacity of CCl₄. The C blacks may be divided into active and inactive grades, depending on their maximum adsorption. Only 1 type of C black which had a very high adsorption capacity proved to be inactive in rubber. The heat of wetting of C black with CCl₄ was also determined and a striking parallelism was observed between maximum adsorption and heat of wetting. No relation was found between the activity of a C black in rubber and its adsorption of linseed oil. The temps. of autoignition of the C blacks were also determined. It is possible to determine the origin of C blacks by the ignition temp. Those obtained in a reducing atm. had a high temp. of ignition (C black from CaH₂ ignited at 616°), thermal C blacks had a range of 449-486°, and lampblacks obtained in an oxidizing atm. but with a poorly developed surface had a range of 362-392°. Active C blacks obtained by incomplete combustion of natural gas were ignited at 313-324°. These C blacks which had good pigmenting qualities and were deep black had relatively low temps. of ignition, and belonged to a

sep. class. The ignition temp. depended more on the method and temp. of prepn. of C black than on the development of surface. Addition of mineral salts such as NaCl and K₂CO₃ lowered the ignition temp. considerably. No relation was established between the elec. cond. and the activity of the C blacks. H. Z. Kamich. *Physical characteristics of carbon blacks*

AND OTHER METALLOGICAL LITERATURE CLASSIFICATION

I. 17580-63

EWP(a)/EWT(m)/EDS AFFTC/ASD JD/JG

ACCESSION NR: AP3005222

3/0089/63/015/002/0138/0146

AUTHORS: Levin, V. I.; Korpusev, G. V.; Man'ko, N. M.; Patrusheva, Ye. N.;
Prokhorova, N. P.; Flatnov, G. F. 59

TITLE: Extraction of tetravalent ceriumⁿ with organic solvents.

SOURCE: Atomnaya energiya, v. 15, no. 2, 1963, 138-146.

TOPIC TAGS: cerium, tetravalent cerium, organic solvent, ozone, diethyl ether, nitromethane, tributyl phosphate

ABSTRACT: Authors studied the oxidation of small quantities of cerium and the mechanism of the extraction precipitation of microamounts of radioactive cerium. Authors showed that the use of ozone is most expedient for the oxidation of cerium, as it does not contaminate the solution by extraneous ions. The extraction of Ce(IV) by diethyl ether, nitromethane, and tributyl phosphate was studied, and it has been shown that in the first case, cerium is extracted as saturated cerium acid. In the latter two cases, at low HNO₃ concentrations, cerium is extracted as nitrate whereas at high concentrations it is extracted as H₂[Ce(NO₃)₆]. The constants of the complex formation of Ce(IV) with the nitrate ions were estimated. Orig. art. has: 16 figures, 3 tables and 7 formulas.

Card 1/2

PATRUSHEVA, YE. N.

PAGES 1 BOOK EXPLANATION 507-4073

Methody polucheniya i izmereniya radioaktivnykh preparatsiy, sformirovannyye v Institut Khimii i Mekhaniki, SSSR, 1960, 307 p. English slip inserted, other copies printed.

General Ed.: Valeriy Petrovich Bocharov; Ed.: M.A. Sagarov.

Purpose: This collection of articles is intended for scientific and technical personnel working in the production of radioactive isotopes.

CONTRACT: The collection contains original studies on methods of obtaining and measuring radioactive preparations. According to the Foreword, the articles contain new data and discuss methods of practical interest to the extent of several survey articles. The collection is intended for use in the production of radioactive isotopes and inorganic diisotopic preparations, and other methods of carrier-free isotopes. Also discussed are methods of chemical preparations. Also discussed are methods of determining the number of tagged organic compounds, problems in the analysis of tagged organic compounds, the solubility and relative measurement of activity, and the radioactive methods and instructions for new instruments and equipment, the articles are included. V. I. Levin, Candidate of Chemical Sciences, and V. P. Solonov, Candidate of Natural Sciences, Institute of Chemical Sciences, are mentioned and V. I. Shostakov, Candidate of Chemical Sciences, are mentioned as having helped directly in the selection and preparation of the material for publication. References accompany each article.

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PATRUSOV, A.A., inzh.

Production of agloporite in Karaganda. Sbor.trud.VNIINSM
no.6:151-158 '62. (MIRA 15:12)

1. Karagandinskiy sovet narodnogo khozyaystva.
(Karaganda--Aggregates (Building materials))

PATRUT, I.; POPESCU, M.; TEODORESCU, C.; MOLNAR M.

Geology of Moesio Platform. Stratigraphy. Petrol si gaze 12 no.11:
481-493 N '61.

(Rumania--Geology, Stratigraphic)

PATRYN, Emil, dr.

Analysis of the factors influencing the choice of transportation means
and ways for goods in the Polish foreign trade. Tech gosp larska 11
no.5:131-132 '61.

1. Szkoła Główna Planowania i Statystyki, Warszawa.

PATRYN, Janusz

Primary cancer of the small intestine. Pol. przegl. chir. 35
no.5:519-520 '63.

1. Z Oddziału Chirurgicznego Szpitala Miejskiego w Wieluniu
Ordynator: dr Z. Patryn.

(INTESTINAL NEOPLASMS)

(INTESTINE, SMALL)

(SURGERY, OPERATIVE)

PATRZALEK, Zenon, mgr., inż.

The machine tools factory in Tarnobrzeg. Przegl mech 20
no.19/20:602-603 '61.

1. Tarnobrzaska Fabryka Obrabiarek.

1111
PATS, B.M.

On the occasion of M. V. Gofman and A. I. Golub's paper
"Catalytic oxidation of basic polycyclic compounds of coal
tar and its fractions" Zhur.prikl.khim. 30 no.8:1264-1265
Ag '57. (MIRA 11:1)
(Oxidation) (Coal tar products)
(Gofman, M.V.) (Golub, A.I.)

