AUTHORS: Petukhov, P.Z. (Dr.Tech.Sc.,Prof.) and Sutorikhin, V.N. (Dotsent). 133-6-21/33

TITLE: Rational operation of soaking pit cranes. (Ratsional'naya ekspluatatsiya kolodtsevykh kranov).

PERIODICAL: "Stal'" (Steel), 1957, No.6, pp.550-552 (USSR).

ABSTRACT: As soaking pit cranes are often used for purposes other than the handling of ingots (e.g., for cleaning bottoms from slag and scale), they are often submitted to stresses which were not taken into consideration in their design. This often leads to a breakdown of various parts of cranes. In order to establish the operating conditions and to determine stresses and deformation appearing during the work of these cranes, the Uralskiy Polytechnical Institute carried out an investigation of two cranes operating on the Nov-Tagilsk and Chelyabinsk Works. The results of these investigations are tabulated. It was found that the actual forces, stresses and tortion moments were often higher than those determined theoretically. The use of cranes for cleaning pit bottoms from slag was found to be unsafe in operation and the use of specially designed separate crane for this purpose is recommended.

Card 1/2

Rational operation of soaking pit cranes. (Cont.)
There is 1 table and 1 figure. 133-6-21/33

ASSOCIATION: Ural Polytechnical Institute. (Ural'skiy Politekhnicheskiy Institut).

AVAILABLE: Library of Congress
Card 2/2

PETUKHOV, P. Z.

PETUKHOV, P.Z., doktor tekhnicheskikh nauk, professor; SUTORIKHIN, V.N., dotsent.

Efficient use of soaking pit cranes. Stal' 17 no.6:550-552 Je '57. (MLRA 10:7)
(Metallurgical plants--Equipment and supplies)
(Hoisting machinery)

PETUKHOV, P.Z.

Optimum parameters for shock-absorbing devices. Sbor.st.Ural. politekh.inst. no.65:5-17 '58. (MIRA 12:4)
(Shock absorbers)

PETUKHOV, P.Z.

Range of application of shock-absorbing devices in cranes.
Sbor.st.Ural.politekh.inst. no.65:18-25 '58. (MIRA 12:4)
(Cranes, derricks, etc.)
(Shock absorbers)

FOMIN, Aleksey Fedorovich; PETUKHOV, P.Z., doktor tekhn.nauk, retsenzent; DUGINA, N.A., tekhn.red.

[The T-107 bucket loader] Odnokovshovyi pogruzchik T-107. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1959. 143 p. (MIRA 12:12)

(Earthmoving machinery)

POPOV, N.V., inzh., retsenzent; PETUKHOV, P.Z., doktor tekhn.nauk, retsenzent; SUSLOV, N.I., inzh., red.; DUGINA, N.A., tekhn. red.; UVAROVA, A.F., tekhn.red.

[Developing the use of plastics in the manufacture of machines] Rasshirenie vozmozhnostei primeneniia plastmass v konstruktsiiakh mashin. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1959. 183 p. (MIRA 13:3)
(Plastics) (Machinery industry)

SOV/113-59-3-18/22

28(1)

AUTHOR: Petukhov, P.Z., Professor, Doctor of Technical Sciences, Fedoseyev, A.M., Engineer and Leych, G. Sh.

TITLE: On the Application of Forging Manipulators (O primenenii kovochnykh manipulyatorov)

PERIODICAL: Mekhanizatsiya i avtomatizatsiya proizvodstva, 1959, Nr 3, pp 54-55 (USSR)

ABSTRACT: An important part in machine building is played by forging work, and, therefore, the forging press departments of large plants are already and in future will be still more fully equipped with first-rate forging presses. Alloys, weighing tens of and even hundreds of tons, are forged by such presses. The transportation of heated alloys to the presses is carried out by bridge cranes. Experience shows, that presses with forging manipulators possess a rate of production 50-80% higher than that of presses with forging cranes. Their fuel consumption is lower by 10-20%. The authors are of the opinion, that presses with pressures of up to 3 tons, can be adequately

Card 1/2

On the Application of Forging Manipulators

operated by transporting cranes only. Having given a detailed account of production costs and the price of the machine itself, the authors conclude as follows: The State Technical Scientific Committee of the USSR of the Council of Ministers and the Gosplan should be given the task of finding the very best possibilities for complex mechanization of forging press departments, and specially for the construction of forging manipulators with various load capacities.

Card 2/2

PETUKHOV, P.Z., doktor tekhn.nauk; DIESPEROV, V.F., inzh.

Photoelectric automatic stop for bridge cranes. Bezop.truda v prom. 3 no.9:21-22 S '59. (MIRA 13:2)

1. Ural'skiy politekhnicheskiy institut.
(Cranes, derricks, etc.--Brakes)

ZHUKOV, Pavel Aleksandrovich. Prinimal uchastiye SMIRNITSKIY, Ye.K., kand.ekon.nauk. SHABASHOV, A.P., kand.tekhn.nauk, retsenzent; PETUKHOV, P.Z., doktor tekhn.nauk, red.; MARCHENKOV, I.A., tekhred.

[Development of the excavator industry in the U.S.S.R.] Razvitie ekskavatorostroeniia v SSSR. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1960. 92 p.

(MIRA 13:12)

(Excavating machinery)

KORMAN, Al'fred Genrikhovich; KUZNETSOV, A.V., inzh., red.; LUKOVTSEV, A.A., inzh., red.; PETUKHOV, P.Z., doktor tekhn. nauk, red.; RUDIN, S.N., inzh., red.; SUSTAVOV, M.I., inzh., red.; KHRISANOV, M.I., kand. tekhn. nauk, red.; DUGINA, N.A., tekhn. red.

[Mechanization of assembly work] Mekhanizatsiia montazhnykh rabot. Moskva, Mashgiz, 1960. 100 p. (Biblioteka slesaria-montazhnika, no.3) (MIRA 14:11)

(Machine-shop practice)

MURZIN, Ivan Konstantinovich, kand.tekhn.nauk; KHRISANOV, M.I., kand. tekhn.nauk, red.vypuska; PETUKHOV, P.Z., doktor tekhn.nauk, red.; SUTORIKHIN, V.N., dotsent, red.; SOKOVA, T.M., inzh., red.; GALANIN, A.I., inzh., red.; DUGINA, N.A., tekhn.red.

[Inspection of repair operations] Kontrol' remontnykh operatsii. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1960. 105 p. (Biblioteka slesaria-remontnika, no.10). (MIRA 14:7)

(Machinery—Maintenance and repair)
(Measuring instruments)

NEYMAN, Vladimir Aleksandrovich; GORSHKOV, S.N., inzh., red.; LUKOVTSEV, A.A., inzh., red.; PETUKHOV, P.Z., doktor tekhn.nauk, red.; RUDIN, S.N., inzh., red.; SUSTAVOV, M.I., inzh., red.; KHRISANOV, M.I., kand.tekhn.nauk, red.; MAKAROV, Ye.M., red.izd-va; DUGINA, N.A., tekhn.red.

[Assembling centralized lubrication systems] Montazh tsentralizovannykh smazochnykh sistem. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1960. 109 p. (Biblioteka slesaria-montazhnika, vypusk 8). (MIRA 14:1)
(Lubrication and lubricants)

RUDIN, Sil'vestr Nikolayevich, inzh.; LUKOVTSEV, A.A., inzh., red.; PETUKHOV, P.Z., doktor tekhn.nauk, red.; RYABOV, A.N., inzh., red.; SUSTAVOV, M.I., inzh., red.; KHRISANOV, M.I., kand.tekhn.nauk, red.; SARAFANNIKOVA, G.A., red.; DUGINA, N.A., tekhn.red.

[Assembly tools] Montazhnye instrumenty. Moskva, Gos.nauchno-tekhn. izd-vo mashinostroit.lit-ry, 1960. 127 p. (Bibliotechka slesaria-montazhnika, no.7). (MIRA 14:2)
(Machinists' tools)

MASLOV, Vyacheslav Andrianovich; LUKOVTSEV, A.A., inzh., red.; PETUKHOV, P.Z., doktor tekhn.nauk, red.; RUDIN, S.I., inzh., red.; SUSTAVOV, M.I., inzh., red.; KHRISANOV, M.I., kand.tekhn.nauk, red.; SARAFANNIKOVA, G.A., red.izd-va; MARCHENKOV, I.A., tekhn.red.

[Increasing labor productivity in assembling mechanical equipment] Povyshenie proizvoditel'nosti truda na montazhe mekhanicheskogo oborudovaniia. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit. lit-ry, 1960. 105 p. (Bibliotechka slesaria-montazhnika, no.10). (MIRA 14:2)

(Machine-shop practice)

PETUKHOV, P.Z., prof.

