USSR/Chemistry - Isotopes, Kinetics of Catalytic Oxidation Jul/Aug 53

"Catalytic Oxidation of the Simplest Unsaturated Hydrocarbons With Heavy Oxygen," L. Ya. Margolis, Ye. G. Plyshevskaya, Inst Phys Chem, Acad Sci USSR

Iz Ak Nauk SSSR, OKhN, No 4, pp 697-703

Investigated oxidation of ethylene and propylene at the catalysts V_2O_5, V_2O_4, and $MgCr_2O_4$. By using heavy oxygen, established the varying extent to which the oxygen of the catalysts participates in the process of catalytic oxidation. Found that there is a

270T4

connection between participation of the catalyst's oxygen in the reaction and formation of products of incomplete oxidation. Application of mass spectrometry for analysis of reaction products clarified differences in the mechanism of the oxidation of hydrocarbons at different catalysts.

270T4

PLYSHEVSKAYA, E. G.

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

Rate of renewal of protein and chlorophyll in the higher plants. F. V. Turchin, M. A. Guminskaya, and E. G. Plyshevskaya. *Izvest. Akad. Nauk S.S.S.R., Ser. Biol.* 1953, No. 5, 66–78.—By means of N^{15}-tracer methods employed with the N supply of oats, rye, and spinach plants, it was shown that protein synthesis begins in the plant with formation of constitutional proteins of the protoplasm; labeled N appears in these proteins within 4 hrs. of administration in the nutrient. The reserve proteins form from transformation of constitutional proteins, the latter not being infinitely stable as previously supposed. New protein synthesis is paralleled by decline of disaccharides. Chlorophyll is constantly renewed and some 50% is renewed within 24 hrs. as shown by concn. of N^{15} accumulated in rye chlorophyll; in spinach the period is some 72 hrs. for 95.8% renewal. G. M. Kosolapoff—

ROZENFEL'D, E.L.; PLYSHEVSKAYA, E.G.

Investigation of the qualitative peculiarities of rabbit muscle glycones during alloxan diabetes. Biokhimiya 18, 51-5 '53.(MLRA 6:1) (CA 47 no.15:7640 '53)

1. Lab. Physiol.Chem., Acad.Sci., U.S.S.R., Moscow.

Plyshevskaya, E. G.

The effect of structure of different polysaccharides of vegetable and animal origin on their capacity to form complexes with proteins. B. L. Rozenfel'd and E. G. Plyshevskaya (Lab. Physiol. Chem. and Inst. Biophys. Acad. Sci. U.S.S.R., Moscow). *Biokhimiya* 19, 161-6(1954).—Polysaccharides whose mol. structure is a long unbranching chain of the glucopyranose or fructofuranose type and polysaccharides of the type of β- and φ-dextrins form no complexes with proteins. Glycogens, amylopectins, α-dextrins, and dextrins can enter into complex formation with proteins. Myosin is not susceptible to polysaccharide complex formation. The fibrillar proteins enter into polysaccharide complex formation more readily than the globular proteins. The max. absorption of all such polysaccharides is λ 2650 A., and is independent of the type of carbohydrate or protein constituting the complex.

B. S. Levine

PLYSHEVSKAYA, E. G.

Reaction of various proteins with glycogen. E. G. Plyshevskaya and E. L. Rozenfel'd. *Doklady Akad. Nauk S.S.S.R.* 94, 1141–4(1954); cf. *C.A.* 42, 5032*d*; 43, 2252*b*; 47, 6191*h*.—Expt. results obtained with various proteins indicate the widely distributed ability to form complexes with polysaccharides. The complexes have absorption max. 2960–2950 A. in all cases. The degree of binding varies and depends on structural peculiarities of the various protein mols. Thus, glycogen forms such complexes with myosin, fibrinogen, edestin, and egg albumin. Absorption spectra of these are shown.

G. M. Kosolapoff

PLYSHEVSKAYA, E. G.

Some peculiarities of dextran and its interaction with blood proteins. E. L. Rozenfel'd and E. G. Plyshevskaya. *Doklady Akad. Nauk S.S.S.R.* 95, 333-6(1954); cf. *C.A.* 46, 1128i8h.—Dextran is a branched polysaccharide produced from sucrose with the aid of *Leuconostoc mesenteroides* and contains 1,6-bound glucose units, with branching at 1,4-positions. Tests with dextran soln. in 0.0% NaCl were made in respect to its complexing with proteins which may be of importance in the application of dextran as a blood substitute. The binding was followed spectrographically. Although complexing with fibrinogen, serum albumin, γ-globulin, and myosin was observed, this phenomenon is much weaker than is observed with polysaccharides of the glycogen type. At 0% concn. dextran shows no effect on the spectrum of myosin and only at concn. of 25 mg./l. does the complex appear as shown by abs. max. 2050 A.; only those groups are bound which contribute to absorption in the longer wave end of the spectrum, and almost all groups of the protein are bound finally only with dextran concn. reaching 40 mg./l. Fibrinogen shows the greatest complexing ability with dextran of the various blood proteins. In view of the use of high concns. of dextran in blood substitute work the protein interaction should be considered and studied further. G. M. Kosolapoff

Lab. Physiol. Chem. & Biophys. Inst, AS USSR

Translated M-188, 16 Feb 55

Plyshevskaya, E.G.

600/1-emz

3991 AEC-tr-2435((Pt. 4) p.145-54))
STUDY OF THE NITROGEN NUTRITION AND METABOLISM OF PLANTS WITH THE USE OF THE N^{15} ISOTOPE. F. V. Turchin, M. A. Guminskaya, and E. G. Plyshevskaya. p. 145-54 of CONFERENCE OF THE ACADEMY OF SCIENCES OF THE USSR ON THE PEACEFUL USES OF ATOMIC ENERGY, JULY 1-5, 1955. SESSION OF THE DIVISION OF BIOLOGICAL SCIENCE. (Translation). 10p.
This paper was originally abstracted from the Russian and appeared in Nuclear Science Abstracts as NSA 9-7660.

emz

PLYSHEVSKAYA

Nitrogen nutrition and metabolism of plants with the aid of nitrogen-15. F. V. Turchin, M. A. Gumińskaya, and R. G. Plyshevskaya. *Sessiya Akad. Nauk S.S.S.R. po Mirnomu Ispol'zovaniyu Atomnoi Energii* 1955, *Zasedaniya Otd. Biol. Nauk* 234-52(English summary, 252-3).—N^{15}-labeled $(NH_4)_2SO_4$ is used for N nutrition of oats and wheat under various conditions. The results show a continuous self-renewal of proteins in the plants, which is most active in young leaves in which within 90–100 hrs. almost all protein is renewed. Reserve proteins of the green parts are less rapidly renewed than are the constitutional proteins. In the roots the renewal process is slower. Mineral N is rapidly utilized for synthesis of amino acids in the roots (within 15 min.) the reserve proteins acting as carriers of the necessary enzyme systems. N of the pyrrole rings of chlorophyll is being constantly renewed (almost complete renewal in 100 hrs.). Illumination is an important factor in this phenomenon; even 6 hrs. in the dark causes a rapid decline of entry of N into the plant with simultaneous drop of amino acid synthesis. Renewal rate of proteins also falls off. G. M. Kosolapoff

(2)

Plyshevskaya, E.G.

4/

Assimilation of atmospheric nitrogen by the mammalian organism. A. M. Kuzin, V. A. Sondak, E. G. Plyshevskaya, and V. V. Zertsalov. *Trudy Inst. Biol. Fiz., Akad. Nauk S.S.S.R.* 1, 250–61(1955).—No true enrichment or assimilation of N^{15} from the atm. was observed after rats were kept 12 days in a chamber the atm. of which had been labeled with N^{15}. These results contradict an earlier claim by Volskii (*Novaya Kontseptsia Dykhaniya*, Gorki, 1954), also *Sovet. Zoolekh.* No. 1 (1952). G. M. Kosolapoff

Plyshevskaya E. G.