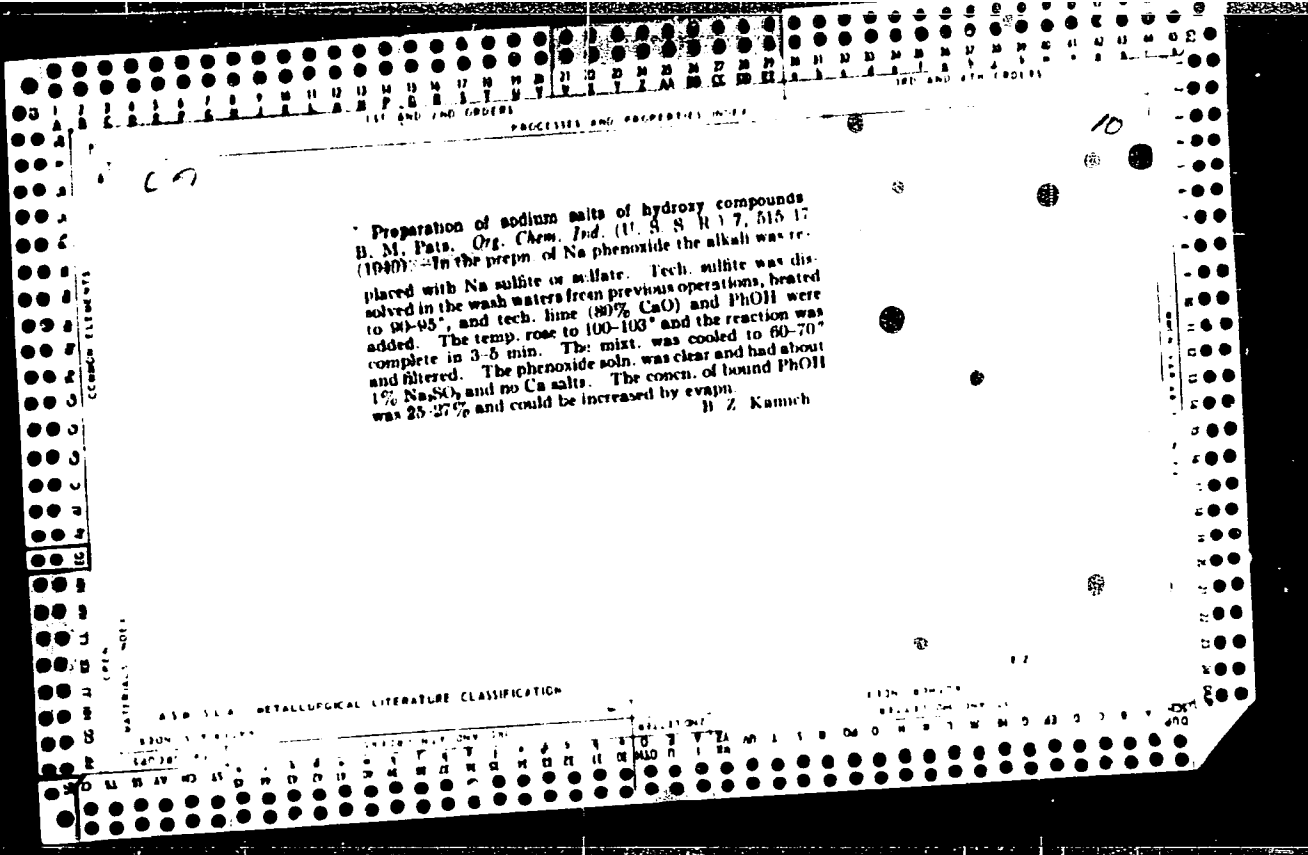
PROCEDURES AND PROPERTIES INDEX

7

Determination of acenaphthene. B. M. Fats, I. I. Nischenbaum and I. Ya. Fedorova. *Org. Chem. Ind. (U. S. S. R.)* 7, 244-7 (1940). — Heat 1 g. of the sample in 15 ml. of 95% H_2SO_4 at: to boiling and add a soln. of 3.5 g. picric acid in 20 ml. ac. Let cool to 20° and allow to crystallize. Filter through a Buchner, wash with 10 ml. ac. and dry at 35–40° to const. wt. Calc. the % of acenaphthene (A) from $A = (B + K) 40.2$ where B is the wt. of the picrate and K is a correction factor for the soly of the picrate in the reaction medium. The results are const. and reproducible. The method is not suitable for noncryst. samples and particularly for small amts. of acenaphthene. For such cases the following modified naphthalic method is used. Mix 2 g. of the sample with 24 ml. of glacial HOAc and heat to 60–65° on a water bath and add 20 g. of finely ground $Na_2Cr_2O_7$ in the course of an hr. while stirring. Reflux the mixt. on a H_2SO_4 bath to a temp. of 118°, hold at 118° for 1 hr., add 40 ml. of water and allow to stay overnight. Filter, wash with 15 ml. water and dissolve in 80 ml. of 5% NaOH at 70–80° (for oils contg. less than 50% acenaphthene use 30 ml. of 5% NaOH). Filter the soln. and in case the sample is an oil treat in a separatory funnel with 5 ml. benzene or Et_2O , wash the cat. 2–3 times with small portions of water and add the wash waters to the main soln. Acidify the soln. with concd. HCl to sep. the naphthalic acid, filter, dry at 130–135° and weigh as naphthalic anhydride. Calc. from $A = BK (0.777 \div 100)^2$, where B is the wt. of anhydride and

K is the correction factor. The picrate method should be used for cryst. products contg. not less than 45% acenaphthene and the naphthalic method for oils and cryst. prod. contg. less than 50%.
H. Z. Kamich

METALLURGICAL LITERATURE CLASSIFICATION



PATS, B.M.

New antiparasitic preparations from coal tar. V. A. Fortushnyi and B. M. Pats. *Veterinariya* 32, No. 8, 74-5 (1955).—Insecticidal and acaricidal properties were found in this preparation, which was employed in dusts or oil solutions on infected horses and rabbits with various specimens of lice, moths, and ticks. The parasites are killed outright after a rapid onset of paralysis. G. M. Kosolapov

3

AA
MST

PATS, B.M.

On the article of N.M.Karavaev, D.D. Zykov, IU. N. Garber "Study of phase equilibria in the system: naphthalene -- β -methyl-naphthalene. Ukr.khim.zhur. 22 no.2:265 '56. (MLRA 9:8)

1. Ukrainskiy nauchno-issledovatel'skiy uglekhimicheskiy institut.
(Phase rule and equilibrium) (Naphthalene)
(Karavaev, N.M.) (Zykova, D.D.) (Garber, IU.N.)

PATS, B.M.

Final ✓ Solubility of naphthalene in coal-tar oils. B. M. Pais and
L. I. Khlopov, *Ukrain. Khim. Zhur.* 44, 529-31 (1950)
(in Russian); the amt. of C₁₀H₈ is detd. by an accurate
method; the sol. in C₆H₆, toluene, C₆H₅Me, and various
coal-tar distillates in accord with the Scherer-LeChatelier
relation. The necessary exptl. data were detd. cry-
scopically in H₂O. John Howe Scott

2

AUTHOR: Pats, B.M.

68-5-8/14

TITLE: Comparison of various schemes of production of technical naphthalene. (Sravneniye razlichnykh skhem polucheniya naftalina).

PERIODICAL: "Koks i Khimiya" (Coke and Chemistry), 1957, No.5, pp.39-41 (U.S.S.R.)