Improve the design of the K-102 crane. Bezop.truda v prom 4 no.6:18 Je '60. (MIRA 14:3)

(Cranes, derricks, etc.)

RYKOV, M.I.; PETUKHOV, P.Z. doktor tekhn.nauk; SUTORIKHIN, V.N., kand.tekhn. nauk

Increasing the capacity of a pouring crane. Metallurg 5 no.5:24-25 My '60. (MIRA 14:3)

1. Zamestitel' glavnogo mekhanika Nizhno-Tagil'skogo metallurgicheskogo lombinata (for Rykov). 2. Ural'skiy politekhnicheskiy institut imeni S.M. Kirova (for Petukhov, Sutorikhin).
(Open-hearth furnaces—Equipment and supplies)

PETUKHOV, P.Z.

New engineering process of excavating frozen and hard ground by means of vibration-impact breaking. Trudy Ural. polit. in-t. inst. no.128:5-14 '63.

Performance efficiency of powerful excavators. Ibid.:44-53 (MIRA 17:2)

PETUKHOV, P.Z.; NAVARSKIY, Yu.V.

Study of the performance of a rotary bucket excavator. Trudy Ural. politekh. inst. no.128:60-67 '63. (MIRA 17:2)

KONONOV, Yuriy Veniaminovich; NIKIFOROV, Aleksey Semenovich; LUKOVTSEV, A.A., inzh., red.; PETUKHOV, P.Z., doktor tekhn.nauk, red.; RUDIN, S.N., inzh., red.; SUSTAVOV, M.I., inzh., red.; KHRISANOV, M.I., kand.tekhn.nauk, red.; SHABASHOV, P.A., kand. tekhn.nauk, red.; BEZUKLADNIKOV, M.A., red.izd-va; DUGINA, N.A., tekhn.red.

[Improvements in the technique of assembling bridge cranes] Usovershenstvovaniia v tekhnologii sborki mostovykh kranov. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1961. 90 p. (Biblioteka slesaria-montazhnika, no.5).

(MIRA 14:7)

(Cranes, derricks, etc.)

PETUKHOV, P.Z.

Accelerations of trolleys and bridges of bridge cranes. Trudy Ural. politekh.inst. no.104:5-14 '61. (MIRA 14:6)
(Cranes, derricks, etc.)

PETUKHOV, P.Z.; BOGOYAVLENSKIY, V.N.

Stresses in trusses of bridge cranes. Trudy Ural.politekh.inst. no.104:71-73 '61. (MIRA 14:6)
(Cranes, derricks, etc.)

PETUKHOV, P.Z., doktor tekhn.nauk; KAZANTSEV, A.V., inzh.-mekhanik; GUSAROV, M.I., gornyy inzh.; ETINGOV, S.I., gornyy inzh.

Effect of blasting on rod bolting. Gor. zhur. no.12:27-30 D '61. (MIRA 15:2)

1. Ural'skiy politekhnicheskiy institut im. Kirova (for Petukhov, Kazantsev). 2. Severoural'skiye boksitovyye rudniki (for Gusarov, Etingov).

(Blasting)
(Mine roof bolting)

SHKURENKO, N.S., kand. tekhn. nauk; LAKHLIN, A.B., inzh.; SPEKTOR, M.D., kand. tekhn. nauk; CHARIN, V.A., inzh.; PETUKHOV, I.Z., doktor tekhn. nauk; GURIN, M.A., kand. tekhn. nauk; KISELEV, B.N., inzh.

[Vibration method of working frozen ground] Vibrometod razrabotki merzlykh gruntov. Moskva, Stroiizdat, 1965. 38 p. (MIRA 18:3)

1. Kafedra pod"yemno-transportnykh mashin Ural'skogo politekhnicheskogo instituta im. S.M. Kirova (for Gurin, Kiselev).

PETUKHOV, P.Z., doktor tekhn.nauk; GURIN, M.A., kand.tekhn.nauk; GUBERMAN, F.S.; MAKEYEV, A.V.; KISELEV, B.N.

Vibratory percussion ripper. Biul.tekh.-ekon.inform.Gos.nauch.-issl. inst.nauch.i tekh.inform 17 no.11:57-58 N '64.
(MIRA 18:3)

PETUKHOV, P.Z., prof.; SHAMANOV, P.M., inzh.; GURIN, M.A., inzh.; KISELEV, B.N.

Machine for working frozen ground. Mekh.stroi. 19 no.11:16-17 N '62. (MIRA 15:11)

(Frozen ground) (Earthwork)

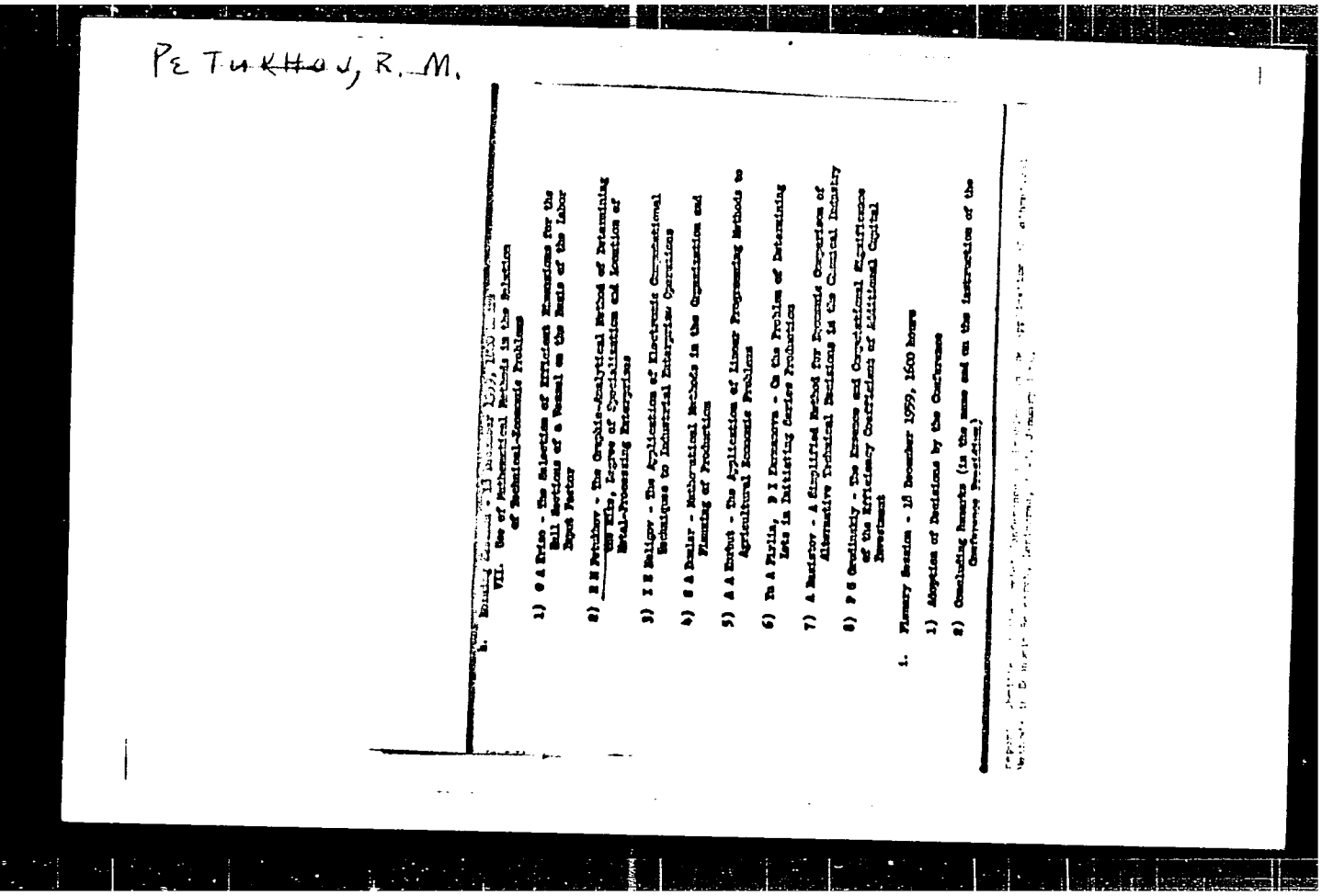
LUKOVTSEV, Aleksey Alekseyevich; PETUKHOV, P.Z., doktor tekhn. nauk, red.; RUDIN, S.N., inzh., red.; SUSTAVOV, M.I., inzh., red.; KHRISANOV, M.I., kand. tekhn. nauk, red.; DUGINA, N.A., tekhn. red.