MD Nitrogen exchange of plants using nitrogen-15. I. V. Turchin, M. A. Guminskaya, and E. G. Plyshevskaya (Scient. Inst. for Fertilizers and Insecto-fungicides, Moscow). *Fiziol. Rastenii* 2, No. 1, 3–11(1955); cf. following abstr.—The relative rates of synthesis of amino acids (I) and proteins (II) in oats and timothy fed with $(N^{15}H_4)_2SO_4$ were studied. Renewal of II (estd. by isotope concn. of individual N fractions) was most rapid in young, rapidly growing plants and decreased with age, although total II and the ratio of individual II components remained practically const. Production of alanine was most rapid (noted in 5–30 mins.) with aspartic and glutamic acids next (noted in 1–2 hrs.). I were identified by chromatographic methods. There was 23.75% renewal of I in 24 hrs. Renewal of old II was noted in 2–6 hrs. and structural II was 91% complete in 72 hrs.; for residual II 120 hrs. was required for 91% renewal. Renewal of chlorophyll N was 95% complete in 72 hrs. Synthesis of new II was noted in 12–24 hrs. and was complete in 120 hrs. Synthesis of histidine and tryptophan was noted in 12–36 hrs. All other I appeared to be derived from alanine and the dicarboxylic I. If excess ammonium ion was given to the plant considerable asparagine was produced. A. W. Daly

(2)

Plysheuskaya, E. G.

Application of nitrogen-15 in a study of nitrogen nutrition and transformation in plants. F. V. Turchin, M. A. Guminskaya, E. G. Plyshevskaya, M. V. Tikhomirov, and V. V. Zertsalov. *Pochvovedenie* 1955, No. 7, 1–12.—Peat-sand and water cultures with standard nutrients were used to start the plants. Later, the cultures received $(NH_4)_2SO_4$ enriched with N^{15} in various amts. After definite intervals the plants were harvested and analyzed. The plants were exposed to this treatment from 15 min. to 240 hrs. In this manner it was possible to follow quantitatively the changes taking place in the respective N fractions. The results show that there is a continuous renewal of protein. This process is highly intensified in the tops of young plants. Within 72–120 hrs. all constitutional protein N is fully renewed. The reserve colloidally dissolved proteins are renewed much slower. The N^{15} appears in the constitutional proteins in much earlier stages than in the reserve proteins, which indicates that the synthesis of the former takes place earlier. Both types of proteins are formed much slower in the roots. The data show that 2 hrs. after adding the tagged N it could be detected in the form of amino acids. After 4 hrs. the N^{15} was detected in the chlorophyll and proteins. The mobile reserve proteins were found in the roots indicating movement from the leaves. It is postulated that the transformation of these is accomplished by enzyme systems which catalyze the synthesis of amino acids in plants. The intensity of amino acid formation and renewal of protein drops when plants are in the dark. J. S. Joffe

(4)

Plyshevskaya, Ye. G.

MD
(1)

USSR

The characteristics of liver glycogen and protein complex formation in alloxan diabetes. P. L. Rozenfel'd and E. G. Plyshevskaya (Inst. Biophys., Acad. Sci. U.S.S.R., Moscow). *Biokhimiya* 20, 205-11(1955).—Investigational procedures were the same as described elsewhere (*C.A.* 47, 7640*i*). Alloxan diabetes enhances the property of glycogen of rabbit liver to form complexes with proteins. Insulin therapy reconstitutes the property of muscle glycogen to form complexes with proteins which is adversely affected by alloxan diabetes. Similar therapy has no effect on the ability of liver glycogen to form complexes with proteins. The constitution of the liver glycogen fractions extracted with difficulty in alloxan diabetes is not affected by insulin therapy.

B. S. Levine

Plyshevskaya, E. G.

Complex formation in the radiostability of myosin. A. M. Kuzin and E. G. Plyshevskaya (Inst. Biol. Phys., Acad. Sci. U.S.S.R., Moscow). *Biofizika* 1, 141–2(1956).—The denaturant action of ionizing radiation on solns. of myosin was investigated. Polysaccharide complexes with myosin, detected in the ultraviolet region of the spectrum, significantly increase the radiostability of myosin. Polysaccharides with no complexing power (inulin, β-dextrin) show very little protective effect and almost no change in the radiostability of myosin.

Anne Harmon

PLYSHEVSKAYA, E. G.

Effect of exposure to Röntgen rays and heating on egg albumin and on its capacity for complex formation with glycogen. E. L. Rozenfel'd and E. G. Plyshevskaya (Inst. Biol. Phys., Acad. Sci. U.S.S.R., Moscow). *Biofizika* 1, 143–5(1956).—Exposure of a soln. of egg albumin to x-rays, beginning with 5000-r. portions, and heat denaturation of egg albumin each increase its capacity for complex formation with glycogen. Spectrophotometric investigation of the complex formation of egg albumin with the polysaccharide makes possible the observation of the early phase of denaturation in the albumin mol. A. Harmon

PLYSHEVSKAYA, E.G.

Biosynthesis of amides in plants from N^{15}-labeled ammonia. V. L. Kretovich, Z. G. Evstigneeva, and E. G. Plyshevskaya (A. N. Bakh Biochem. Inst., Moscow). *Doklady Akad. Nauk S.S.S.R.* 109, 1091-4(1956).—$^{15}NH_4NO_3$ used as N source in expts. with sugar beet (for glutamine synthesis [illegible] with Jerusalem artichoke for asparagine synthesis), in which the plant roots were immersed in the test soln. for several days, gave tracer results indicating formation of N^{15}-labeled asparagine and N^{15}-labeled glutamine. The inclusion of labeled N into glutamine proceeds more rapidly than that in asparagine. The N^{15} is found predominantly in the amide grouping. G. M. Kosolapoff

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Inst. Biophysics AS USSR

PLYSHEVSKAYA, Ye. G.

USSR / Plant Physiology. Mineral Nutrition. I-3

Abs Jour : Ref Zhur - Biol., No 10, 1958, No 43728

Author : Tserling, V. V.; Shcheglova, G. M.; Plyshevskaya, Ye. G.; Zertsalov, V. V.

Inst : Soil Institute of the Academy of Sciences, USSR

Title : An Investigation of Plant Metabolism in Relation to Age, Doses and Times of Applying Fertilizers Utilizing the Isotope N^{15}.

Orig Pub : Fiziol. rasteniy, 1957, 4, No. 1, 3-13.

Abstract : Millet was cultivated in a sand culture on a Gel'rigel' mixture. N^{14} was applied to the pots before planting, and N^{15} in side-dressing. The N^{15} content was determined by a mass spectrometer. The variants in the experiment were: $\frac{1}{2}$ dose of N^{14} given before planting, the rest by side-dressings at various times, 1/10 of a dose of N^{14} before planting and 9/10 of a dose by side-dressings at different times. With

Card 1/2

PLYSHEVSKAYA, Ye. G.

"The Investigation of Polysaccharide Albumen Complexes by Spectral Analysis."

dissertation defended for the degree of Candidate of Biological Sciences at the Inst. for Zoology.

Defense of Dissertation (Jan-Jul 1957)
Sect. of Biological Sciences
Vest. AN SSSR, 1957, v. 27, No. 12, pp. 115-117

ROZENFEL'D, YE.L., PLYSHEVSKAYA, Ye.G. (Moskva)

Some results of and procepect for spectroscopic study of protein complexes. Usp.sovr.biol. 46 no.2:130-144 S-O '58 (MIRA 11:11)
(PROTEINS--SPECTRA)
(COMPLEX COMPOUNDS)

L 25811-66 EWT(1)/EWT(m)/T JK

ACC NR: AP6015925 SOURCE CODE: UR/0216/65/000/004/0507/0520

69
B

AUTHOR: Kuzin, A. M.; Plyshevskaya, Ye. G.--Plyshevskaya, E. G.; Kopylov, V. A.; Ivanitskaya, Ye. A.--Ivanitzkaya, E. A.; Lebedeva, N. Ye.--Lebedeva, N. E.; Kolomiytseva, I. K.--Kolomiytzeva, I. I.; Mel'nikova, S. K.--Melnikova, S. K.; Tokarskaya, V.I.

ORG: Institute of Biophysics, AN SSSR, Moscow (Institut biologicheskoy fiziki AN SSSR)

TITLE: Function of the orthophenol-orthoquinone system in the early mechanism of action of ionizing radiation on the organism

SOURCE: AN SSSR. Izvestiya. 19 Seriya biologicheskaya, no. 4, 1965, 507-520

TOPIC TAGS: ionizing radiation, radiation biologic effect, radiation plant effect, tyrosine, sorption, oxidation, DNA, biosynthesis, radiation sickness

ABSTRACT: The authors concluded from a variety of experiments on plants and animals that the initial processes in the irradiated organism develop in the following sequence:

(1) During irradiation the formation of active radicals causes very slight radiochemical oxidation of the phenols present in the cell, chiefly tyrosine.

(2) The resultant oxidation products activate tyrosinase, which immediately after irradiation leads to the formation of large quantities of biologically active orthoquinones.

(3) The resultant orthoquinones are actively sorbed by the cell nuclei.

Card 1/2 UDC: 577.391

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L 25811-66

ACC NR: AP6015925

(4) The orthoquinones sorbed by the nuclei inhibit DNA synthesis, block the incorporation of thymidine into newly synthesized DNA, and alter their fluorescence in the presence of acridine orange.