ABSTRACT: Present methods of naphthalene production are outlined. The distribution of naphthalene in various fractions during industrial distillation of tar is given in Table 1 and the composition of the naphthalene fraction in Table 2. Mechanical and rectification methods of production are compared. It is concluded that with the first method 98% technical naphthalene can be obtained from raw materials of the Southern and Eastern works and with the second 97% naphthalene from Eastern raw materials and 92% from Southern raw materials. If intermediate products are also treated the first method gives a 96% yield (on naphthalene in the initial fraction) while the second method - 90%. Moreover, the second method requires washing with concentrated sulphuric acid in the proportion of 13% of the initial naphthalene fraction. Costs of production are lower for the first method. Thus the mechanical method appears to have a number

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PATS, B.M.; SHILINA, N.I.

Economics of the production of phthalic anhydride from various
grades of industrial naphthalene. Koks i khim. no.2:43-48
'64. (MIRA 17:4)

1. Ukrainskiy uglekhimicheskiy institut.

PATS, B.M.

Discussing K.M.Vaisberg and others' article "Use of gas-liquid chromatography for the analysis of the composition of various naphthalene containing products." Koks i khim. no.3:60 '64.
(MIRA 17:4)

1. Ukrainskiy uglekhimicheskiy institut.

Pat. 111
VOL'FSON, B.N.; PATS, B.M.

V.M. Tamarin's method for designing naphthalene fraction
crystallizers. Koks i khim. no.8:63-64 '57. MLRA 10:8)

1. Ukrainskiy uglekhimicheskiy institut.
(Crystallization) (Naphthalene)

PATS, B.M.

Coal-tar phenols and processes of their recovery. Zhur. VKHO 5
no.1:32-38 '60. (MIRA 11:4)
(Coal-tar products) (Phenols)

S/063/60/005/001/010/010/XX
A051/A029

AUTHOR: Pats, B. M.

TITLE: Phenols of Coal Tar and Means of Their Application

PERIODICAL: Zhurnal Vsesoyuznogo Khimicheskogo Obshchestva im. D. I. Mendeleeva,
1960, Vol. 5, No. 1, pp. 32-38

TEXT: In 1957 world production (not including the USSR) of phenols based on the products of coal coking was no less than 100,000 tons. The processing method has a significant effect on the yield of phenol produced from coal (Ref. 1). The phenol yield obtained by the 3 main methods of processing is shown in Table 1. It is seen that the hydration method gives the highest yield and the coking method the lowest. In low-temperature coking of coal, resins with a high phenol content are formed. This fact confirms the known theory on thermal reactions of phenol dealkylation and formation of hydrocarbons from them during the high-temperature coking process. Fig. 1 shows that with an increase in the temperature in the pyrolysis chamber the phenol yield drops and that of naphthalene increases. These regularities are also confirmed in industrial practice of coal coking. Phenols obtained from high-temperature coal coking mainly consist of mono-atomic phenols, ✓

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Phenols of Coal Tar and Means of Their Application

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which renders them different from phenols obtained from semi-coking, lignites, peat and shale tars, where in addition to mono-atomic phenols multiatomic ones are also present. Coal phenols consist of many other oxy-compounds found in the resin in addition to phenols, cresols and xlenols. Phenols, such as iso-pseudo-cuminol, symmetrical m-methylethylphenol, 3, 4, 5-trimethylphenol were shown to be present in the tar (Ref. 6). Amongst the relatively little investigated phenols of the anthracene fractions the following were found to be present: oxy-derivatives of diphenyl, diphenylene oxide, fluorene and phenanthrene. The tar waters in coke-chemical plants are considered to be a valuable phenol source, especially of phenol and cresols, since they partially dissolve in this water (Ref. 14, 15). The alkaline method is the most universal one for phenol formation from fractions or oil. Phenols have a different acidity depending on the number, size and position of the alkyl groups. This property was the subject of numerous investigations dedicated to the selective extraction of phenols (Ref. 1). The alkaline method of phenol extraction from fractions or oils is complicated by the many phenomena accompanying the main process, such as: the colloidal dissolution of neutral compounds in phenolates, emulsification of oils in phenolates, dissolution of phenolates in oils, hydrolysis of phenols, formation of complex compounds from phenols and alkalies, etc. The author stresses the fact that the

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application of effective extracting apparatus opens many possibilities for using other phenol-extracting methods besides the alkaline one. Phenols extracted from coal oils contain admixtures, such as pyridine and quinoline bases, neutral hydrocarbons, sulfur compounds, etc. They require special purifying methods. The elimination of the thiophenols causes particular difficulty. Their presence in phenols obtained at coke-chemical plants in the South of the USSR is shown in Table 6. It is pointed out that the thiophenols are unwanted admixtures, especially those with a high boiling point, which cause corrosion of the equipment used in the rectification of phenols (Ref. 21). In order to obtain phenols from phenolates, the latter are most frequently decomposed with carbon dioxide. This method allows for the regeneration of the alkali from a sodium carbonate solution, which is formed from the decomposition of the phenolates. Rectification is the final stage in the production of phenols. Considering the complex composition of the initial raw phenols and also the demand of consumers, the modern set-up for rectification ensures the production of a wide variety of phenol products. A number of phenols having close boiling points require special methods for their separation, where the different acidity of the phenols is utilized, as well as the different rate of hydrolysis of their sulfo-acids, etc. For example, in order to separate the m- and n-cresols and isomers of xlenols, the extraction method, sulfonation and

Card 3/7

Phenols of Coal Tar and Means of Their Application

S/063/60/005/001/010/010/XX
A051/A029

formation of molecular compounds are recommended, as well as the formation of tertiary butyl derivatives. Considering the comparatively great extent of phenol processing, lowering their loss during production can serve as an important source for increasing the resources of phenol products. The main consumer of coal phenols is the phenol resin industry. The rate of reaction and the reactivity of the resin depend on the nature of the phenols taking part in the reaction of semi-condensation with aldehydes. Data given in Ref. 24 show that for the production of resin resins tri-functional phenols or phenol mixtures containing large quantities of these compounds (phenol, m-cresol, 3,5-xyleneol) should be used. The different reactivity of phenols presents a problem for the coke-chemical industry in supplying the plastics industry with phenol products with a constant composition and consisting of as few components as possible. Alkylated phenols containing comparatively long side chains yield interesting resins which are compatible with fatty oils and soluble in hydrocarbons. A large quantity of phenols, particularly cresols, is used for the production of esters of phosphoric acids used, in turn, as plasticizers and solvents (tricresolphosphate), etc. Investigations showed that by halogenating xyleneols, the bactericidity of phenols (which has been known to exist for some time) can be increased by several times. At the present time various bactericide preparations are obtained based on phenols or their derivatives.

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A051/A029

Phenols of Coal Tar and Means of Their Application

It is stated that phenols directly or their derivatives (diphenyldithiophosphoric acid) are effective reagents for the flotation of non-ferrous metal ore and coals. Surface-active substances and tanning materials are synthesized from a phenol base. Some phenols are used as anti-oxidizing precipitating agents for fuel oils and synthetic rubber. In analyzing the production problems and application of coal phenols, the author makes the following suggestions: 1) increasing the phenol output by reducing their losses during production, 2) increasing the variety of phenol products, 3) improving the quality of the phenol products, 4) developing methods for using larger quantities of phenols with a high boiling point which have not found application until now. There are 11 tables, 1 graph and 26 references: 9 Soviet, 4 English, 13 German.