[Efficient methods for installing machines on a foundation] Ratsional'nye sposoby ustanovki mashin na fundament. Izd.2. Moskva, Mashgiz, 1962. 53 p. (MIRA 16:1)
(Machinery—Foundations)

PETUKHOV, R.M., kandidat tekhnicheskikh nauk

Unification coefficients for machinery parts and units. Standartizatsiia no.5:34-37 S-O'55. (MLRA 8:11)
(Machinery--Standards)

PETUKHOV, R. M.



PETUKHOV, R.M., kand.tekhn.nauk; NEDLINA, M.V.

Using the method of linear programming in scheduling the output of articles in lot production. Vest.mash. 41 no.9:69-76 S '61. (MIRA 14:9)

(Factory management)

PETUKHOV, Rem Mikhaylovich; ZAV'YALOVA, A.N., red.

[Method of the economic evaluation of the wear and operational life of machinery] Metodika ekonomicheskoi otsenki iznosa i srokov sluzhby mashin. Moskva, Ekonomika, 1965. 163 p. (MIRA 18:3)

25(5) SOV/2-59-2-4/12

AUTHOR: Petukhov, R.

TITLE: The Specialization Indices in Industry (O pokazatelyakh spetsializatsii v promyshlennosti)

PERIODICAL: Vestnik statistiki, 1959, Nr 2, pp 45 - 51 (USSR)

ABSTRACT: The planned "specialization" of some plants in the USSR in the mass production of standardized machine parts and major components that are common to various machinery requires a system of indices for the proper evaluation of the level of "specialization". Many authors suggested using the indices of the share of the specialized production in the total of the kind of products in an industry branch or one plant. The author points out the difficulties which such an indice system would cause in practice, and suggests a different evaluation system: by the work hours required, calling this index "coefficient of item

Card 1/2

The Specialization Indices in Industry

specialization". The example calculations included are made with the use of the formulae developed by the institute "Giprosel'khoz" for the "Norms of Technically-Economical Indices for Repair Plants." There are 3 tables.

SOKOLOVA, Ye.I.[deceased]; BRAYNZAHOVA, G.T.; BUCHANOVA, N.S.; ZHUKHAREVA, V.I.; ZAKUMBAYEV, A.K.; ISAYEVA, M.G.; IMAMBAYEVA, U.A.; KRIVOSHEYEV, Yu.[illegible]; KUDAYBERGENOV, Zh.D.; RAKHMETCHIN, S.; TYUTYUKOV, F.M.; SHIM, P.S.; LAZARENKO, Ye.I.; CARANKINA, A.I.; D'YACHENKO, R.; PETUKHOV, R.M., kand. tekhn. nauk, nauchn. red.; SHUPLOVA, M.A., red.; LEVIN, M.L., red.; ROROKINA, Z.P., tekhn. red.

[Food industry of Kazakhstan] Pishchevaia promyshlennost' Kazakhstana. Alma-Ata, Izd-vo AN KazSSR, 1963. 172 p.

1. Akademiya nauk Kazakhskoy SSR, Alma-Ata. Institut ekonomiki.

(Kazakhstan--Food industry)

PETUKHOV S

27-4-17/25

AUTHORS: Petukhov, S., Engineer of Main Labor Reserve Administration,
Yakubov, I., Engineer of Trade School No. 4 (Chimkent)

TITLE: Reed Board Press (Kamyshitovyy press)

PERIODICAL: Professional'no-Tekhnicheskoye Obrazovaniye, 1958, # 4, pp 24-25 (USSR)

ABSTRACT: A horizontal press, type ПКТР-3 is simple and valuable for pressing reeds for building material. The first of these machines was turned out by the Chimkent factory No. 4 to conform with ГОСТ 7483-55 , which dictates dimensions of the slabs into which the reed-stuff is rolled. The slabs are sewn with cold-drawn wire of at least 1.6 mm. Weight must be 350-400 kg per m^3 when machine-prepared (200-260 when by hand). About 100 of these presses will be manufactured in 1958. The presses are described in detail.

There are 4 figures and 1 photograph.

ASSOCIATION: Glavnoye upravleniye trudovykh rezervov (Main Labor Reserves Administration)

AVAILABLE: Library of Congress

Card 1/1

PETUKHOV, S., inzh.; YAKUBOV, I., inzh. (g. Chimkent).

Press for reed panels. Prof.-tekh. obr. 15 no.4:24-25 Ap '58.
(MIRA 11:5)

1. Glavnoye upravleniye trudovykh rezervov (for Petukhov). 2. Remeslennoye uchilishche No.4 (for Yakubov).
(Building materials) (Power presses)

SHKOL'NIKOV, E.M.; LAKEDEMONSKII, A.V.; BONDARENKO, L.G.; ABRAMENKO, Yu.Ye.; PETUKHOV, S.A.

Cast camshafts for the ZIL-111 engine. Lit. proizv. no.5:7-8 My '62. (MIRA 16:3)

(Automobiles—Engines) (Iron founding)

12(2), 12(3)

AUTHOR: Glukhov, D.I., Candidate of Technical Sciences
Petukhov, P.A., Engineer

TITLE: Choice of Cast Iron of Automobile Cylinders

PERIODICAL: Liteynoye Proizvodstvo, 1959, Nr 7, pp 16-17 (USSR)

ABSTRACT: For the production of internal combustion engines the Automobile Plant at Gor'kiy has started to produce those areas of the cylinder bloc, which are the most exposed to damage, from corrosion and heat resistant steel in the shape of special liners. In case these liners are irregularly formed they damage the pistons. The expensive nickel (1%,5%) and copper (1%,5%) admixtures increase the price of the cast iron. Therefore the Automobile Plant at Yaroslavl' has lengthened the liners made from special steel over the entire length of the cylinder. But this again means faster wear of the cylinder. At the Automobile Plant "Imeni Likhachev" no liners are produced but the cylinder blocs are cast from a chrome-nickel-alloy (since 1954 already). The

Card 1/2

Choice of Cast Iron of Automobile Cylinders

production method ensures a better service life of the cylinder and of the piston. One [illegible] evaluates the comparison data for cylinder blocks of the above mentioned plant and for those of the Automobile Plant ZIL (made from titanium-copper-alloy). The [illegible] describe the influence of the particular metal alloy on the corrosion and heat resistance of the cast iron: chrome, nickel, copper and titanium. The results of the experiments are published in a table. [illegible] diagrams and 1 micro-photograph

Card 2/2

(A) L 27317-66

ACC NR: AM6003226 Monograph UR/

Chuyev, Yu. V.; Mel'nikov, P. N.; Petukhov, S. I.; Stepanov, G. F.; Shor, Ya. B. 34 B+1

Principles in the investigation of operations in military technics (Osnovy issledovaniya operatsiy v voyennoy tekhnike) Moscow, Izd-vo "Sovetskoye radio," 1965. 591 p. illus., biblio., index. 6000 copies printed.

TOPIC TAGS: operations research, military operation, military engineering, weapon test, antiaircraft defense system

PURPOSE AND COVERAGE: This book is intended for engineers engaged in military operations research. The reliability and efficiency of a variety of products of military technology are critically reviewed. Analytical methods used in evaluating these characteristics in diverse combat situations are presented. The book also contains information on the classical and the latest mathematical optimization methods used in solving military engineering problems. Special attention is given to statistical combat modeling using computers. The text is illustrated by numerous examples.

Card 1/3 UDC: 519.8

L 27317-66

ACC NR: AM6003226

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L 27317-66
ACC NR: AN6003226

SUB CODE: 15/ SUBM DATE: 18Sep65/ ORIG REF: 089/ OTH REF: 051

Card 3/3

PETUKHOV, S.I., inzh.-podpolkovnik

Method of statistical tests. Mor. sbor. 47 no.4:33-38 Ap '64.
(MIRA 17:5)

PETUKHOV, S.I.