(5) The blocking of nuclear DNA by the orthoquinones sharply inhibits cell division, giving rise to leukopenia, arrested growth, weight loss, chromosomal aberrations, and, in sufficiently high concentrations, death of the organism. Orig. art. has: 10 figures and 4 tables. [JPRS]

SUB CODE: 06, 07 / SUBM DATE: 22Jan65 / ORIG REF: 021 / OTH REF: 010

Card 2/2 CC

BURSHTEYN, E.A.; L'VOV, K.M.; ROZOVA, L.V.; FRANK, G.M., red.; PLYSHEVSKAYA, Ye.G., red.

[Molecular biophysics] Molekuliarnaia biofizika. Moskva, Nauka, 1965. 251 p. (MIRA 19:1)

1. Chlen-korrespondent AN SSSR (for Frank).

BERKINBLIT, M.B.; BURSHTEYN, E.A.; L'VOV, K.M.; PULATOVA, M.K.; ROZOVA, L.V.; FRANK, G.M., red.; PLYSHEVSKAYA, Ye.G., red.

[Cell biophysics] Biofizika kletki; sbornik statei pod red. G.M.Franka. Moskva, Nauka, 1965. 294 p (MIRA 19:1)

1. Akademiya nauk SSSR. Institut biologicheskoy fiziki.
2. Chlen-korrespondent AN SSSR (for Frank).

KUZIN, A.M.; PLYSHEVSKAYA, Ye.G.; KOPYLOV, V.A.; IVANITSKAYA, Ye.A.; LEBEDEVA, N.Ye. KOLOMIYTSEVA, I.K.; TOKARSKAYA, V.I., MEL'NIKOVA, S.K.

Role of orthophenol-orthoquinone system in the initial mechanisms of ionizing radiation action on the organism. Izv. AN SSSR. Ser. biol. no.4:507-520 Jl-Ag '65. (MIRA 18:7)

1. Institut biologicheskoy fiziki AN SSSR.

L 1398-66 EWT(m)

ACCESSION NR: AP5017763 UR/0216/65/000/004/0507/0520
577.391

AUTHOR: Kuzin, A. M.; Plyshevskaya, Ye. G.; Kopylov, V. A.; Ivanitskaya, Ye. A.; Lebedeva, N. Ye.; Kolomiytseva, I. K.; Tokarskaya, S. K.; Mel'nikova, S. K. 34 33 13

TITLE: Role of the "orthophenol-orthoquinone" system in the primary mechanisms of radiation effect on the organism 19

SOURCE: AN SSSR. Izvestiya. Seriya biologicheskaya, no. 4, 1965, 507-520

TOPIC TAGS: radiation biologic effect, phenol, quinone, enzyme, desoxyribonucleic acid, tyrosine, oxidation

ABSTRACT: A hypothesis stating that the oxidation reaction of orthophenols in response to high energy irradiation is closely related to the formation of orthoquinones (semiquinones) has evolved from the experimental work of the laboratory with which the authors are associated. In the present study the immediate effects of X-irradiation on enzyme process rates were investigated in a tyrosine+tyrosinase model system under strictly controlled conditions

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L 1398-66
ACCESSION NR: AP5017763

(210 kv, 15 ma, no filter, 100 to 1000 r doses, 10 min incubation). Change in enzyme process rate was determined by the concentration of newly formed orthophenols and orthoquinones. With irradiation of the whole system, the concentration was 5 times higher than for controls. Irradiation of only the tyrosine solution led to a lesser concentration, and the concentration decreased still further with irradiation of only the tyrosinase. When the irradiated mixture was incubated with a suspension of mouse thymus nuclei, the tyrosine oxidation products (orthoquinones) were completely absorbed by the nuclei. Fluorescence tests with acridine-orange on thymus nuclei of mice immediately after irradiation and tests on thymus nuclei treated with tyrosine oxidation products demonstrated the similarity of irradiation effect and orthoquinone effect. The same effect was demonstrated with quinone extracts from gamma-irradiated plant tissue (potato). Treatment of carbon-labeled plant sprouts with extracts from irradiated plants depressed DNA synthesis by 50 to 60%, the same as after gamma-irradiation. Injection of purified orthoquinones, extracted from irradiated plant tissues, into young mice caused loss of weight, growth inhibition, and a sharp decrease in leukocyte level of the peripheral blood. These study data demonstrate the importance of the

Card 2/3

L 1398-66
ACCESSION NR: AP5017763

"orthophenol-orthoquinone system" in the primary mechanisms of radiation effect. Orig. art. has: 10 figures and 4 tables.

ASSOCIATION: Institut biologicheskiy fiziki AN SSSR (Institute of Biophysics AN SSSR)

SUBMITTED: 22Jan65 ENCL: 00 SUB CODE: LS

NR REF SOV: 021 OTHER: 010

Card 3/3

PLYSHEVSKAYA, Ye.G.; KUZIN, A.M.

Change in sorption properties of thymus cell nuclei immediately following gamma irradiation. Radiobiologiia 5 no.1:17-20 '65.
(MIRA 18:3)

1. Institut biologicheskoy fiziki AN SSSR, Moskva.

PLYSHEVSKAYA, Ye.G. Cand Biol Sci -- (diss) "Study of polysaccharide-albumin complexes by spectral methods". Mos, 1956. 20 pp 20 cm. (Acad Sci USSR. Inst of Biochemistry im A.N. Bakh) 110 copies (KL, 9-57, 100)

-11-

ACC NR: AP7000366 SOURCE CODE: UR/0413/66/000/022/0143/0143

INVENTOR: Borodulin, G. M.; Dekhanov, N. M.; Kravchenko, V. A.; Plyshevskiy, A. I.

ORG: none

TITLE: Method of obtaining a bimetallic material. Class 48, 188818

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 22, 1965, 143

TOPIC TAGS: metal cladding, diffusion metal

ABSTRACT: This Author Certificate introduces a method of manufacturing clad metal products such as sheets, tubes and bars by impregnating the surface of the base metal with a sublimated substance without direct contact between them. In order to improve the corrosion and oxidation resistance of the surface layer, the impregnation is carried out at 1400—1450C, after which the article is hot or cold rolled. [TD]

SUB CODE: 13/ SUBM DATE: 15Dec61/ ATD PRESS: 5109

Card 1/1 UDC: 621.793.6:621.771.8

L 15210-65 EWT(m)/EWP(w)/EWA(d)/EWP(t)/EPR/EWP(b) Ps-4 SSD/ASD(m)-3/AFTC(p)
HJW/JD/JG/MLK

ACCESSION NR: AT4046858 S/0000/64/000/000/0299/0303

AUTHOR: Borodulin, G. M.; Kravchenko, V. A.; Ply*shevskiy, A. I.

TITLE: Investigation of heavy chromium diffusion coatings 27 18 B+1

SOURCE: AN SSSR. Nauchny*y sovet po probleme zharoprochny*kh splavov. Issledovaniya staley i splavov (Studies on steels and alloys). Moscow, Izd-vo Nauka, 1964, 299-303

TOPIC TAGS: diffusion coating, gaseous state coating, chromium coated steel, chromium coating, coated steel property

ABSTRACT: A method has been developed for deposition of heavy diffusion coatings, including chromium, aluminum, and manganese coatings. The method is novel in that there is no direct contact between the medium which contains the coating metal and the article being coated. The method ensures a very strong bond between the coating and the base metal, permits the formation of coatings of any thickness, eliminates the danger of the coating-containing medium being fused to the article being coated, and produces coatings free of nonmetallic inclusions or gases. The method has been variously tested, including in chromium

Card 1/3

L 15210-65

ACCESSION NR: AT4046858

3

plating of finished articles such as bolts, bushings, and tubes and in chromium cladding of semifinished products such as slabs, which were subsequently hot and cold rolled into chromium-clad sheets 1.0—1.5 mm thick. The diffusion layer on 08KP steel slabs was approximately 6 mm thick with a surface chromium content of 40%. Sheet, 3 mm thick, hot rolled from these slabs, had a diffusion layer 0.1 mm thick with a surface chromium content of 27%. No difficulties were encountered in hot or cold rolling, or in deep drawing of the sheets. Corrosion tests of the chromium-coated 08KP steel specimens with a diffusion layer 1.5 mm thick and a surface chromium content of 52% showed that the chromium-coated steel has a corrosion resistance comparable and in some cases superior to that of 1Kh18N9T stainless steel. Tubes rolled from chromium-coated billets are of the same quality as tubes which are chromium coated after rolling, but the cost of the former is considerably lower. Chromium-coated articles can be carbarized or nitrided. Surface hardness exceeding 70RC can be achieved. Orig. art. has: 6 figures and 1 table.