Table 1:
Phenol yields in various coal processing methods (in kg, from 1,000kg of dry coal):

Phenols Фенолы	coking Коксование			semi- Полукоксование coking			hydra- Гидрирование		
	tar смола	phenol Фенольные воды waters	всего total	tar смола	phenol Фенольные воды waters	всего total	масла oil	phenol Фенольные воды waters	всего total
Phenol Фенол	0,05-0,25	0,05	0,10-0,30	0,6	0,15	0,75	7-9	1,2	8,2-10,2
Фенолы C ₆ -C ₈ Phenols	0,2-0,85	0,12	0,32-0,97	5,0	0,50	5,50	25-35	2,5	27,5-37,5

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Phenols of Coal Tar and Means of Their Application

S/063/60/005/011 010 111 100
A051/A029

Table 6:
Sulfur content in phenol products

designation	Content S, in %
Phenols from the phenol fraction	0.05
Phenols from the naphthalene fraction	0.07
Phenols from the absorption fraction	1.38
Phenols from the anthracene fraction	1.41
Tri-cresol	0.06
Commercial xylenols	0.14

✓

Card 7/7

PATS, B.M.

Synthetic surface active agents based on coke chemical
raw materials. Khim.prom. 2-109-112 My '60. (MIRA 13:7)
(Surface active agents)

FATS, B.M.; NEPOMNYASHCHAYA, A.S.

Thionaphthene, a sulfur compound associated with naphthalene. *Khim.*
prom. no.8:666-668 D '59. (MIRA 13:6)

1. Ukrainskiy nauchno-issledovatel'skiy uglekhimicheskiy institut.
(Thianaphthene)
(Naphthalene)

SOV/58-59-9-11/28

AUTHORS: Pats, L.L., Nepomnyashchaya, A.S. and Filopkova, L.I.

TITLE: Crystallisation of the Anthracene Fraction

PERIODICAL: Koks i Khimiya, 1959, Nr 9, pp 41 - 45 (U.S.S.R.)

ABSTRACT: Solubilities of anthracene, carbazole and phenanthrene in anthracene oil were determined (Figure 1) and the process of crystallisation of anthracene fraction was investigated. The results obtained indicated that on cooling of the anthracene fraction, the solid phase is formed mainly from anthracene, carbazole, phenanthrene, fluorene and diphenylsulphide which form solid solutions. All other compounds remain in the liquid phase and only due to the presence of the latter in the product are usually found in the crystallised material. Step-wise crystallisation or crystallisation in the presence of solvents permit reducing the yield of raw anthracene and improve its composition (Tables 3, 4 and 5). The fine crystalline structure of raw anthracene is caused by a low content in the anthracene fraction of crystallising components, presence of benzene insoluble substances (which act as crystallisation nuclei) and a large proportion of the fraction boiling above 360°C which increased the viscosity of the medium. Therefore, in order

Card 1/2

SOV/68-59-9-12/22

Crystallisation of the Anthracene Fraction

to obtain easily filtered raw anthracene on continuous tar distillation plants it would be advantageous to produce two anthracene fractions of which only the first one is submitted to crystallisation (table 6).

There is 1 figure, 6 tables and 5 references, 3 of which are Soviet and 2 German.

ASSOCIATION: UKRAIN

Card 2/3

PATS, B.M.; KHLOPKOVA, L.I.

Electrometric method for determining salts in tar and tarry water in
by-product coking plants. Koks i khim. no.10:44-47 ' 58.

(MIRA 11:11)

(Salts--Analysis) (Coal tar)

AUTHORS: Pats, B.M., Nepomnyashchaya, A.S.,
Khlopkova, L.I. (UKhIN) and Mich, I.N. (ISNII MP3)

TITLE: On Technical Requirements from Coal Tar Oils Used for
the Preservation of Wood (O tehnikheskikh trebovaniyakh
k kamennougol'nyim maslam dlya antiseptirovaniya
drevesiny)

PERIODICAL: Koks i Khimiya, 1959, Nr 4, pp 46-48 (USSR)

ABSTRACT: on the basis of studies of the requirements of
consumers regarding properties of oils used for the
preservation of wood and the possibilities of the
coking industry regarding their production, KhIN and
ISNII MP3 prepared a project of new standards for coal
tar oils suitable for the purpose (table 5). There are
5 tables and 2 references of which 1 is Soviet and
1 German.

Card 1/1

AUTHOR: Pats, B. M. 68-58-4-21/21
TITLE: Review of the book of Ya. A. Bron "Operators of
Pipe Still for Tar Distillation" (Retseziya na
knigu Ya. A. Brona "Apparatchiki trubchatogo
samoperegonnogo agregata")
PERIODICAL: Koks i Khimiya, 1958, Nr 4, pp 62-64 (USSR)
ABSTRACT: The book is published by Metallurgizdat, 1958.
ASSOCIATION: UK L.
1. Towers (Chemistry)--Operation 2. Literature--USSR

Card 1/1

AUTHORS: Pats. B.M. and Kniopkova, I.I.

SOV/68-58-10-14/25

TITLE. An Electrometric Method of Determining Salts in Tar and Residual Liquor of Coking Works (Elektrometricheskiy metod opredeleniya soley v smole i nadsmol noy vode kokso-khimicheskikh zavodov)

PERIODICAL: Koks i Khimiya, 1958, Nr 10, pp 44 - 47 (USSR)

ABSTRACT: A method of determining the total contents of salts in tars and residual liquor based on the measurements of conductivity was developed. The results obtained by the method are in good agreement with the determinations based on dry residue. The method is described in some detail. There are 1 figure, 6 tables and 6 Soviet references.

Card 1/1

AUTHOR: Fats, B.M.

00-5.-2-12/21

TITLE: Thermal Analysis of Solutions of Naphthalene in Coal Tar Oils (Termicheskiy analiz rastvorov naftalina v kamennougol'nykh maslakh)

PERIODICAL: Koks i Khimiya, 1958, Nr 2, pp 50 - 51 (USSR)

ABSTRACT: A study of the temperature of crystallisation of naphthalene solutions in coal tar oils (phenolic, naphthalene and absorption oils) in the temperature region 60 - 80 °C was carried out. The results obtained indicated that the behaviour of these systems is near to the ideal. On investigation of the usual (in practice) solutions of naphthalene in coal tar oils, satisfactory results can be obtained when using equations applicable to concentrated solutions. There are 2 tables and 4 references, 3 of which are Soviet and 1 Swedish.