Machine accounting of materials. Ugol' Ukr. 4 no.12:26 D '60.
(MIRA 13:12)

(Machine accounting)
(Coal mines and mining--Accounting)

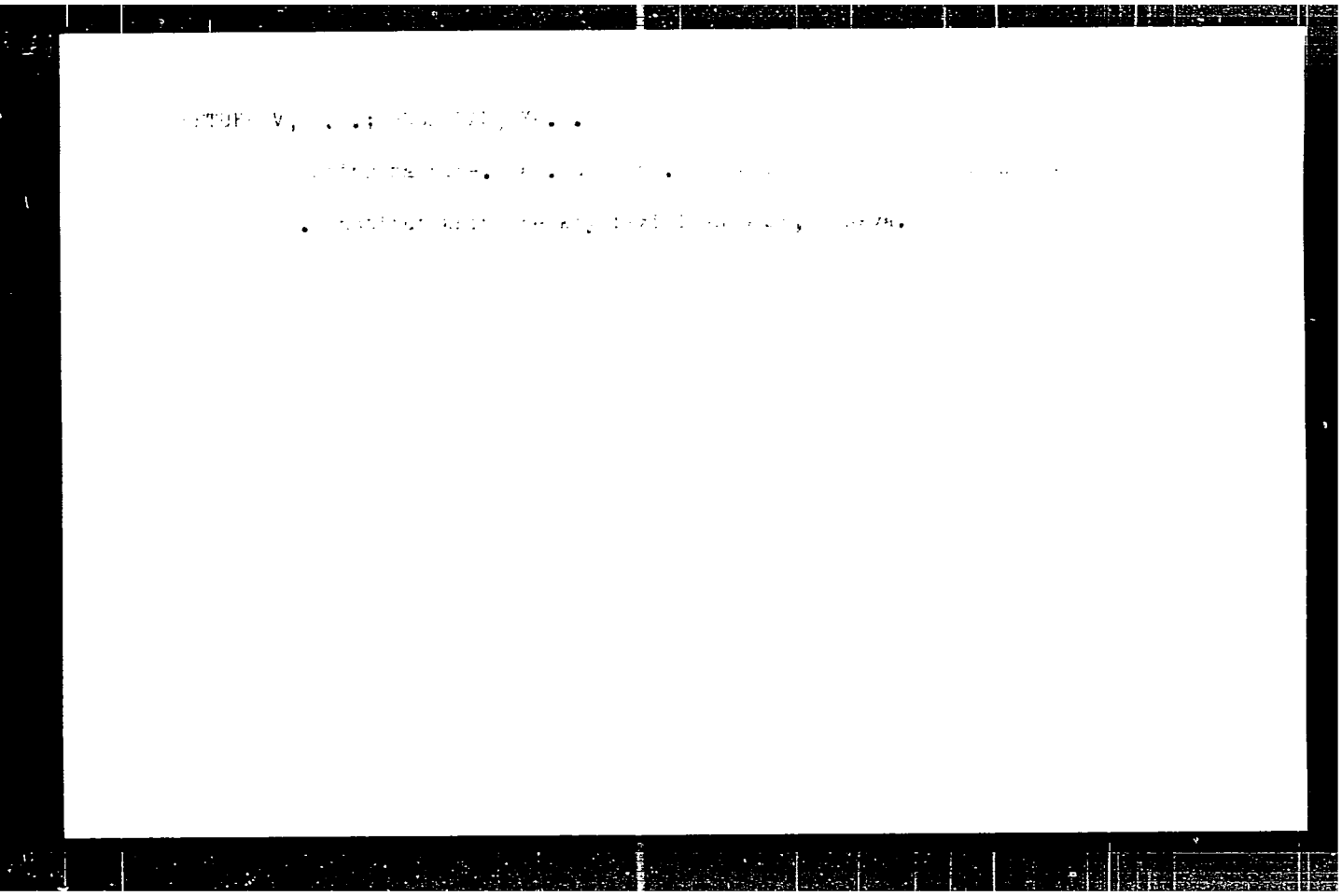
PETUKHOV, SERGEY FEDOROVICH, slesar'-mekhanik, laureat Stalinskoy premii; KORABEL'NIKOV, I; VOZNESENSKIY, A.N., konsul'tant.

[High degree of precision] Vysokaia tochnost'. Literaturnaia obrabotka I.Korabel'nikova. [Moskva] Profizdat, 1952. 60 p. (MLRA 6:5)
(Clock and watch making--Machinery)

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240710006-0

CHUYEV, Yu.[illegible], doktor tekhn. nauk, prof.; [illegible]EL'NIKOV, [illegible].M.; [illegible], S.I.; STEPAN[illegible]V, G.F.; SH[illegible]R, Ya.B.; KUZ'MIN, [illegible].I.; BOGOLYUBSKIY, V.S.; [illegible]SHK[illegible], [illegible], red.

[Principles of operations research in military technology] [illegible]snovy issledovaniia operatsii v voennoi tekhnike. Moskva, Sovetskoe radio, [illegible]. [illegible] p. [illegible]



PETUKHOV, S.M.; PISKAREV, I.V.

Small-size installation for demonstrating the spinning of polymers. Khim. v shkole 18 no.1:75-78 Ja-F '63. (MIRA 16:4)

1. Institut khimicheskoy fiziki AN SSSR, Moskva.
(Polymers) (Chemistry--Experiments)

PETUKHOV, S.M.; BUKOLOV, Yu.Ye.

Pouring machine. Lab. delo 8 no.8:54-58 Ag '62. MIRA 15:8

1. Institut khimicheskoy fiziki AN SSSR, Moskva.
(LABORATORIES--APPARATUS AND SUPPLIES)
(MICROBIOLOGY--EQUIPMENT AND SUPPLIES)

ZHELVAKOV, V.A., inzh.; PETUKHOV, S.M., inzh.

Use of thermit for breaking oversize rock lumps. Shakht. stroi. 4 no.7:25 Jl '60. (MIRA 13:7)
(Thermit) (Mining engineering)

PETUKHOV, S.P., SMOL'YANINOVA, N.K.; SPIRINA, A.S.; SINITSYNA, N.S., red.; BYKOVA, M.G., red.; TRUKHINA, O.N., tekhn. red.

[Growing berry nursery stock] Vyrashchivanie posadochnogo materiala iagodnykh kul'tur. Moskva, Sel'khozizdat, 1962. 206 p. (MIRA 16:2)

(Berries) (Nursery stock)

BAYKOV,K.I.; PETUKHOV,S.P.

Cutting tapered straight-toothed gears by the method of circular broaching. Stan. i instr.26 no.10:27-29 O'55. (MLRA 9:1)
(Gear cutting) (Broaching machines)

KHASHIN, G.A.; CHIKINA, V.G.; KASHIN, Yu.A.; Prinimali uchastiye: PETUKHOV, S.P. [deceased]; VALENTOVA, R.I.; RANNEV, G.G.

Warm drawing of steel wire. Stal' 23 no.3:271-273 Mr '63. (MIRA 16:5)

1. Zlatoustovskiy metallurgicheskiy zavod i Nauchno-issledovatel'skiy institut metiznoy promyshlennosti.
(Wire drawing)

Petukhov, S. S.

USSR/ Chemistry - Physical chemistry

Card 1/1 Pub. 22 - 31/53

Authors : Zmukhovitskiy, A. A.; Vagin, Ye. V.; and Petukhov, S. S.

Title : About the fractional inhibition method

Periodical : Dok. AN SSSR 102/4, 771-774, Jun 1, 1955

Abstract : It is shown that a combination of adsorption and thermal factors makes it possible to carry out numerous effective chromatographic separations of mixtures, especially gas mixtures. A new fractional inhibition method is introduced which solves the problem of optimum combination of adsorption and thermal effects for the purpose of obtaining maximum separation power. Experiments proved that the fractional inhibition method, even in its simplest form, possesses a considerable separating force and appears to be highly perspective for the separation and analysis of complex hardly separable mixtures. Three USSR references (1951-1954). Graphs; drawing.

Institution : All-Union Sc. Res. Inst. of Oxygen Machine Building

Presented by: Academician P. A. Rebinder, December 20, 1954

PETUKHOV, S.S., inzh.; VAGIN, Ye.V., kand. khim. nauk; ZHUKHOVITSKIY, A.A., doktor khim. nauk.

Using adsorption in krypton production. Kislorod 10 no.3:17-21 '57.
(Adsorption) (Krypton) (MLRA 10:11)

PETUKHOV, S.S.

VAGIN, Ye.V., kand. khim. nauk; PETUKHOV, S.S., inzh.; L'VOVA, A.P., inzh.

An apparatus for determination of krypton. Kislorod 10 no.3:24-25 '57. (MLRA 10:11)

(Krypton--Analysis)

ETUKHOV, S.S., Cand Tech Sci -- (diss) "Application of adsorption methods in the production of krypton." Mos 1958, 13 pp (Min of Higher Education USSR. Mos Inst of Chem Machine ~~Construction~~ Building) 100 copies

(KL, 21-58, 90)

AUTHORS: Petukhov, S.S., Engineer, 57-58-2-7/25
Vagin, Ye.V., Candidate of Chemical Sciences

TITLE: A Method of the Automatic Determination of the Krypton Content in its Original Concentration (Metod avtomaticheskogo opredeleniya soderzhaniya kriptona v pervichnom kontsentrate)

PERIODICAL: Kislorod, 1958, Nr 2, pp. 44-46 (USSR)

ABSTRACT: In the production of technical krypton two stages must be distinguished: 1.) Production of the primary concentrate with 0.1-2.2% krypton- and xenon content. 2.) Production of the technical krypton itself. In contrast to antiquated methods which are mentioned but described as of little practical use, the laboratory of rare gases of VNIIKIMASh (All-Union Scientific Research Institute for the Construction of Oxygen Machines) developed a new method of analysis for the determination of primary concentration, which is based on the process of continuous chromothermography developed by A.A.Zhukhovitskiy and Turkel'taub and which is used in the analysis of gas mixtures that contain hydrocarbons. On the basis of this method the said institute developed an automatic gas analyzer which is described. The normal sensitivity of the gas

Card 1/2

A Method of the Automatic Determination of the Krypton Content in its Original Concentration

67-58-2-9/26

analyzer described amounts to 0.01% krypton and xenon, but in the same laboratory it was recently possible to increase this sensitivity to 0.0005%, which fact is particularly stressed. The model of the apparatus recommended here has already undergone tests and has already been ordered for the projecting of a gas analyzer. There are 3 figures, and 3 references, 3 of which are Soviet.