ASSOCIATION: none

Card 2/3

L 16210-65

ACCESSION NR: AT4046858

SUBMITTED: 16Jun64 ENCL: 00 SUB CODE: MM, IE

NO REF SOV: 000 OTHER: 000 ATD PRESS: 3139

Card 3/3

PLYSHEVSKIY, Boris Pavlovich, st. nauchn. sotr., kand. ekon. nauk; YAREMENKO, Yuriy Vasil'yevich, mlad. nauchn. sotr.; KATS, V.I., doktor ekon.nauk, red.; TRIFSIK, G.B., red.; RYABOVA, Ye.A., red.; PONOMAREVA, A.A., tekhn. red.

[Regularities of the development of the national product and national income] Zakonomernosti dvizheniia obshchestvennogo produkta i natsional'nogo dokhoda. Moskva, Ekonomizdat, 1963. 187 p. (MIRA 16:8)
(Gross national product) (Income)

PLYSHEVSKIY, Boris Pavlovich; BUDARINA, V., red.; KOROLKVA, A., mladshiy red.; MOSKVINA, R., tekhn.red.

[Distribution of national income in the U.S.S.R.] Raspredelenie natsional'nogo dokhoda v SSSR. Moskva, Izd-vo sotsial'no-ekon. lit-ry, 1960. 245 p. (MIRA 13:9)
(Income)

ABALKIN, Leonid Ivanovich; VAL'TUKH, Konstantin Kurtovich; DOLOTENKOVA, Liliya Pavlovna; MANDRYGINA, Faina Aleksandrovna; PLYSHEVSKIY, B.P., red.; MATSUK, R.V., red. izd-va; GARINA, T.D., tekhn. red.

[Study of the production of the means of production under the conditions of the general crisis of capitalism; based on the U.S.A.]Ocherk vosproizvodstva v usloviiakh obshchego krizisa kapitalizma; na primere SShA [By] L.I.Abalkin i dr. Moskva, Vysshaia shkola, 1962. 118 p. (MIRA 15:8)
(United States--Economic conditions)

PLYSHEVSKIY, I., inzh.

Rod pump with the water-lifting windlass "Burvod-III," and its operation. Voen.-inzh.zhur. 96 no.9:25-29 S '52. (MIRA 12:3)
(Pumping machinery)

4

L 62859-65

ACCESSION NR: AP5019039 UR/0286/65/000/012/0070/0070
624.953 : 621.642.34

AUTHOR: Zalavin, K. P.; Kolpachev, Yu. G.; Okhotnikov, A. A.; Kireyev, V. G.; Rashidov, N. F.; Grishin, M. S.; Samdakov, Ye. A.; Golovanov, G. F.; Plyshevskiy, I. V.

TITLE: A tank for storage and transportation of liquids. Class 37, No. 172022

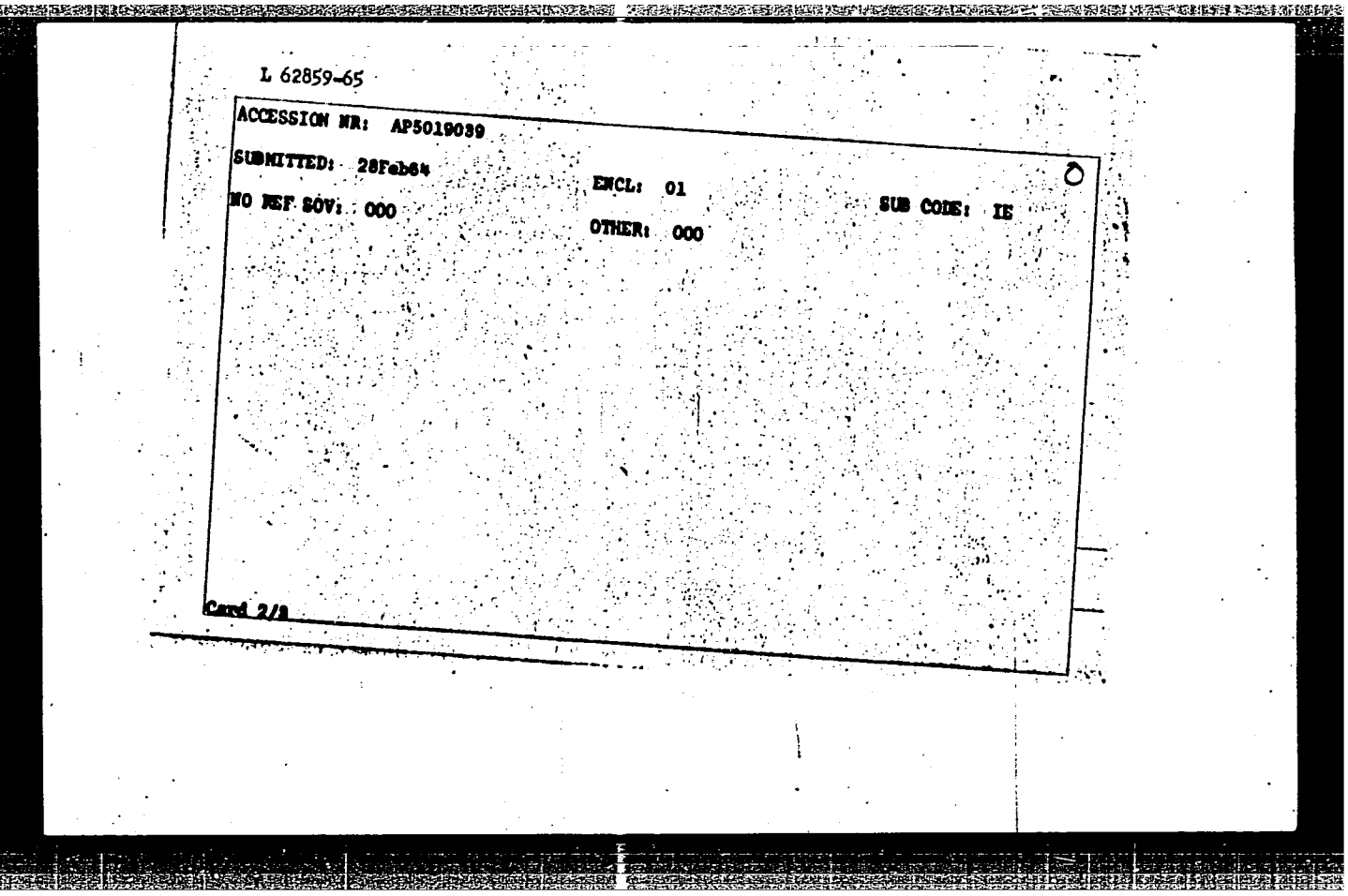
SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 12, 1965, 70

TOPIC TAGS: liquid storage, tank

ABSTRACT: This Author's Certificate introduces: 1. A tank for storage and transportation of a liquid. The unit is made of an elastic material in the form of a truncated cone with a neck and a ring. The floating ring is mounted on the outside of the neck and can be replaced so that buckling of the rim of the neck can be avoided in case the ring is damaged. 2. A modification of this tank in which the floating ring is made replaceable by covering it with a sleeve which is fastened to the neck by straps.

ASSOCIATION: none

Card 1/3



L 62859-65

ACCESSION NR: AP5019039

SUBMITTED: 28Feb64 ENCL: 01 SUB CODE: IE

NO REF SOV: 000 OTHER: 000

Card 2/2

Plyshevskiy, N. V.

PHASE I BOOK EXPLOITATION SOV/3482

Nauchno-tekhnicheskoye obshchestvo mashinostroitel'noy promyshlennosti. Sverdlovskoye otdeleniye

Mekhanizatsiya i avtomatizatsiya mashinostroitel'nogo proizvodstva (Mechanization and Automation in the Machine-Building Industry) Moscow, Mashgiz, 1959. 519 p. 12,000 copies printed.

Ed.: Ya. V. Pal'mov, Doctor of Technical Sciences; Tech. Ed.: M. A. [illegible] Editorial Board: P. P. Vakhivkov, Engineer, V. V. [illegible] Technical Sciences, Ya. V. Pal'mov, Doctor of Technical Sciences, [illegible] Porochikov, Candidate of Technical Sciences, V. V. [illegible] Technical Sciences, K. N. Sokolov, Candidate of Technical Sciences, [illegible] Sokolovskiy, Candidate of Technical Sciences, M. I. [illegible] B. K. Semayev, Candidate of Technical Sciences, and P. V. [illegible] sor.