ASSOCIATION: UKhIN

AVAILABLE: Library of Congress

Card 1/1

1. Naphthalene crystals - Temperature factors

PATS, B.M.

Review of I.A.A. Bron's book "Operators of tubular furnaces for processing coal tar." Koks i khim. no.4:63-64 '58. (MIRA 11:4)

1. Ukrainskiy uglekhimicheskii institut.
(Coal tar)
(Bron, I.A.A.)

AUTHORS: Vol'fson, B. N., and Pats, B. M.

68-8/23/23

TITLE: Remarks on the Method of Calculating Crystallizers for Naphthalene Fractions, Proposed by V. M. Tamarin. (Po povodu metoda rascheta kristallizatorov dlya naftalinovykh fraktsiy, predlozhenogo V. M. Tamarinym).

PERIODICAL: Koks i Khimiya, 1957, No.8, pp. 63-64 (USSR)

ABSTRACT: This is a criticism of the paper by V. M. Tamarin, published in "Koks i Khimiya", 1957, Nr.1. It is pointed out that in the formula for calculating drum crystallizers the original author made a basic error in the integration of the equation for the heat balance of the elementary layer in which the temperature difference ($t_k - t_s$) was assumed as constant. In fact t_k (temperature of crystallization of the fraction) is constant, while t_s (wall temperature from the side of the fraction) is variable, depending on the film thickness. In the calculations of the box crystallizer, V. M. Tamarin did not take into consideration differences in the heat transfer from the surface of the liquid and through the wall. The review is

Card 1/2

68-8-23/23

Remarks on the Method of Calculating Crystallizers for Naphthalene Fractions, Proposed by V. M. Tamarin. (Po povodu metoda rascheta kristallizatorov dlya naftalinovykh fraktsiy, predlozhennogo V. M. Tamarinym).

unfavourable. There is 1 table, 1 figure and 6 references, all Slavic.

ASSOCIATION: UKhIN.

AVAILABLE: Library of Congress

Card 2/2

Pats, R.G.

✓ 3303. Polarographic determination of thallium and lead in cadmium. T. V. Arce'ova, R. G. Pats and A. A. Pozdnyakova. *Sbornik Nauch. Trudov Gos. Nauch. Inst. Tsvet. Met.*, 1965, (10), 358-302; *Ref. Zhur., Khim.*, 1966, Abstr. No. 7600.—Thallium and lead are determined in metallic Cd from a single weighing. Thallium is separated by extracting the bromide with ether and is determined polarographically in aq. $\text{NH}_3 \cdot (\text{NH}_4)_2\text{S}_2\text{O}_8$ soln. Lead remains entirely in the aq. phase and is determined in 3 N HCl. The reducing potentials are—Tl, - 0.40 V, Pb, - 0.44 V, vs. the S.C.E. R. Loran

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SOV 137-58-8-18178

Translation from: Referativny zhurnal, Metallurgiya, 1958, Nr 8, p 282 (USSR)

AUTHORS: Aretve a. F. V. Pats, R. G.

TITLE: Amperometric Determination of Chromium, Vanadium, and Manganese in Titanium Alloys (Amperometricheskoye opredeleniye khroma, vanadiya i margantsa v titanovykh splavakh)

PERIODICAL: Sb. nauchn. tr. Gos. n. i. in tsvetn. met., 1958, Nr 14, pp 74-79

ABSTRACT The feasibility of amperometric titration of Cr, V, and Mn from the same test sample in the presence of a 200-fold excess of Ti is established. The titration is carried out with an 0.05N solution of Mohr's salt at +1.0 v and an $\text{pH} \approx 10$ acidity. The rate of rotation of the Pt electrode is 600-800 rpm. First, the sum Cr + V + Mn is titrated after their oxidation with $(\text{NH}_4)_2\text{S}_2\text{O}_8$ in the presence of AgNO_3 . After the titration the solution is again oxidized with $(\text{NH}_4)_2\text{S}_2\text{O}_8$, the MnO_4^- is decomposed by the addition of NaCl, and the sum Cr + V is titrated. Then the V^{4+} is oxidized with an 0.1N solution of KMnO_4 , the excess of which is reduced by the solution of Mohr's salt and the V is titrated. Mo and Al do not impede the determination.

Card 1 of 1

1. Titanium--Determination N. G.
2. Metals--Analysis 3. Sodium arsenate--Applications
4. Iodine--Titration

PATS, R.G.; SEMOCHKINA, T.V.

Rapid polarographic method of determining copper, lead, cadmium, and zinc with the use of an alternating current polarograph. Sbor. nauch. trud. Gintsvetmeta no.19:808-822 '62. (MIRA 16:7)

(Nonferrous metals—Analysis)
(Polarography)

PATS, R.G.; VASIL'YEVA, L.N.; ZAGLODINA, T.V.; SHUVALOVA, Ye.D.

Polarographic determination of lead and tellurium in technical selenium. Zav.lab. 29 no.8:928-929 '63. (MIRA 16:9)

1. Gosudarstvennyy nauchno-issledovatel'skiy institut tsvetnykh metallov.

(Lead—Analysis) (Tellurium—Analysis)
(Polarography)

S/032/61/027/003/006/025
B116/B203

AUTHORS: Pats, R. G. and Tsfasman, S. B.

TITLE: Determination of indium by means of a. c. polarographs

PERIODICAL: Zavodskaya laboratoriya, v. 27, no. 3, 1961, 266-271

TEXT: The authors developed an accelerated method for the polarographic determination of indium. The studies were conducted with the aid of a polarograph of the type "Mervininstrument", model 3. The bottom mercury was used as anode. The cathode used was a dropping mercury electrode (2.8-3.5 drops p/sec). A mixed HBr (13%) - H₃PO₄ (10%) solution was used as indifferent background electrolyte; during experiments this solution was found to be optimal. Under such conditions it is possible to measure up to 10⁻⁷ moles of In. In can still be determined in the following ratios to other metals in the solution: Fe : In = 30,000 : 1; Pb : In = 1000 : 1; Sb : In = 800 : 1; Sn : In = 250 : 1; Se : In = 60 : 1; Cd : In = 20 : 1; Te : In = 1 : 1. It should be mentioned that indium can also be determined in the presence of cadmium. The original paper gives three detailed analysis prescriptions for the determination of In (in samples with Fe : In < or > 30,000 : 1, respective-

Card 1/2

PATS, R.G.; TSFASMAN, S.B.

Determination of indium with an alternating current polarograph. Zav.
lab. 27 no.3:266-271 '61. (MIRA 14:3)

1. Gosudarstvennyy nauchno-issledovatel'skiy institut tsvetnykh
metallov i Tsentral'naya laboratoriya avtomatiki.
(Indium--Analysis)

1975
ARBEYEVA, T.V. ; POZDNYAKOVA, A.A. ; PATS, R.G.

Polarographic determination of rhenium in solutions. Sbor.nauch.
trud.GINTSVETMET no.12:94-98 '56. (MLBA 10:2)
(Rhenium) (Polarography)

PATS, P.G.