AVAILABLE: Library of Congress

1. Krypton—Properties 2. Krypton—Analysis 3. Gas analyzers —Characteristics

Card 2/2

AUTHORS: Vagi .., Ye. V., Candidate of Chemical Sciences, Petukhov, S. S., Engineer SOV/67-58-4-4/29

TITLE: Technical Conditions for Krypton (O tekhnicheskikh usloviyakh na kripton)

PERIODICAL: Kislorod, 1958, . . // Nr 4, pp. 26-28 (USSR)

ABSTRACT: A krypton-xenon mixture is obtained in the USSR as a by-product at larger oxygen stations. The process itself and the necessary control work are not carried out in a uniform manner, and therefore the quality of the krypton thus produced often varies considerably. Therefore, the characteristics are always mentioned whenever krypton is supplied to consumers in the USSR. As this product is mainly used in electro-vacuum production, it is suggested that a plan be worked out which establishes uniform conditions which must be fulfilled by all oxygen stations that produce krypton. As crude krypton at the same time serves as an initial material for the production of xenon, a formula has been developed concerning the xenon-content in crude krypton. The project mentioned contains the following points: Technical krypton - gas mixture with at least 88% krypton and xenon content,

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including not less than 5 volume % xenon: The mixture destined to be used for filling electrovacuum apparatus. Conditions to be fulfilled in production: 1.) The gas must have neither a smell nor a color. 2.) Secondary components must not exceed 12% of the entire content. 3.) The content of hydrocarbons must not exceed 0,03%. 4.) The gas must not contain any moisture in form of drops. Containers and marking: Steel cylinders able to hold 40 l in accordance with GOST 949-41, painted black with a yellow stripe. The cylinders must be fitted with membrane valves and must be adapted for being filled at 50-100 atmospheres excess pressure (rest pressure not below 1 at. excess pressure.) Terms of delivery: Each cylinder must have a label on which the serial production number, volume, date of filling, pressure and temperature is made visible. Besides, a written characteristic of the composition of the technical krypton delivered must be sent by post to the receiver. Testing methods: For this purpose the apparatus SV /622 of the VNIIKIMash (All-Union Scientific Research Institute for the Construction of Oxygen Apparatus) is used. For determining the content of oxygen the apparatus VTI (absorption by pyrogallol) is used. A formula is given for the permissible content of

nitrogen and argon. The content of hydrocarbon is determined by means of a titrometric gas analyzer TG-5. The quantity of technical krypton supplied is determined by weight, calculation of the content of krypton and xenon being carried out separately according to the aforementioned formula. A formula is also given for the determination of the specific volume of the technical krypton delivered.

1. Krypton—Production 2. Krypton—Standards 3. Krypton—Storage 4. Krypton—Applications

5(2)
AUTHORS: Vagin, Ye. V., Candidate of Chemical Sciences, Petukhov, S. S., Candidate of Technical Sciences

SOV/67-59-2-6/18

TITLE: Determination of the Content of Krypton and Xenon (Opredeleniye soderzhaniya kriptona i ksenona)

PERIODICAL: Kislorod, 1959, Nr 2, pp 33-36 (USSR)

ABSTRACT: The determination of the content of krypton and xenon in the primary krypton concentrate is of special importance in technical production. In this connection several methods have already been devised which are discussed in brief (Fastovskiy, Ref 1, VNIIPODZEMGAZ, Ref 2, Janák, Ref 3, VNIIKIMASh with the authors of a previous paper Ref 4, Burto and Rodzinek Ref 6). The analysis was made by means of an apparatus designed by the Vsesoyuznyy nauchnyy issledovatel'skiy institut kislorodnogo mashinostroitel'stva (All-Union Scientific Research Institute for the Construction of Oxygen Plants) by the authors in cooperation with Engineer A. F. L'vova and the Laboratory Assistant Ye. N. Razheva. The principal diagram of the apparatus is illustrated in figure 1. It is equipped with a dosing gauge by means of which the pressure and quantity of the gas mixture to be investigated (primary krypton

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concentrate) is maintained constant throughout the analysis. After the gas has been heated for eight to ten minutes all chemically active impurities enter reaction with calcium, while the remaining gases are then adsorbed in a KSM-silica-gel adsorber at temperatures of liquid nitrogen. By repeatedly freezing out Kr and X as well as by sucking off Ar from the mixture, argon is removed from the desorbed mixture of argon-krypton-xenon. The content of xenon and krypton of the primary concentrate is determined by means of the lower scale of the vacuometer. This scale was computed according to the formula $C_{Kr} = \frac{P_n V_n}{P_o V_o} 100$, where C_{Kr} denotes the content of krypton in the gas to be analyzed, P_n the pressure of krypton in the calibrated volume, V_n the calibrated volume corresponding to the pressure P_n, P_o the initial pressure of the mixture, and V_o the volume of the pipette I (Fig 1). The dependence $V_n = f(P_n)$ is a linear one. The afore-mentioned

apparatus secures accuracy of determination of up to 0.005 % (Tables 1 and 2). The apparatus is introduced in Soviet industry and is used in several works for the purpose of checking the production of crypton. There are 2 figures, 2 tables, and 6 references, 5 of which are Soviet and 1 Czechoslovakian.

5(0)

SOV/67-59-4-18/19

AUTHORS: Bondarenko, N. I., Engineer, Kalinin, V. V., Engineer, Samarin, B. P., Engineer, Vagin, Ye. V., Candidate of Chemical Sciences, Petukhov, S. S., Cand[illegible] Technical Sciences

TITLE: Answers to Readers

PERIODICAL: Kislorod, 1959, Nr 4, p 53 (USSR)

ABSTRACT: Question (A. Ye. Bykov, Tekeli, Kazakhskaya SSR): How do you explain the pressure increase in the second stage of the air compressor in the SK-05 apparatus? Answer (N. I. Bondarenko). By the resistance increasing with the passage of air through the decarboniser. Question (L. G. Konyukh, Kemerovo): Does the USSR manufacture oxygen compressors with capacities of 150 - 200 m^3/hour? Answer (V. V. Kalinin): Yes, the types 2RK-2/4 (120 m^3/hour) and 2RK-4/5 (220 m^3/hour). Question (N. V. Volodina, Stalinogorsk, Tula oblast'): Is oxygen stored in wet gas containers? Answer (B. P. Samarin): Yes, according to the plan of the GPI "Proyektstal'konstruktsiya" and the GIAP, since 1957. 1st Question (V. N. Ol'khovik, Pervomayskiy, Tula oblast'): Which are the purifying methods used today for

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raw crypton? Answer (Ye. V. Vagin, S. S. Petukhov): The principal methods are enumerated and explained. 2nd question: Is it possible to use NaOH instead of KOH to dry the crypton concentrate? Answer: It is, but under certain conditions.

Card 2/2

VAGIN, Ye.V., kand. khim. nauk; PETUKHOV, S.S., kand. tekhn. nauk

All-Union Conference on Gas Chromatography. Kislorod 12 no.1:52 '59. (MIRA 12:6)

(Gas chromatography)

VAGIN, Ye.V.; PETUKHOV, S.S.; ZHELEZNYAK, V.I.

Chromatographic method for determining microconcentrations of carbon dioxide in oxygen. Zav.lab. 28 no.2:140-141 '62. (MIRA 15:3)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut kislorodnogo mashinostroyeniya.
(Carbon dioxide) (Oxygen--Analysis) (Chromatographic analysis)

GONCHARENKO, N.V.; PETUKHOV, S.V.