PURPOSE: This book is intended for production engineers and personnel engaged in industrial planning.

COVERAGE: The material presented in this book is said to be based on practices developed and tested in the machine-building plants of the [illegible] of Siberia. Listed are various methods of mechanization and [illegible] and their applications in foundries, forging shops, and [illegible]. Other fields of use include welding, hoisting, conveying, heat treatment, and quality control on an industrial scale. Various mechanisms, devices, tools, and instruments currently used in mechanization and automation of these industrial processes are described and illustrated. The equipment [illegible] is said to have been produced by the plants using their own resources. The economic aspects of mechanization and automation are discussed. There are 454 Soviet references.

Card 6/25

(23)

PLYSHEVSKIY, Yu.S.; LEONT'YEVA, I.A.; SMIRNOVA, G.M.

Physicochemical properties of barium hexaborate. Zhur. neorg. khim. 8 no.12:2811-2812 D '63. (MIRA 17:9)

L 11031-66 EWT(m)/EWP(t)/EWP(b)/EWA(h) IJP(c) JD

ACC NR: AP5028723 SOURCE CODE: UR/0363/65/001/011/1933/1937

AUTHOR: Plyshevskiy, Yu. S.; Smirnova, G. M.; Tkachev, K. V.; Leont'yeva, I. A.

ORG: Ural Scientific Research Chemical Institute, Sverdlovsk (Ural'skiy nauchno-issledovatel'skiy khimicheskiy institut)

TITLE: Preparation and certain properties of lead borate

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v. 1, no. 11, 1965, 1933-1937

TOPIC TAGS: boron compound, lead compound, borate, chemical reaction, solid physical property, chemical composition, endothermic effect, exothermic effect

ABSTRACT: Lead borate $4PbO \cdot 5B_2O_3 \cdot 2.5H_2O$ was prepared by reacting lead monoxide with a 10% solution of B_2O_3 in H_3BO_3. The effect of B_2O_3 concentration, temperature, and duration of the reaction on the composition of the product was studied. Lead borate was found to be practically insoluble in water; excess boric anhydride present in the lead borate obtained is washed out in water. Heating curves of lead borate were plotted, and the endothermic effects and one exothermic effect (a solid-state phase transition) are discussed. Heat capacity and thermal conductivity were determined at 100, 200, 300, and 350°C. Orig. art. has: 3 figures, 2 tables.

SUB CODE: 07/ SUBM DATE: 07Jan65/ ORIG REF: 003/ OTH REF: 003

UDC: 546.817'273

Card 1/1

L 45707-66 EWP(e)/EWT(m)/EWP(t)/ETI IJP(c) WH/JD

ACC NR: AP6027190 (N) SOURCE CODE: UR/0078/66/011/008/1822/1826

AUTHOR: Plyshevskiy, Yu. S.; Garkunova, N. V.; Leont'yeva, I. A.; Zhitkova, T. M.

ORG: none

TITLE: Decomposition of datolite on heating

SOURCE: Zhurnal neorganicheskoy khimii, v. 11, no. 8, 1966, 1822-1826

TOPIC TAGS: boron mineral, calcium mineral, borate, borate glass, silicate

ABSTRACT: The thermographic method was used to determine the heat effects associated with phase transformations and the heat capacity of the mineral datolite. The phase transformations were found to occur only above 920°. In the 950-980°C range, the mineral decomposes as follows:

$$2CaO \cdot B_2O_3 \cdot 2SiO_2 \cdot H_2O \rightarrow CaO \cdot B_2O_3 + CaO \cdot SiO_2 + SiO_2 + H_2O\uparrow .$$

Monocalcium borate $CaO \cdot B_2O_3$, monocalcium silicate β-$CaO \cdot SiO_2$, quartz α-SiO_2, and SiO_2-cristobalite are thus formed. At 1100°C, the mixture of newly formed compounds melts, forming borate glass. The heat of reaction of the datolite decomposition is 6.4 kcal/mole. The heat of reaction of the dehydration

$$2CaO \cdot B_2O_3 \cdot 2SiO_2 \cdot H_2O \rightarrow 2CaO \cdot B_2O_3 \cdot 2SiO_2 + H_2O\uparrow$$

Card 1/2 UDC: 546.824'42'273:542.92

L 45707-66
ACC NR: AP6027190

is 12.1 kcal/mole. The heat capacity of datolite between 100 and 500°C ranges from 0.19 to 0.52 cal/g. Calcined datolite and also calcined datolite ores can be used as boric microfertilizer, since they contain boron in the citric-soluble form. Orig. art. has: 3 figures and 4 tables.

SUB CODE: 08/ SUBM DATE: 10Nov64/ ORIG REF: 006/ OTH REF: 001

Card 2/2 UCR

PLYTNIKOVA, T.G.

Increasing the coefficient of propagation in the process of improved seed production of coriander. Agrobiologia 5:750-755 S-O '64.
(MIRA 17:11)

1. Alekseyevskaya opytnaya stantsiya Vsesoyuznogo nauchno-issledovatel'skogo instituta maslichnykh i efiromaslichnykh kul'tur.

PLYUGACHEV, V.K., kand.tekhn.nauk; KAMENSKIY, A.F., inzh.

Unipolar short-circuit and choice of wire in electrical networks with distributed grounding of the neutral line. Izv. vys. ucheb. zav.; energ. 7 no.3:26-32 Mr '64. (MIRA 17:4)

1. TSentral'nyy nauchno-issledovatel'skiy institut mekhanizatsii i elektrifikatsii sel'skogo khozyaystva nechernozemnoy zony SSSR.

PLYUGACHEV, V. K.

PA 240T31

USSR/Electricity - Distribution Systems Mar 52

"Analytical Method for Calculating Open Networks With Steel Conductors," Cand Tech Sci V. K. Plyugachev, Moscow Inst for Mechanization and Electrification of Agriculture imeni Molotov

"Elektrichestvo" No 3, pp 48-52

Gives approx dependence between voltage losses and cross-section of steel conductors for use in the existing method of calcg the minimum amount of wire for elec power networks using stranded steel conductors. Steel is recommended for rural power lines for economic reasons and is adequate material due to low average line load and short peak load. Submitted 10 Jul 51.

240T31

KAMENSKIY, A.F.; PLYUGACHEV, V.K.

Conversion of closed municipal power distribution networks to operation with grounded neutral. Trudy LIEI no. 49:169-174 '63. (MIRA 17:6)

PLYUSHCHEV, V.K.

Electrical Engineering Abst.
Vol. 57 No. 675
Mar. 1954
Electrical Engineering

621.313.5 : 621.3.014.3 : 621.3.011.22

934. Resistance of steel conductors carrying short-circuit currents. V. K. PLYUSHCHEV. *Elektrichestvo*, 1953, *No.* 6, 36-8. *In Russian.*

Experimental investigations carried out under short-circuit conditions on steel conductors yielded values of their resistance on which calculations of s.c. currents may be based. These relations are given in the convenient form of nomograms for the determination of the reduction of the fault currents by the temperature rise of the conductors, and of the temperature of the conductors under short circuits.

B. F. KRAUS

P/KD 6-8-54

Cand Tech. Sci
Kharkov Inst. Mechanization & Electrification of Agriculture.

PLYUGACHEV-V.K.

621.316.1 : 63(47)

3352. POWER LOADS OF AGRICULTURAL DISTRICTS. V.K.Plyugachev. Elektrichestvo, 1956, No. 1, 71-4. In Russian.

In projecting rural power systems where number and ratings of electric motors and other consuming devices are known, loads of the supply system elements should be determined by the demand-factor. However, in the required combination of the project data the uniformity-factor method of determining the loads is recommended. The theoretical coefficients and criteria should be based on empirical values obtained from statistics on typical electrified rural districts and individual farms. Statistical data should be continuously added to and extended.

B.F.Kraus

Elec Eng

Khar'kov Inst Mechanization & Electrification of Agriculture

1875. OPTIMUM BRANCHING ANGLE IN OVERHEAD DISTRIBUTION SYSTEMS

Elektrichestvo, 1955, No. [illegible], pp. [illegible] (U.S.S.R.)

The branching angle [illegible] distribution system [illegible]

PLYUGACHEV, V.K., kandidat tekhnicheskikh nauk.