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4E3D
4E2C

Polarographic determination of thallium and lead in metallic cadmium. T. V. Aref'eva, R. G. Pats, and A. A. Fozdnyakova. *Sbornik Nauch. Trudov Gostizdati. Nauch.-Issledovatel. Inst. Tsvetnykh Metal* 1955, No. 10, 318-22; *Referat. Zhur., Khim.* 1956, Abstr. No. 7099. A method for detn. of Tl and Pb in one sample of metallic Cd is developed. For sepn. of the Tl from the basic mass of Cd and simlxts. preventing the Tl detn., the TlBr is extd. with K_2O ; Pb remains completely in the H₂O soln. Tl is detd. in a supporting electrolyte of ammoniacal $(NH_4)_2SO_4$ and Pb in a supporting electrolyte of 3N HCl. The reduction potentials: Tl-0.40 v, Pb-0.24 v. Comparative results for detn. of Tl and Pb in metallic Cd by polarographic and chem. methods are given. N. Vasil'ev

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PATS. B. G.

Polarographic determination of copper, cadmium, nickel, lead, and zinc in metallic antimony and antimony alloys, also in tin and its alloys. L. V. Araksya and B. G. Pata. *Shornik Nauch. Trudov Gosudarst. Nauch. Issledovani. Inst. Tsvetnykh Metal* 1953, No. 10, 863-7; *Referat. Zhur. Khim.* 1956, Abstr. No. 7143. -- For polarographic detn. of Cu, Cd, Ni, Pb, and Zn in alloys, whether or not contg. Co, the single sample is dissolved in aqua regia and, by addn. of Br and HBr and repeated drying, Sn and Sb are sepd. The soln. is dried. In the absence of Co, the residue is dissolved in HCl, the soln. neutralized with NH₄OH and after addn. of excess NH₄OH, Cu, Cd, Zn, and Ni are detd. polarographically. When Co is present, the residue is dissolved in a mixt. of 3 ml. HCl (1:2), 7 ml. H₂O, and 5 ml. AcOH, heated to 20°, and to it is added 0.1 ml. 3% soln. of 1-nitroso-2-naphthol. The soln. is heated on water bath at 80° for 1 hr., the ppt. is filtered, reched with H₂O, dissolved in aqua regia, neutralized with NH₄OH, and Co is detd. polarographically. The filtrate is evapd., treated with HNO₃, and Cu, Cd, Zn, and Ni are detd. After sepr. Sb and Sn, the residue is dissolved in HCl (1:1), the soln. alid., to it is added 0.3 g. H-reduced Fe, filtered, and Pb detd. polarographically. The reduction potentials are detd. in a medium of ammonia soln. of concd. NH₄Cl: for Cu 0.40 v.; Cd 0.72 v.; Ni 0.91 v.; Zn 1.24 v. in a medium of 5N HCl. See Pb detn. above.

Handwritten notes and scribbles, possibly including the number '45'.

PATS, R. D.

✓ 3456. Polarographic determination of selenium in solutions. V. A. Artyeva, A. A. Gordiyakova and H. G. Patk. *Sb. Nauch. Trudov Gos. Nauch. Inst. Tsel. Akad.*, 1950, (12), 94-98; Ref. Zhur., Khim., 1957, Akad. No. 10; 790. —Polarography of Se with a basal soln. of 4 N HCl and 4 N HClO₄ in the presence of 0.005% gelatin gives well-defined waves at 0.25 to 0.39 and -0.4 V, the heights of which are directly proportional to the concn. of Se (4-15 mg of Se per litre). Polarography with a basal soln. of 5 N H₂SO₄ gives a well-defined wave at -0.8 V for concn. of Se 4.1 to 2 mg per litre, and, with a phosphate buffer basal soln. (pH 7 to 9), a well-defined catalytic wave at -1.45 V for concn. of Se of 0.2 to 0.8 mg per litre, the wave height being proportional to concn. in each case. The presence of a 10-fold quantity of Mn and a 4-fold quantity of Cu does not cause interference. There is interference from Ca in the determination of small quantities of Se (5 to 15 mg per litre) with a basal soln. of 4 N HCl and 4 N HClO₄, if its concn. in the soln. is >1 to 2% per litre. C. D. Roberts

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PATS. R. G.

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Method of Determination of Zn by Aluminol and Silicic Acid.
 Makarova, T. V., Zaslavina, E. D., Savvatova, A. N.,
 and B. G. ... *Anal. Lab. Zhurnal. I. Produktiv*
 135-143; C. Abstr. 1957, 54, 7235. For
 Zn from Al and other metals present in Al, the method of
 Treshchev and Kishinev was used (cf. *Sovetsk. Nauch. Trudov*
Metal., 1953, (6)). The method is based
 on the formation of the zinc thiocyanide complex with ethyl
 alcohol, ethyl acetate, and benzene. The Zn thiocyanide complex,
 data of Zn can be carried out by two methods: (a) by extraction
 and titration with dithionite in CCl₄ soln. at pH 5-5.5, and (b) by a
 polarographic method. The application of these methods to silumin
 gave accurate results. Procedures are given.

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Patent
MAKAR'YANTS, A.I.; ZAGLODINA, T.V.; SHUVALOVA, Ye.D.; MINENKO, A.N.; PATS,
R.G.

New method for the determination of zinc in aluminum and silumin.
Sbor.nauch.trud.GINTSVETMET no.12:138-143 '56. (MLRA 10:2)
(Aluminum-Analysis) (Zinc) (Metallurgical analysis)

PATS, R.G.

1957. A new method for the determination of zinc in cadmium. M. I. Zinckova, R. G. Pats and G. A. Pridmore. *Journal of Analytical Chemistry*, 1957, (12), 345-348. *Gen. Nachr. Inst. Russ. Met.*, 1956, (16), 345-348. *Ref. Zhim.*, 1957, 1956, Abstr. No. 4159.—The method is based on the extraction of Zn as thiocyanate by ether from the main bulk of Cd, and polarography of the Zn with a dropping-mercury electrode. The method allows 0.001 to 0.1 per cent. of Zn in Cd to be determined with satisfactory accuracy, and is quicker than other methods, with the exception of the spectrophotometric method.
C. E. KOPIN

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1957

mm 3/21

Pats, R. G.