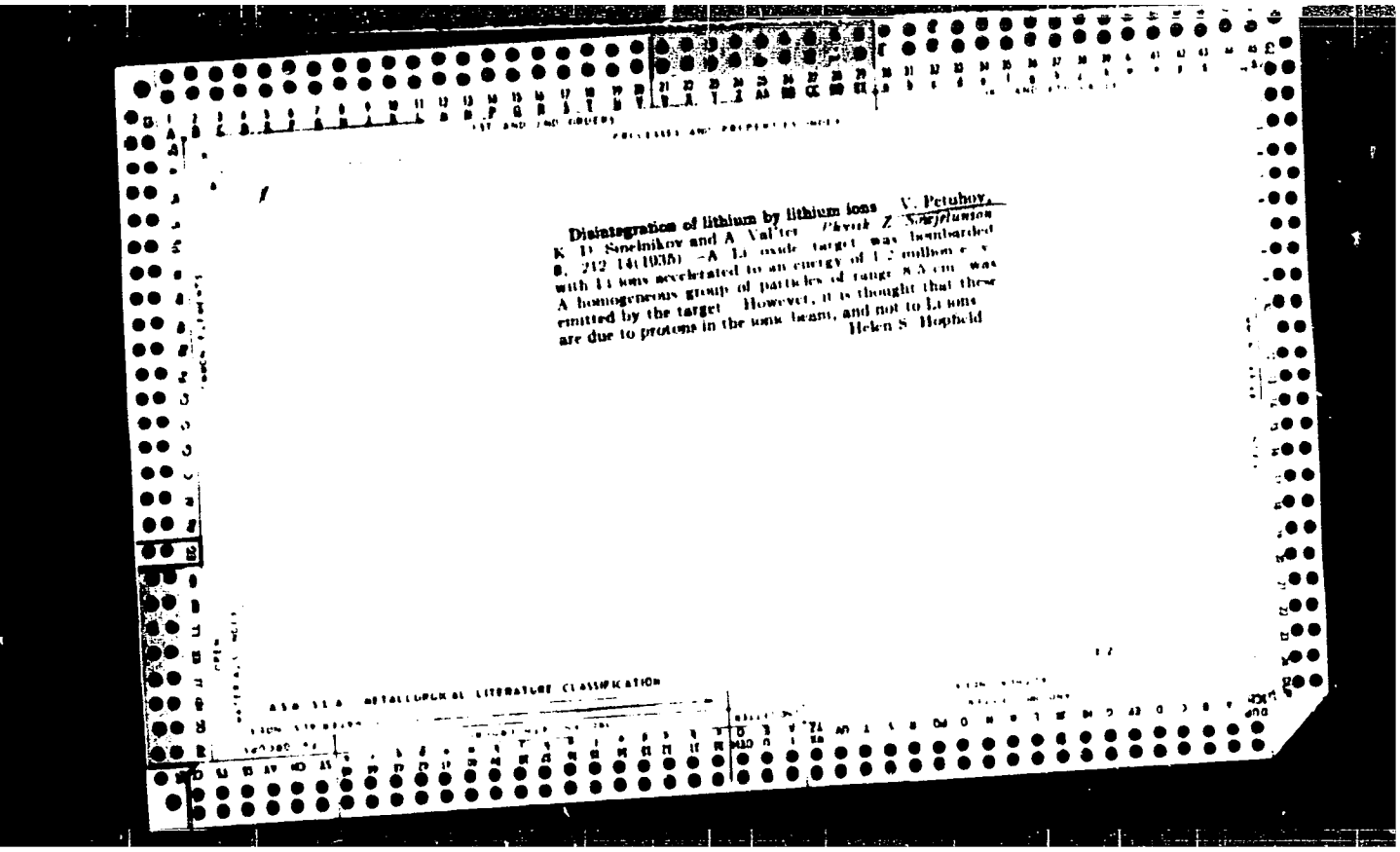
Use of compressed air for opening press molds and dies. Biul. (MIRA 15:5)
proizv. no.4:44-45 Ap '62.
(Die casting) (Compressed air)

PETUKHOV, T.S.

In the case of the faulty operation of the No.222 engineer's valve we are using the valve of the auxiliary brake. Elek. i tepl. tiage 4 no. 9:20 S '60. (MIRA 13:12)

1. Pomoshchnik mashinista teplovoza depo Krasnoufimsk Kazanskoy dorogi.

(Diesel locomotives) (Railroads--Brakes)



Disintegration of lithium by lithium ions V. Petukhov, K. D. Sinelnikov and A. Val'ter *Physik. Z. Sowjetunion* 8, 712-14(1935) —A Li oxide target was bombarded with Li ions accelerated to an energy of 1.2 million e. v. A homogeneous group of particles of range 8 cm. was emitted by the target. However, it is thought that these are due to protons in the ions beam, and not to Li ions.
Helen S. Hopfield

PROCESSES AND PROPERTIES INDEX

BC

a-1

Disintegration of lithium by lithium ions. V. Petrubov, O. Shvilnikov, and A. Walther (Physikal. Z. Sowjetunion, 1935, 8, 212—214).—The excitation function and abs. yield of the transmutation $_3Li^6 + {}_3Li^6 \rightarrow 3\,{}_2He^4$ are > vals. predicted by Gamow's formula. The contrary result of Whitmer and Pool (Physical Rev., 1935, [ii], 47, 795) is probably due to protons in the ionic beam. T. G. P.

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

L 60252-65 ARG/EED-2/EEO-2/EEC(k)-2/EWA(h)/EWG(m)-2/EWP(c)/EWT(d)/EWP(h)/
FBD/FBG/FCS(k)/ETC(m)/T-2/EWA(d)/EEC(c)-2/FSS-2 Pg-4/Pk-4/Pl-4/Pn-4/Po-4/
Pq-4/Pr-4/Pw-4/Pac-4/Pae-2 WW
ACCESSION NR: AP5011211 UR/0018/65/000/004/0093/0095

AUTHOR: Filippov, A. (Engineer, Lieutenant Colonel); Petukhov, S. (Engineer, Lieutenant Colonel)

84
B

TITLE: On the probability of destroying targets

SOURCE: Voyennyy vestnik, no. 4, 1965, 93-95

TOPIC TAGS: rocket, rocket target, rocket trajectory, warhead, fragmentation, ballistics, target surface, target detection

ABSTRACT: This theoretical analysis of destroying aerial targets with zenithal rockets starts with equation $P = P_b P_{det} P_g$, where P is the probability of destroying a single target with a single rocket, P_b is the probability of a perfect performance of all the elements involved, P_{det} is the probability of detecting and of continuous tracking of the target, and P_g is the probability of destroying an aerial target with the rocket warhead. Each of the above factors is described, analyzed mathematically, and correlated graphically with the time or distance involved in destroying the target. The process of using a group of rockets is next discussed with special attention given to the scattering of individual rockets from

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L 60252-65
ACCESSION NR: AP5011211

the desired trajectory and to the effectiveness of the whole group. The destructive power of warheads at various distances from a target and also the destructive power of rocket fragments is analyzed on an example of the American missile Hawk. The total scattering velocity of the fragments ($\bar{V}_c$) is obtained from equation $\bar{V}_c = \bar{V}_p + \bar{V}_o$, where $\bar{V}_p$ is the rocket velocity and $\bar{V}_o$ is the specific velocity of a fragment. The latter term is calculated from equation $V_o = \frac{D}{2}\sqrt{\frac{m}{2M}}$. Here D is the velocity of charge explosion in m/sec, m is the mass of charge, and M is the mass of the casing. The American approach to the subject of destroying a group of targets and to the use of nuclear warheads is reviewed, with a consideration of Hawk and Telos missiles. The article is concluded with an analysis of the probability of a single aircraft being destroyed by a single Nike Ajax or Hawk missile. Since this probability does not exceed 0.6-0.8, the use of a group of similar rockets is recommended, with the number of rockets in the group calculated from formula $P_n = 1 - (1 - P)^n$, where n is the number of rockets shot at a single target. Orig. art. has: 5 equations, 3 diagrams, and 2 graphs.

ASSOCIATION: none

SUBMITTED: 00 ENCL: 00 SUB CODE: GM

NO REF SOV: 000 OTHER: 000

Card 2/2

L 14961-65 EWT(m)/EPF(c)/EPF(n)-2/EPR/EWP(b) Pr-4/Ps-4/Pu-4 AEDC(b)/AFWL/ ESD/AS(mp)-2/ESD(gs)/Pb-4 JD/HLK

ACCESSION NR: AT4048193 S/0000/64/000/000/0125/0129

AUTHOR: Vagin, Ye. V., Petukhev, S. S.