Distribution substations with bus bars at the bottom. Elek.sta. 27 no.9:26-27 S '56. (MLRA 9:11)
(Electric substations)

PLYUGACHEV, V.K., kand.tekhn.nauk; BOYKO, M.S., kand.biologicheskikh nauk

Veterinary hygiene in a dairy barn with loose housing of animals.
Veterinariia 40 no.5:53-54 My '63. (MIRA 17:1)

PLYUGACHEV, V.K., kand. tekhn. nauk, dotsent

Power ratings of electric substations and radius of power distribution networks carrying different voltages in the electrification of agricultural regions. Nauch. zap. KHIMSKH Fak. elek. sel'khoz. 1 no.10:5-22 '58. (MIRA 16:7)

(Rural electrification)

PLYUGACHEV, V.K., dotsent; CHERNOMAZ, V.A., assistent

Indices and coefficients for determining the electrical loads of rural regions. Nauch. zap. KHIMSKH Fak. elek. sel'khoz. 1 no.10:49-62 '58. (MIRA 16:7)

(Rural electrification)

PLYUGACHEV, V.K., kand.tekhn.nauk (Minsk)

Operation of the neutral line in electric power distribution networks. Elektrichestvo no.2:62-65 F '63. (MIRA 16:5)
(Electric power distribution)

PLYUGACHEV, Vitaliy Kuz'mich, kand. tekhn. nauk; SAZONOV, N.A., akademik, red.; BOROVIKOVA, R., red.; DIK, V., tekhn. red.

[Principles of an efficient power supply system for agriculture] Osnovy ratsional'nogo elektrosnabzheniia sel'skogo khoziaistva. Pod red. N.A.Sazonova. Minsk, Sel'khozgiz BSSR, 1962. 239 p. (MIRA 16:6)

1. Akademiya nauk Belorusskoy SSR (for Sazonov).
(Rural electrification)

PLYUGACHEV, V.K., kand.tekhn.nauk

Changing over to a grounding neutral in rural electric networks. Mekh. i elek. sots. sel'khoz. 19 no.1:40-45 '61. (MIRA 14:3)

1. Institut mekhanizatsii i elektrifikatsii sel'skogo khozyaystva Akademii sel'skokhozyaystvennykh nauk BSSR.
(Electric currents—Grounding)

PLYUGACHEV, V.K., kand.tekhn.nauk, dots.

Concerning the distance embraced by electric network territories with intermittent load density. Izv.vys.ucheb.zav.;energ. 3 no.10:14-16 O '60. (MIRA 13:11)

1. Institut mekhanizatsii i elektrifikatsii sel'skogo khozyaystva Akademii sel'skokhozyaystvennykh nauk BSSR. Predstavlena nauchno-tekhnicheskim soveshchaniyem otdela elektrifikatsii.
(Electric power distribution) (Electric substations)

SAZONOV, N.A.; PLYUGACHEV, V.K., kand.tekhn.nauk

Changing over to two-stage voltage system in farm electrification. Mekh.i elek.sots.sel'khoz. 17 no.6:34-36 '59. (MIRA 13:4)

1. Belorusskiy institut mekhanizatsii i elektrifikatsii sel'skogo khozyaystva. 2. Deystvitel'nyy chlen Akademii sel'skokhozyaystvennykh nauk BSSR (for Sazonov).
(Rural electification)

PLYUGACHEV, V.K., kand.tekhn.nauk

Moving the step-down substation towards the source of supply. Izv.vys.ucheb.zav.; energ. 2 no.6:12-15 Je '59. (MIRA 13:2)

1. Institut mekhanizatsii i elektrifikatsii sel'skogo khozyaystva Akademii sel'skokhozyaystvennykh nauk BSSR. Predstavlena nauchno-tekhnicheskim soveshchaniyem.
(Electric substations)
(Electric power distribution)

PLYUGACHEV, V.K., dots., kand.tekhn.nauk

Determining the number of line branches from substations supplying a distributed load. Izv. vys. ucheb. zav.; energ. no.7:8-12 Jl '58. (MIRA 11:10)

1. Khar'kovskiy institut mekhanizatsii i elektrifikatsii sel'skogo khozyaystva.
(Electric power distribution)

PLYUGACHEV, V. K.

"Problems of the Calculation of Electric Networks with Steel Wires."

Dissertation for the Degree of Candidate of Technical Sciences, defended at Moscow Institute for Mechanization and Electrification of Agriculture. 21 Dec 1951. (Elektrichestvo, 1958, Nr 4, 92-93)

PLYUGACHEV, V. K.

91-58-7-4/27

AUTHOR: Zul', N. M., Plyugachev, V. K., Candidates of Technical Sciences, Isayenko, A.V., Kozyulin, A.S., Kurtsvayl', G.I., Bernshteyn, L.Kh., Yeganov, B.N., Engineers

TITLE: The Protection of Branches of 6 to 10 kv Lines (O zashchite otpayek ot liniy 6-10 kv).

PERIODICAL: Energetik, 1958, Nr 7, pp 11-18 (USSR).

ABSTRACT: The editor prints the comments on articles dealing with the above problem published by P. V. Ternikov in "Energetik", Nr 4, 1956 and by M. Yu. Shukhatovich in "Energetik", Nr. 6, 1957.
N. M. Zul', Candidate of Technical Sciences says that most of the 6 to 10 kv rural distributing networks with radial long distance branched lines are protected only at the terminal switch. To increase the reliability of the electric power supply, it is recommended to tap the lines widely utilizing safety fuses. Combining main line safety fuses with those of branch lines, as well as with automatic reclosing systems is very advisable. This method is described in detail. The following devices can be utilized: "UGP-51" or PG-10" types for automatic reclosing; "IT-81" type relay, direct release relays and safety fuses of "PSN" or "PK" type. Experimental samples of reclosing safety fuses have been

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91-58-7-4/27

AUTHOR: Zul', N. M., Plyugachev, V. K., Candidates of Technical Sciences, Isayenko, A.V., Kozyulin, A.S., Kurtsvayl', G.I., Bernshteyn, L.Kh., Yeganov, B.N., Engineers

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worked out and manufactured at "VET" and "VIESKh" on the basis of "PK" type fuses, and the 10 kv line switch of pole type with simple instantaneous and automatic load reclosing of single-phase model with nominal currents of 5 to 20 amp. and breaking capacity of 5 mega volt-amperes has been worked out by the "Uralelektroapparat" plant. V. K. Plyugachev, Candidate of Technical Sciences and A. V. Isayenko, Engineer, examine lines with dead branches. The automatic reclosing system cannot be utilized in this case. The exact solution can be obtained only by determining the failure-rate of lines and other elements of electric power supply. The average failure-rates of certain elements of networks are contained in a table and the method of determining the breakdown loss of electric energy on lines with automatic reclosing system and branches without safety fuses is described in detail.
A. S. Kozyulin, Engineer, indicates that in a network rayon containing lines of a few hundred kilometers length, over a 5 year period, 80% of the failures were caused by short-circuits to the earth. Inter-phase short-circuits were caused mainly by a fall of line supports.
G. I. Kurtsvayl', Engineer, says that most branched town distributing networks of 6 to 10 kv have a radial power

supply, and that subscriber's branch lines can be connected with main lines only by disconnectors. Such lines are located with 2 to 3.5 megawatts and their total length attains 3 to 5 km. They are connected with 25 to 35 transformers, which are protected only at the switch of line terminal section coming from the bars of the rayon substation. Such lines are to be connected with subscribers by means of "PK" type safety fuses and power disconnectors (load switches) of "VN-16" type in closed rooms of "PT" type or by means of "PSN-10" type safety fuses in outdoor installations.
L.Kh. Bernsteyn, Engineer, writes that long distance branched networks of 6 to 10 kv with radial power supply can be protected by safety fuses, but the latter must be combined with disconnectors for subdividing main lines. However, the design of pole safety fuses described by P.V. Ternikov is not to be recommended.
B.N. Yeganov, Engineer, writes that the protection of branched 6 to 10 kv main lines can be carried out in many variants utilized according to the total length of the main line. There are 2 figurs, 1 graph, 2 tables and 3 Soviet references.

1. Transmission lines--Overload protection 2. Fuses (Electricity) --Equipment 3. Electric switches--Equipment

ISAYENKO, A.V., inzh.; PLYUGACHEV, V.K., kand.tekhn.nauk

No-load disconnecting of large power transformers using disconnect switches. Elek.sta. 29 no.3:79-81 Mr '58. (MIRA 11:5)
(Electric transformers) (Electric switchgear)

PLYUGACHEV, Vitaliy Kuz'mich [Pliuhachov, V.K.]; POKATAYEV, A.I. [Pokataiev, A.I.], spets.red.; KAMINSKIY, L.N. [Kamins'kyi, L.N.], red.; ZAMAKHOVSKIY, L.S. [Zamakhovs'kyi, L.S.], tekhn.red.