3310. Polarographic determination of copper, cadmium, nickel, lead and zinc in antimony or tin and their alloys. T. V. Aref'eva and R. G. Pats. *Sbornik Nauch. Trudy Gos. Nauch. Inst. Tsvet. Met.* 1955, (10), 363-367; *Ref. Zhur., Khim.*, 1936, Abstr. No. 7143.—The alloy is treated with aqua regia, and Sb and Sn are removed by repeated evaporation with H₂ and HBr. The soln. is then evaporated to dryness. For samples not containing Co, the residue is dissolved in HCl, an excess of aq. NH₃ is added and Cu, Cd, Zn and Ni are determined polarographically. If Co is present the residue is dissolved in a mixture of 3 ml of dil. HCl (1:3), 7 ml of H₂O and 5 ml of acetic acid, heated to 80° C, and 0.5 ml of a 3 per cent. soln. of 1-nitroso-2-naphthol is added. After 1 hr. at 80° C the ppt. is filtered off, fused with oxalic acid, dissolved in aqua regia and neutralized with aq. NH₃. The Co is then determined polarographically. The HNO₃ is removed from the filtrate by evaporation and the Cu, Cd, Zn and Ni are determined. For the determination of Pb, the residue after removal of Sb and Sn is dissolved in HCl (1:1), diluted, 0.2 to 0.3 g of reduced Fe is added, and the soln. is filtered and polarographed. Reduction potentials vs. the S.C.E. in ammoniacal NH₄Cl soln. are: for Cu, -0.40 V; for Cd, -0.72 V; for Ni, -1.00 V; and for Zn, -1.24 V. In 3N HCl the value for Pb is -0.44 V.
R. LORD

chem 2

PM 22

PATS, R.G.; TSFASMAN, S.B.; SEMOCHKINA, T.V.

Determination of Cu, Pb, Cd, and Zn in the products of nonferrous metallurgy in an alternating current polarograph. Zav.lab. 29 no.4:394-401 '63. (MIRA 16:5)

1. Gosudarstvennyy nauchno-issledovatel'skiy institut tsvetnykh metallov i Tsentral'naya laboratoriya avtomatiki.
(Metals--Analysis) (Polarography)

ZHDANOV, S.I.; PATS, R.G.

Polarography of tellurium. Part 2: Hexavalent tellurium. Elektrokhimiya 1 no.9:1092-1096 3 '65. (MIRA 18:10)

1. Gosudarstvennyy institut tsvetnykh metallov.

PATS, R.G.; AREF'YEVA, T.V.

Polarographic method of determining platinum and palladium in
copper-nickel production slimes. Sbor. nauch. trud.
Gintsvetmeta no.18:83-93 :61. (MIRA 16:7,

(Polarography)

(Platinum--Analysis)

(Palladium--Analysis)

PATS, R.G.; SEMOCHKINA, T.V.

Polarographic determination of lead and copper in tellurium and
in a tellurium concentrate. Zav.lab. 28 no.7:800-801 (MIRA 15:6)

1. Gosudarstvennyy nauchno-issledovatel'skiy institut tsvetnykh
metallov.

(Lead---Analysis) (Copper---Analysis) (Tellurium---Analysis)

PATS R.G.

Now method of determination of zinc in aluminum and
 aluminum alloys. A. G. Blakotnyak, T. V. Zagladina, B. D. Zhurav
 and N. M. Mironov, and R. G. Pats. *Analyt. Khim.* 1956, No. 12,
 188-43. For separation of Zn from Al and other metals present
 in Al, the method of Troitskaya and Kushner was used.
 (cf. *Sbornik Nauch. Trudov Gosudarst. Inst. Tsvetnykh
 Metal.* 1953, No. 8). The method is based on the extraction of
 Zn thiocyanide complex with ether. After removing ether
 and decanting the Zn thiocyanide complex, determination of Zn can
 be carried out by 2 methods: (a) by extraction and titration with
 dithizone in CCl₄ solution at pH 6.5 and (b) by polarographic
 method. The application of these methods to aluminum
 alloys gave accurate results. Procedures are given.

RM
 R.G. Pats

PATS, R. G.

Use of square-wave polarography for determining cadmium and thallium
in products of nonferrous metallurgy. Zav. lab. 28 no. 1:18-20 '62.
(MIRA 15:2)

1. Gosudarstvennyy nauchno-issledovatel'skiy institut tsvetnykh
metallov.

(Cadmium--Analysis) (Thallium--Analysis)
(Polarography)

ZHDANOV, S.I.; PATS, R.G.

Polarography of tellurium. Part 1: Tetravalent tellurium. *Elektrokhimiia* 1 no.8:947-954 Ag '65. (MIRA 18:9)

1. Gosudarstvennyy institut tsvetnykh metallov i Institut elektrokhemii AN SSSR.

MAKHACHEK, Z. [Machacek, Z.]; MEYZLIK, Y. [Mejzlik, J.]; PATS, Y. [Pac, J.]

Anionic polymerization of formaldehyde. Part 1. Vysokom.soed. 3
no.9:1421-1426 S '61. (MIRA 14:9)

1. Nauchno-issledovatel'skiy institut makromolekulyarnoy khimii
Brno, Chekhoslovakiya.
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Investigations in the field of polythionic acids. II. Hydrolysis of sulfur dichloride. E. I. Patšauskas (Polytech. Inst., Kaunas, Lithuania). *Žinios Lietuvos mokslui*, 23, 1442-9 (1953).—Hydrolysis of SCl_2 was investigated in pure water, in acetate buffer soln. at pH 4.7, in 2*N* HCl, and in 0.8*N* NaOH. An ampul containing a weighed amount of SCl_2 was placed in a thick-wall glass beaker, and covered with the given liquid, and then the ampul was broken by vigorous shaking of the beaker. Hydrolysis can proceed in 3 sep. stages: $\text{SCl}_2 + 2\text{H}_2\text{O} \rightarrow \text{S(OH)}_2 + 2\text{HCl}$; $\text{S(OH)}_2 \rightleftharpoons \text{H}_2\text{S}_2\text{O}_4 + \text{H}_2\text{O} \rightleftharpoons 2\text{H}^+ + \text{S}_2\text{O}_4^{2-} + \text{H}_2\text{O}$; $\text{S(OH)}_2 + 2\text{H}_2\text{S}_2\text{O}_4 \rightarrow \text{H}_2\text{S}_2\text{O}_6 + 2\text{H}_2\text{O}$. The product of hydrolysis of SCl_2 in water is predominantly $\text{H}_2\text{S}_2\text{O}_4$. Hydrolysis of SCl_2 in dil. HCl soln. is identical with that in water. Hydrolysis in acetate buffer showed partial stabilization of thiosulfate. Increase of pH favorably affects secondary reactions leading to the formation of tri- and tetrathionates. In basic soln. formation of thiosulfate is dominant. Secondary reactions include formation of colloidal S and H_2SO_4 or sulfates. III. Formation of polythionic acids from sulfur dichloride and thiosulfate. *Ibid.*, 1349-55.—Reaction between a concd. soln. of $\text{H}_2\text{S}_2\text{O}_4$ obtained by introducing a satd. soln. of $\text{Na}_2\text{S}_2\text{O}_4$ into concd. HCl (d. 1.175), and SCl_2 proceeded almost quantitatively in two stages: $\text{SCl}_2 + 2\text{H}_2\text{O} \rightarrow \text{S(OH)}_2 + 2\text{HCl}$; $\text{S(OH)}_2 + 2\text{H}_2\text{S}_2\text{O}_4 \rightarrow \text{H}_2\text{S}_2\text{O}_6 + 2\text{H}_2\text{O}$. Use of an excess of thiosulfate (above the ratio $\text{Na}_2\text{S}_2\text{O}_4:\text{SCl}_2 = 2:1$) produced solns. of higher polythionic acids according to $\text{H}_2\text{S}_2\text{O}_4 + (n-5)\text{H}_2\text{S}_2\text{O}_4 \rightleftharpoons \text{H}_2\text{S}_n\text{O}_{2n} + (n-5)\text{H}_2\text{SO}_4$. The product of a reaction of benzidine hydrochloride with a soln. of polythionic acids contained polythionates in the range from hepta- to nonathionates. M. O. Holovaty.