TITLE: The application of chromatographic methods to the production of oxygen and rare gases 27

SOURCE: Vsesoyuznaya nauchno-tekhnicheskaya konferentsiya po gazovoy khromatografii. 2d, Moscow, 1962. Gazovaya khromatografiya (Gas chromatography); trudy* konferentsii. Moscow, Izd-vo Nauka, 1964, 125-129

TOPIC TAGS: gas chromatography, automatic chromatograph, adsorption column, krypton determination, acetylene admixture, thermochemical detector, oxygen production, argon production, nitrogen determination

ABSTRACT: The paper concerns chromato-thermographic methods in which the separation of admixture components is combined with their accumulation for analysis. The equipment is illustrated schematically (see Fig. 1 of the Enclosure) and described; its main feature is a carefully coordinated monitoring system for the adsorption column. The dried gas passes through an adsorption column for analysis of the components and further through a gas counter into the recipient. One of the main requirements for satisfactory performance is a constant volume of the gas specimens to be analyzed;

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this is based on the timer system. Such equipment was used at VNIIKIMASh for determining micro-concentrations of acetylene, CO_2 and Krypton in oxygen, as well as nitrogen in argon (e.g. 0.175 parts per million acetylene in oxygen). The adsorption column was filled with active aluminum oxide, using as detector a monitor of the thermochemical type. The KhTD apparatus represents the industrial production model, developed by VNIIKAN-EFTEGAZ together with VNIIKIMASh for Krypton production. It may be used as the basic model for detecting microconcentrations of easily adsorbed components according to the method presented. Orig. art. has: 2 figures and 1 table.

ASSOCIATION: None

SUBMITTED: 16Jul64 ENCL: 01 SUB CODE: IC, IE

NO REF SOV: 003 OTHER: 002

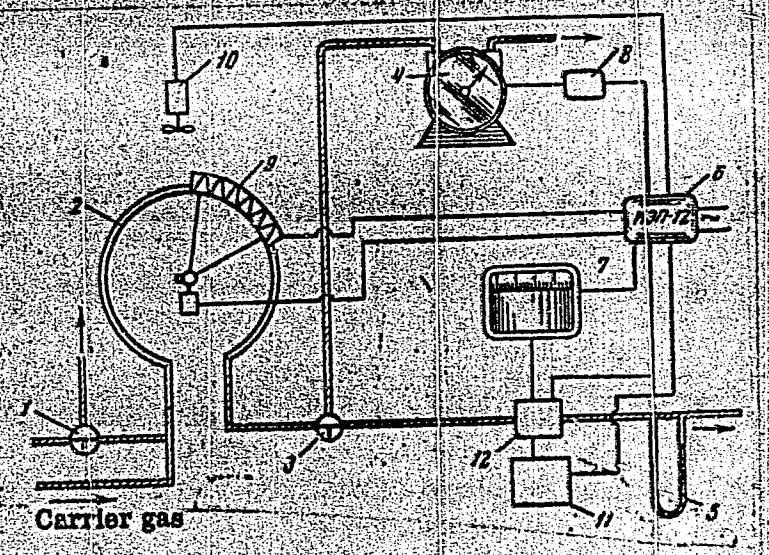
L 14961-65

ACCESSION NR: AT4048193

ENCL: 01

Fig. 1 - Schematic diagram of the chromato-thermographic equipment:

1 - gate valve
2 - adsorption column
3 - gate valve
4 - gas counter
5 - rheometer
6 - timer (kZP-12)
7 - potentiometer
8 - volume indicator
9 - electrical furnace
10 - ventilator
11 - electrical current source
12 - detector



Card 3/3

PETUKHOV, V., inzh.

Model layouts for controlling electric centralization stations. Transp. stroi. 13 no.4:11-12 Ap '63. (MIRA 16:4)

(Railroads—Electric equipment)

PETUKHOV, V., doktor fiz.-matem.nauk (Moskva)

Cosmic diapson of energies. Nauka i zhyttia 12 no.4:18-20 Ap '62. (MIRA 15:8)
(Particle accelerators)

PETUKHOV, V., inzhener.

Improve the (technical) courses given in Shcherbakov. Muk.-elev. prom. 20 no.2:28 F '54. (MLRA 7:7)

1. Shcherbakovskiye mezhoblastnyye statsionarnyye kursy Zagotzerno.
(Shcherbakov--Technical education) (Technical education--Shcherbakov)

PETUKHOV, V.

Labor productivity has been doubled. Prom.koop. no.8:27 Ag '5[illegible]
(MIRA [illegible])

. Tekhnoruk [illegible] promarteli, Kimry.
(Labor productivity)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240710006-0"

84-58-6-48 59

AUTHOR: Petukhov, V., Leading Department Engineer

TITLE: Answers to Queries (Otvechayem na voprosy chitateley)

PERIODICAL: Grazhdanskaya aviatsiya, 1958, Nr 6, p 37 (USSR)

ABSTRACT: Three queries by G. Grube, radio operator of an Alma-Ata operational unit, ask about the coefficients of thermal expansion of materials used for the fuselage and the control cables, their effect on the tightness of these controls in changing temperatures, and the elimination of such effects. The answers admit a difference and give a method for its computation in materials now in use. The solution of the problem is seen in selecting materials with equal coefficients of expansion and in the introduction of rigid lever systems instead of cable controls.

ASSOCIATION: GosNII GVF

1. Airplanes--Materials 2. Materials--Thermal expansion

Card 1/1

PETUKHOV, V.

YERMAKOV, A.; KUCHEROV, Ye.; SUBBOTIN, V.; PETUKHOV, V.

Victory of Soviet model airplane builders. Kryl.rod. 7 no.11:13-14 N '56. (MIRA 10:1)

(Airplanes--Models)

PETUKHOV, V., kapitan transporta; RONANOV, B., starshiy pomoshchnik kapitana tankera

Cargoes are delivered on time. Tyl i snab. Sov. Voor. Sil 21 no.7:46-49 Jl '61. (MIRA 14:8)
(Russia--Navy--Transport service) (Cargo handling)

PETUKHOV, V. A.

O vozmozhnosti neytronnykh izverzheniy na Solntse v svyazi s nablyudeniyami polyarnykh bur' (Possiblity of Neutron Emission on the Sun with Relation to Observations of Aurorae Boreales and Magnetic Storms). Soveshchaniye po voprosam kosmogonii, 3rd. May 14-19, 1953. Trudy, 1954, p. 216-218, 9 refs.

QB981.S72 1953

Pitukhov, V.A.

Pitukhov, V. A. (*Geophysical Inst., Academy of Sciences, Moscow*), Solar neutron ejection as the cause of auroras and magnetic storms. (In: The airglow and the aurorae: a symposium. London, Pergamon, 1956. p. 254-261. table, 11 refs., 3 eqs.) DWB—It is suggested that the incoming stream causing auroras and magnetic storms consist initially of neutrons ejected from the sun, the neutrons decaying into protons and electrons during their passage to the earth. The consequences of the suggestion are discussed in detail. *Subject Headings:* 1. Solar neutrons 2. Auroral particles 3. Magnetic storms.—*Author's abstract.*

PETUKHOV, V. A.

"Solar Neutron Emission as Sources of Magnetic Disturbances and Aurorae."

The International Association of Geomagnetism and Aeronomy: Abstracts of the Reports at the XI General Assembly of the International Union of Geodesy and Geophysics) Moscow, Izd-vo AN SSSR, 1957. 46 p.

Abstract: The author discusses the neutron theory explaining the relationship between solar activity and processes occurring on earth, the psossibly physical processes leading to the formation of a large number of neutrons and the experimental findings in this field, and the determination of velocities of solar particles by time intervals between phenomena occurring on the sun and on earth.

Petukhov, V.A.

523.75 2740

Determination of the Velocity of Corpuscles, Ejected from the Active Regions of the Sun, from the Time of Delay of Phenomena on the Earth.—V. A. Petukhov. (*Bull. Acad. Sci. U.R.S.S.*, sér. géophys., Jan. 1957, No. 1, p. 124. In Russian.) Brief note drawing attention to the fact that the corpuscles are not necessarily ejected radially from the sun.

PETUKHOV, V.A.

Possibility of element formation under the influence of cosmic rays [with summary in English]. Vop. kosm. 5:196-199 '57. (MLRA 10:8)
(Cosmic rays) (Chemical elements)

PETUKHOV, V.A.; MIRONOV, V.F.; SHORYGIN, P.P.

Ultraviolet spectra and structure of unsaturated compounds of the elements of group IV. Izv. AN SSSR Ser. khim. no.12:2203-2206 D '64 (MIRA 18:1)

1. Institut organicheskoy khimii imeni N.D. Zelinskogo AN SSSR.

GOL'DFARB, Ya.L.; ANTIK, L.V.; PETUKHOV, V.A.

Nitration products of α- and α^1-aminonicotines. Izv.AN SSSR.Otd. khim.nauk no.5:887-894 My '61. (MIRA 14:5)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.
(Pyridine) (Nitration)

MINACHEV, Kh.M.; RYASHENTSEVA, M.A.; PETUKHOV, V.A.