[Problems in the efficient supplying of electricity to rural areas] Pytannia ratsional'noho elektropostachannia sil's'kykh raioniv. Kharkiv, Kharkivs'ke knyzhkove vyd-vo, 1959. 91 p. (MIRA 13:4)

(Rural electrification)

PLYUGACHEV, V.K., kand. tekhn. nauk

Selecting voltage for rural distribution networks. Izv. vys. ucheb. zav.; energ. 2 no.7:15-21 Jl '59.
(MIRA 13:1)

1. Institut mekhanizatsii i elektrifikatsii sel'skogo khozyaystva Akademii sel'skokhozyaystvennykh nauk BSSR.
(Electric power distribution)

AGEKYAN, T.A.; KAVRAYSKAYA, K.V.; PLYUGIN, G.A.; STRUGATSKIY, B.N.; SHISHKINA, G.A.

An indication of the interaction of stars and diffuse matter. Astron.zhur. 33 no.5:679-681 S-O '56. (MLRA 9:12)

1. Astronomicheskaya observatoriya Leningradskogo gosudarstvennogo universiteta.
(Stars) (Interstellar matter)

PLYUGIN, G.A.

Reconditioning and investigating the L.A. Soukharev's coordinate-measuring machine. Izv. GAO 22 no. 1:184-196 '60. (MIRA 13:12)

(Micrometer)

27081
S/123/61/000/015/031/032
A004/A101

3,1230

AUTHOR: Plyugin, G. A.

TITLE: Restoration and investigation of the L. A. Sukharev coordinate measuring machine

PERIODICAL: Referativnyy zhurnal, Mashinostroyeniye, no. 15, 1961, 30, abstract 15Zh230 ("Izv. Gl. astron. observ. v Pulkove", 1960, v. 22, no. 1, 184-196, English summary)

TEXT: The author describes the coordinate measuring machine, developed in 1941 at the Leningradskiy astronomicheskiy institut (Leningrad Astronomical Institute) for the investigation of stellar photographs obtained on plates of 240 x 240 mm. It is also possible to investigate plates of smaller dimensions if special inserts are used. Measuring is effected along one coordinate with the aid of a micrometric screw with 30 mm thread diameter. The constancy of position of the micrometric screw is ensured by mounting it on knife edge bearings with spring-type tangential tightening. The footstep bearing of the screw consists of a steel ball and a washer which increases the stability of the machine and greatly reduces the pressure per unit of area of the supporting pivot. A limb 160 mm

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Restoration and investigation ...

in diameter for the reading of screw revolution fractions is placed at its opposite end and divided along the rim into 1,000 parts which makes it possible to read off immediately thousandth parts of mm and interpolate up to 0.0001 mm. Periodical errors of the screw are excluded by using a correction disk on which one end of the rocking limb index is sliding. The other end of the index is used for the reading of screw revolution fractions. At an index arm ratio of 1 : 10 the correction disk shape execution ensures the exclusion of periodical errors with an accuracy of 0.0001 mm. Precision measuring of the second coordinate is effected by the rotation of a position circle through 90°, the circle carrying the negative plate. The precision indexing of the position circle and the presence of two reading microscopes mounted on the negative carriage and spaced at 180° makes it possible to carry out measurements in polar coordinates. The measuring limb of the position circle has an operation radius of 180 mm with a graduation of 10'. The reading error of the position angle does not exceed 39". The tube length of the main microscope is 160 mm. Its eyepiece has a magnification of 15x, the objective one of 1.5x. The objective magnification is changed with the aid of an adapter which makes it possible to use the standard objectives of biological microscopes. Moreover, the author describes the restoration work of the coordinate measuring machine which was damaged at the

Restoration and investigation ...

beginning of the war when it was transported to the Stalinabad Observatory. He describes investigations of the periodical error of the machine micrometric screw which is understood as the summary error of four periodical ones: the first periodical error of the screw; the second periodical error of the bearing system; the third error of the limb graduation; the fourth error of the limb fit. The article also contains an investigation of progressive screw errors and presents tables of its running corrections. Moreover, an investigation of the curvature of the prism is given which guides the movement of the negative carriage. Graphs of all corrections are given, both of those obtained immediately after the manufacture of the machine and of others compiled after its resteration.

L. Davydov

[Abstracter's note: Complete translation]

Card 3/3

PLYUGIN, G.A.

Determining the position of the moon in relation to stars.
Astron.zhur. 38 no.2:345-360 Mr-Ap '61. (MIRA 14:4)

1. Glavnaya astronomicheskaya observatoriya AN SSSR.
(Moon)

KISELEV, A.A.; PLYUGIN, G.A.

Determination of the optical center of the 26" refracting telescope. Izv. GAO 23 no.4:127-129 '64. (MIRA 17:9)

PLYUGINA, A.I.

Experiments in photoelectric recording of transits of stars on the large transit instrument at the Pulkovo Observatory. Izv. GAO 22 no. 1:101-106 '60. (MIRA 13:12)
(Stars--Observations) (Photoelectric measurements)

S/035/61/000/011/004/[illegible]
A001/A101

AUTHOR: Plyugina, A.I.

TITLE: An experience of employing photoelectrical recording of stellar transits with the large transit instrument of the Pulkovo Observatory

PERIODICAL: Referativnyy zhurnal. Astronomiya i Geodeziya, no. 11, 1961, 12, abstract 11A102 ("Izv. Gl. astron. observ. v Pulkove", 1960, v. 22, no. 1, 101 - 106, Engl. summary)

TEXT: A photoelectric accessory for the transit instrument D = 15 cm, F = 260 cm) was constructed and tested in 1957. The author describes the photocascade of original design, an amplifier and a device for determining delay (cf. RZhAstr, 1959, no. 6, 4325). The reading of mires was performed by means of scales with which lenses of mires were provided for. The root-mean-square error of one photoelectrical guiding to a mire turned out to be $\pm 0^s.013$ (visually $\pm 0^s.014$). The root-mean-square error of the weight unit in calculating corrections to hours and azimuth by the least-square method proved to be $\pm 0^s.043$ for photoelectrical observations and $\pm 0^s.040$ for visual observations. The observa-

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S/035/61/000/011/004/028
A001/A101

An experience of employing photoelectrial ...

tional results show that photoelectrical observations of stars up to $8^{m}.5$ can be carried out with this instrument up to 89^{o} declination. It is necessary to equip the instrument with a special finder enabling one to perform visual control during the observations.

D. Polozhentsev

[Abstracter's note: Complete translation]

Card 2/2

PLYUGINA, A.I.; SHISHKINA, V.N.

Observational program of circumpolar stars for determining the orientation of the instruments in observing major planets and the sun. Izv.GAO 23 no.1:77-80 '62. (MIRA 16:12)

VASIL'YEV, M. V., doktor tekhn. nauk; RUSSKIY, I. I., kand. tekhn. nauk; FADDEYEV, B. V., kand. tekhn. nauk; SHILIN, A. N., kand. tekhn. nauk; PLYGUNOV, V. S., gornyy inzhener

"Engineers' and technicians' handbook on open-pit mining" by N. V. Mel'nikov. Gor. zhur. no.11:78-79 N '62. (MIRA 15:10)

(Strip mining) (Mel'nikov, N. V.)

PLYUKHEL'DER, Rudol'f Vladimirovich, elektroslesar' zasluzhennyy master sporta SSSR

Everyone can become a sportsman. Sov.shakht. 11 no.2:42-43 F '62. (MIRA 15:1)

1. Kiselevskaya shakhta No.4-6 Kuznetskogo ugol'nogo basseyna.
(Kuznetsk Basin—Physical Education and training)

5.4700

67927
SOV/20-129-5-37/64

~~5(4), 11(1)~~

AUTHOR: Plyukhin, B. I.