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Investigation in the field of polythionic acids. Part 3. Formation of polythionic acids from sulfur dichloride and thiosulfate. Zhur.ob.khim. 23 no.9: 1449-1455 S '53. (MLBA 6:10)

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L 21528-66 EWT(1)/FCC GW

ACC NR: AT6008758

SOURCE CODE: UR/2789/65/000/062/0097/0114

AUTHOR: Patsayeva, V. A.

21

ORG: none

B71

TITLE: Investigation of the structure of the wind field in the free atmosphere near frontal zones

SOURCES: * tsentral'naya aerologicheskaya observatoriya. Trudy, no. 62, 1965. Voprosy izmenchivosti vetra i drugikh elementov tsirkulyatsii v atmosfere (Problems of the variability of wind and other elements of atmospheric circulation), 97-114

TOPIC TAGS: meteorology, wind field, tropospheric wind, stratospheric wind, frontal wind structure

ABSTRACT: Results are presented for a study carried out by the Central Aerological Observatory to determine the mesostructure of the wind field. The synoptic conditions included the presence of an upper-level polar depression with a surface low moving in from the Baltic Sea, and a jet stream and an occluded front passing over the area. The basic data were obtained over Moscow from frequent radiosonde ascents in the 20 May—3 June 1960 period. Wind speed, temperature, and humidity

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data were plotted on a vertical (every 1 km), time-wise (every 2 hr) profile and were analyzed in conjunction with weather maps. Intervals selected for the isotachs were 1 m/sec, for isogons, every 10°, and for temperature isolines, every 10C. Supplemental, vertical, time-wise profiles were constructed for wind speed and temperature measured at 1/2- and 1-min intervals in the tropospheric layer between the earth's surface and a height of 3 km. This latter series of measurements was compared with surface weather maps, ground observations, and aircraft sounding data. Wind observations, made with a "Malakhit" theodolite and by radar, had accuracies of 0-3 m/sec (wind speed) and 0-10° (wind direction). RKZ radiosonde temperature measurements had accuracies of ±0.5C in the troposphere and ±1C in the stratosphere. Areas of local perturbations (disturbances) extended vertically not less than 1000 m and 50 km along the horizontal. In the supplemental series of measurements, the deviations in the wind speed at the center of the disturbed areas from the average speed around the periphery were 10% of the magnitude of the velocity module at the center in the lower troposphere, and 15% in the upper troposphere. Areas of localized perturbed areas were found to be characteristic of the free atmosphere, and in them, wind speed changes amounted to 10-15 m/sec in an hr, and around their peripheries, the vertical wind shear attained values up to 15-20 m/sec per km, and the change in wind speed with time was 10-15 m/sec per hr. The

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number of these perturbed areas increased with an increase in wind speed in the troposphere, and they were associated with the presence of a surface of discontinuity in the atmosphere. They frequently paralleled a front and decreased in number with distance from the discontinuity. In the troposphere, along fronts, there were 2 maxima in the recurrence of perturbed areas, one in the lower troposphere 1-2 km ahead of the front, and the other in the upper troposphere (7-8 km under the tropopause). Orig. art. has: 4 figures and 9 tables. [ER]

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Card 3/3

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SOURCE CODE: UR/2789/65/000/062/0122/0137

AUTHOR: Patsayeva, V. A.

22
B

ORG: none*

TITLE: Heterogeneity of the wind in the atmosphere and the parameters of average motion

SOURCE: * Tsentral'naya aerologicheskaya observatoriya. Trudy, no. 62, 1965. Voprosy izmenchivosti vetra i drugikh elementov tsirkulyatsii v atmosfere (Problems of the variability of wind and other elements of atmospheric circulation), 122-137

TOPIC TAGS: meteorology, wind gradient, atmospheric circulation, atmospheric turbulence

ABSTRACT: Vertical, time-wise profiles of the wind field, constructed from radiosonde data collected in fifty-six 6-hr intervals in four atmospheric layers (0-4, 4-9, 9-13, and 13-17 km) were analyzed to study the structure of the inhomogeneities of the wind under different synoptic conditions. The procedure used was to select, by synoptic characteristics, a number of wind perturbation (disturbance) centers in the wind field in a unit area of the vertical wind profile over the Moscow region. The character of the baric field in the lower troposphere was determined from ground-level weather maps and that of the upper troposphere from 500-mb charts. The study indicated that the number of short-lived perturbation centers in a wind flow with horizontal

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dimensions of the order of tens or hundreds of kilometers and in a layer several kilometers thick was comparatively small, given a steady average motion of $Ri_{av} = 100$, $R_{Tav} = 48$. This increased to a maximum when the air flow was less steady; however, when it reached $Ri_{av} < 70$, $R_{Tav} < 40$, the number of perturbation centers decreased. The main reason for this decrease was intense turbulent mixing which smoothed out average-size perturbations. Turbulence occurred at the edges of the centers of the perturbed areas where the gradient was greater and where, in comparatively thin layers, the Ri and R_T values were close to unity. The maximum number of these centers in the free atmosphere occurred when the parameters of average motion (computed for a layer 4 km thick) were as follows:

	Lower troposphere	Upper troposphere	Stratosphere
Velocity (m/sec)	10—15	15—25	7—15
Vertical velocity gradient (m/sec per hr)	1—4	2—6	1—3
Ri_{av}	90	70	--
R_{Tav}	48	48	--

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In addition, in the upper troposphere in a 4-km thick layer, for a period of 6 hr or at distances of -300 km, 5-9 centers were found which extended horizontally 50-200 km and vertically 1-2 km. The dimensions of these centers in the lower troposphere and in the stratosphere were half these sizes. The largest number were found in the northern air flow on the back side of the lows and the front side of the highs. Diurnally, most of the centers occurred in the daytime and evening hours. Orig. art. has: 3 figures and 5 tables. [ER]

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