Reforming of the gasoline fraction of the Volga - Ural petroleums on a rhenium-silica catalyst treated with hydrogen sulfide. Izv. AN SSSR. Otd.khim.nauk no.7:1307-1310 Jl '61. (MIRA 14:7)

1. Institut organicheskoy khimii im. N.D. Zelinskogo AN SSSR.
(Gasoline) (Catalysts)

VOL'KENSHTEYN, Yu.B.; LOPATIN, B.V.; PETUKHOV, V.A.

Study of the composition of products of bromination of 2-thienyl-ketones in the presence of an excess of aluminum chloride. Izv. AN SSSR.Otd.khim.nauk no.10:1879-1883 O '61. (MIRA 14:10)

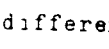
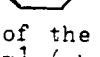
1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.
(Ketones) (Bromination)

S/076/61/035/002/002/015
B124/B202

AUTHORS: Shorygin, P. P., Roshchupkin, V. P., Petukhov, V. A., and Yegorova, Z. S.

TITLE: Effect of substituents on the properties of molecules containing a system of conjugate π bonds

PERIODICAL: Zhurnal fizicheskoy khimii, v. 35, no. 2, 1961, 258-268

TEXT: The authors study the group of para-derivatives of nitrobenzene X -  - NO_2 with different substituents X. To characterize the compounds the following values are given in Table 1: 1) difference ($\Delta\omega_s$, in cm^{-1}) between the values of symmetrical stretching vibrations of the nitro group of the compound X -  - NO_2 and those of non-substituted nitrobenzene on the basis of the Raman spectra of benzolic solutions; the accuracy is $\pm$ 0.5 - 1cm^{-1} (the values with asterisks are obtained from the infrared spectra). In the case of doublets the mean value of the frequency which has the symbol $\sim$ is given. The frequency

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ω_s of the nonsubstituted nitrobenzene in benzene is 1347.5 cm^{-1}; 2) the difference ($\Delta\omega_{as}$ in cm^{-1}) between the values of the frequency of the antisymmetric stretching vibration of the nitro group of compound

X -⬡- NO_2 and of those of nitrobenzene on the basis of the infrared absorption spectra of the benzolic solutions; accuracy ±2 cm^{-1}. The frequency ω_{as} of nitrobenzene is 1533 cm^{-1}; 3) the coefficient of the total intensity (I_s) of the Raman bands with the frequency ω_s; 4) characteristics of the intense absorption bands in the UV range for solutions in heptane; the wavelengths are given in parentheses in A; at the values $\varepsilon/1000$, ε denotes the (decimal) molar absorption coefficient in the maximum of the bands; 5) difference (λ_1, in A) between the λ_1-values of the compounds X -⬡- NO_2 and those of nitrobenzene from the values measured in benzene; 6) difference ($\Delta\mu$) between the dipole moment μ of compound X -⬡- NO_2 and the sums of the vectors of the moments

X -⬡ and ⬡- NO_2 (in debyes) which also characterize the interaction

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of the groups concerned, and 7) Hammett constants σ_{para} characterizing the effect of the substituents X on the reactivity of the groups Y in the molecules X - ⬡ - Y. The electropositive and electronegative substituents influence the oscillation frequency of the nitro group as well as the deviations of the dipole moments from the additivity and the reactivity mainly in opposite direction, whereas they influence the optical properties (intensity of Raman bands of the NO_2 group, polarizability, position and intensity of the absorption bands) in the same direction. In all cases, the effect of the electropositive substituents in the molecules X - ⬡ - NO_2 is considerably stronger than that of the electronegative substituents, whereas the opposite holds for the molecules. Ramified and not ramified alkyl groups influence the physical properties of the nitro compounds in the same way. The effect of methylation on the influence of the substituents increases in the following order: $CH_3 < OH < SH < NH_2$. The effect of the substituents C_6H_5 and $CH_2{:}CH_2$ on the dipole moments, frequency of the nitro groups, and the chemical properties is relatively low, on the optical properties, however, it is strong. This holds for substituents of the type CH:CH·Z, ·C_6H_4·Z and ·N:N·Z. The

Effect of substituents on the properties...

interaction of two atom groups on their chemical bonds is reduced with increasing length of the chain of the π bonds which separate these groups from one another. The effect of the substituents on the optical properties is the stronger the longer the chain of the conjugate bonds. Heavy atoms which are connected with the system of π bonds over a CH_2 bridge considerably influence the system concerned, i.e., mainly the parameters of the ~ electron excitation levels. T. I. Ambrush, M. A. Ceyderikh, Ye. A. Smirnov, A. V. Dombrovskiy, E. I. Budovskiy, G. S. Ter-Sarkisyan, U. I. Khurgin, A. Kh. Khomenko, A. N. Nesmeyanov, R. V. Golovnya, B. V. Lopatin, V. N. Vasil'yeva, and V. G. Vasil'yev are mentioned. There are 6 figures, 1 table, and 3 references: 2 Soviet-bloc and 1 non-Soviet-bloc. 1 reference to English language publications reads as follows: C. Curran, F. Palermiti, J. Amer. Chem. Soc. 73, 3733, 1951.

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Effect of substituents on the properties...

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① Группа X в O_2N—C$_6$H$_4$—X	② Валентные колебания нитрогруппы $\Delta\omega_a$	$\Delta\omega_{as}$	I_a	λ_i ($\frac{\varepsilon_i}{1000}$); f_i
—O—	—5	—9	4000	2930 (15) 0,37
—Ph	—1,5	—8	5500	2940 (18) 0,45
—NHCOR	—1 •	—	—	3000 (15,4) 0,44
—NRCHO	—10	—18	6000	3040 (12) 0,35
—SH	—7,5	—	6000	3050 (12,7) 0,32
—SR	—8	—12	17000	3260 (15) 0,30
—C:N—R	—4	—5	18000	3530 (9) 0,18
③ — ферроцен	—8	—10	—	2500 (10,5) 0,35
				3900 (4) 0,06
				3120 (16,5) 0,37
—NH$_2$	—12	—16	20000	3200 (16) 0,37
—N:N—	—3 •	0	—	3250 (24) 0,82
—C:C—C:C	—6,5	—9	22000	3300 (22) 1,60
				3130 (21)
—C:C—	—6	—10	22000	3300 (18,7) 0,52
—NH—NH—Ph	—16	—18	38000	3300 (15,7) 0,47
—NH—NH$_2$	—19	—15	45000	3350 (19) 0,47
—C:C—Ph	—6	—10	66000	3450 (20) 0,50
—NHR	—21	—20	75000	3400 (18) 0,39
—NHPh	—26	—27	—	3530 (21) 0,42
—NR$_2$	—28	—	240000	3540 (20) 0,41
—NH$_2$	—29	—24	400000	3620 (22) 0,40
—C:C—C:O	—6	—	200000	3740 (35) + 0,8
N—O				
C				
Ph	—8 •	—10	—	3940 (50) + 1,2
—C:C—NH$_2$	—6	—	—	3830 (26) 0,6
—C:C—R$_2$	—8	—	$5 \cdot 10^4$	4130 (28) 0,62
—C:N—NR$_2$	—5 •	—	—	4350 (22) 0,5
—N:N—NR$_2$	—9 •	—5	—	4430 (32) 0,67

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Effect of substituents on the properties...

УФ спектры поглощения			$\Delta\mu$	$\sigma_{пара}$
λ_i; $\left(\frac{\varepsilon_i}{1000}\right)$	λ_i; $\left(\frac{\varepsilon_i}{1000}\right)$	$\Delta\lambda_e$		
2180 (12)	1830 (12)	420	0,6	−0,3
2220 (12)	—	440	0,3	~0
2240 (12)	—	520	—	~0
2240 (9)	—	540	—	—
2240 (8)	—	560	—	0,1
2200 (8)	—	780	0,6	−0,05
2550 (13)	—	—	—	—
2800 (11)	—	—	—	—
2260 (8,5)	1940 (19)	820	1,0	−0,65
2140 (13)	—	740	0,4	—
2340 (14)	—	760	—	—
2380 (12)	1985 (3[illegible])	720	0,5	—
2280 (12)	—	800	—	—
2250 (11)	—	870	—	−0,65
2400 (17)	—	930	—	—
2220 (8)	—	1050	1,2	−0,7
2350 (8)	—	1130	0,8	−0,65
2280 (8)	1960 (21)	1180	1,4	−0,7
2320 (8)	—	1260	—	—
2670 (11)	—	1200	—	—
3060 (19)	2450 (15)	1430	—	—
2750 (11)	—	1380	—	—
2890 (12)	1960 (31)	1680	—	—
2690 (24)	—	18[illegible]	—	—
2780 (12)	—	[illegible]050	—	—

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