TITLE: On the Steady-state Theory of the Heat Balance of the Condensated Phase of Powders and Explosives

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 129, Nr 5, pp 1096-1099 (USSR)

ABSTRACT: The author uses equation (1) by Ya. B. Zel'dovich to study the thermal processes in the condensated phase. He investigates the dependence of the thermal processes on the degree of decomposition and on the degree μ of dispersion of the condensated phase ($\nu + \mu = 1$). To determine the relationship between conductive and convective heat supply to the condensated phase on the one hand and the temperature of the burning surface on the other, a dimensionless equation (4) is deduced and analyzed under the conditions of combustion in the vacuum and under high pressure. For the thermal balance in the condensated phase the parameters are deduced: α_{chem} (heat supply by chemical reaction), α_{heat} (heat supply by convection from the gas phase) and α_{rad} (heat supply by radiation from the gas phase). In the range of high

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On the Steady-state Theory of the Heat Balance of the Condensated Phase of Powders and Explosives

pressures as e.g. in rockets (p = 150 - 200 atm) α_{chem} and α_{heat} (if μ = const) are constant in first approximation and are for nitroglycerin and pyroxylin powder $\alpha_{chem} \simeq 0.70$, $\alpha_{heat} \simeq 0.15 - 0.20$, $\alpha_{rad} \simeq 0.10 - 0.15$. For $p \longrightarrow \infty$ however, $\alpha_{chem} \longrightarrow 0$, $\alpha_{heat} \longrightarrow 1$, $\alpha_{rad} \longrightarrow 0$. The relative portion of α_{rad} prior to the occurrence of the flame in the gas phase almost vanishes, then rapidly increases and attains a maximum (0.07 - 0.20) in the range of the pressures at which complete combustion of the powder takes place ($p \sim 50$ atm); at higher pressures it approximately increases inversely proportionally with pressure. The theories dealing with the heating of the condensated phase only on the basis of heat supply from the gas phase cover only a limiting case of the heat balance equation $\alpha_{heat} \longrightarrow 1$, $\alpha_{chem} \longrightarrow 0$, $\alpha_{rad} \longrightarrow 0$. The theories which deal with the heating of the condensated phase only by the chemical reaction correspond to the other limiting case: $\alpha_{heat} \longrightarrow 0$,

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$\alpha_{chem} \longrightarrow 1$, $\alpha_{rad} \longrightarrow 0$. The third limiting case corresponds to the theory by E. Sänger (Ref 5) $\alpha_{rad} \longrightarrow 1$ which can practically not be realized. The author mentions D. A. Frank-Kamenetskiy (Ref 3) and A. N. Kolmogorov (Ref 4). There are 5 references, 4 of which are Soviet.

ASSOCIATION: Institut khimicheskoy fiziki Akademii nauk SSSR (Institute of Chemical Physics of the Academy of Sciences, USSR)

PRESENTED: June 12, 1959, by V. N. Kondrat'yev, Academician

SUBMITTED: June 11, 1959

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PLyuKHin, B.I.

paper submitted for the 8th Intl Symposium on Combustion, Pasadena, California, 29 August - 2 September, 1960.

A N. Dremin — — — Detonation Parameters.

P F Pokhil — — — The Mechanism of Combustion of Colloidal Powders

L S Kozachenko — — — The Combustion Mechanism and Burning Velocity in a Turbulent Flow

S M Kogarko — — — On the Burning Probability for Droplets of Liquid Atomized Fuel in a Turbulent Flow

S M Kogarko — — — Amplification of Compression Waves in the Combustion Zone

PLYUKHIN, B.I. — — — On the Stationary Theory for Heat Balance of Powder and Explosive Condensed Phases

Yu N Denisov
Ya K Troshin — — — On the Mechanism of Detonation Combustion

E S Golovina
G P Khaustovich — — — The Interaction of Carbon with Carbon Dioxide and Oxygen at Temperatures up to 3000°K

KHITRIN, L.N.
RAVICH, M.B.
KOTOVA, L.L. — — — The Carbon Residue Burning Characteristics of Solid Fuel

O A Tsukhanova — — — The Investigation of the State of Explosion Products Behind the Shock Wave

V A Popov
ANISIMOV, V.Ye. — — — On the Ionization in the Flame Front

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26.1210

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D251/D301

AUTHOR: Plyukhin, B.I.

TITLE: On the theory of thermal balance of the condensation phase of vapors and explosive materials in stationary combustion

PERIODICAL: Referativnyy zhurnal. Mekhanika, no. 10, 1961, 87, abstract 10 B617 (Tr. Mosk. fiz. tekhn. in-ta, 1960, no. 5, 97-108)

TEXT: The mechanism of stationary combustion of homogeneous vapors and solid rocket fuels is considered. For the condensation phase an approximate solution is obtained for the equation of thermal conductivity, calculating the heat evolved through the chemical reactions. The approximation corresponds to large activation energy of the chemical reactions. The following quantities, in dependence on the surface temperature are obtained: The temperature profile, the speed of combustion, and the parameter analogous to

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On the theory of thermal balance...

the critical parameter in D.A. Frank-Kamenetskiy's theory of thermal detonation. The parameter is defined which relates the breadth of the thermal layer to the breadth of the layer in which the chemical reaction exists. The dependence of the speed of combustion upon external conditions is obtained. For this it is accepted that between the flame proper and the condensation phase there is a zone where particles of pulverized powder burn, and that to each of these zones the scheme of Ya.B. Zel'dovich applies. The connection between the temperature of the powder surface and the pressure, which, when the percentage of dispersion does not depend on the pressure, is analogous to the Clapeyron-Clausius equations for the boiling-point is given. The corresponding role of the heat isolated in the condensation phase by chemical reactions, of the convective heat supply to the surface and of the radiant flow of heat from the flame to the powder surface is also evaluated. [Abstracter's note: Complete translation]

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AUTHOR: Plyukhin, B. I.

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B013/B007

TITLE: The Laws of the Temperature Radiation of a Flame

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol 131, Nr 1, pp 68 - 71 (USSR)

ABSTRACT: According to experimental data the laws of Wien, Stefan-Boltzmann, and others, which are used in temperature measurements are by no means always applicable in the case of a flame. Theoretical investigations of this problem hitherto carried out are essentially confined to general assumptions concerning the "blackness" of the flame. In the present paper calculation is carried out for a concrete, strictly bounded model. The principle of the "point-momentary" equilibrium is applied to the flame, i.e. at every "point" of the flame the Gibbs distribution of molecules, atoms, and electrons in gas (and of electrons within the solid inorganic particles existing in the flame) is valid for its "momentary" temperature $T(x,y,z,t)$, and consequently also the Kirchhoff-Planck law: $B_\nu(x,y,z,t)=\frac{\eta_\nu(x,y,z,t)}{\alpha_\nu(x,y,z,t)}$ =

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$= \frac{2h\nu^3}{c^2}\left[\exp\left(\frac{h\nu}{kT(x,y,z,t)}\right)-1\right]^{-1}$. Here η_ν and α_ν denote the mass coefficients of emissivity and absorptivity of the medium, h - the Planck constant, ν - frequency, c - the velocity of light, k - the Boltzmann constant. The flame is here considered to be a certain continuum with the density $\varrho(x,y,z,t)$, and the equation for radiation transport is given without light dispersion being taken into account. The concentration of the solid inorganic particles in the flame is assumed to be low and the density of the continuum is assumed to satisfy the Clapeyron equation. For the flame, the averaging of the quantities α_ν and τ_ν (according to the data supplied by V. M. Mal'tsev and P. F. Pokhil) is assumed to be physically justified. The quantities η_ν, α_ν, T, ϱ, and M (molecular weight of the medium) do not vary very considerably within the investigated region of the flame. In each volume $\delta V = \delta x \delta y \delta z$ a locally time-dependent equilibrium may thus be established during the period of time δt.

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Next, expressions are derived for the optical path τ_ν and for the wavelength λ_m of the intensity maximum in the spectral distribution of light in the flame. For a flame $\lambda_m T$ is by no means a constant quantity but a function of the experimental conditions. The solution of the corresponding equations may be tabulated. Next, two limiting cases are analytically dealt with: an optically not dense flame, and an optically dense flame. Wien's law is valid only in the limiting case of the optically dense flame. The formulas for gases of non-hydrogen-like atoms are more complicated than those derived here, but their essential character remains conserved. Next, formulas for the total radiant flux, the logarithmic temperature coefficient, and also for the other logarithmic coefficients are derived. In the limiting case of the optically dense flame, the influence exerted by pressure, structure, and geometric shape of the flame are finally eliminated, and the Stefan-Boltzmann law holds. The deviations from the Stefan-Boltzmann law in optically not dense flames require essential corrections in the formulas for

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determining radiation temperature, brightness temperature, and color temperature of the flame. The author thanks P. F. Pokhil, A. D. Margolin, S. S. Novikov, and V. S. Trofimov for their interest in this paper and for discussions. There are 12 references, 3 of which are Soviet.

ASSOCIATION: Institut khimicheskoy fiziki Akademii nauk SSSR (Institute of Chemical Physics of the Academy of Sciences of the USSR)

PRESENTED: October 30, 1959, by N. N. Semenov, Academician

SUBMITTED: October 30, 1959

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AUTHOR: Plyukhin, B. I.

TITLE: On the Steady Combustion of Condensed Systems

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 134, No. 1, pp. 137 - 140

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TEXT: The author studied the following problems: 1) dependence of the combustion rate of the condensed phase (c-phase) on the experimental conditions; 2) profile of temperature and concentration in the c-phase; 3) influence of the smoke-gas phase (f-phase) and the gas phase (g-phase) on the thermal processes in the c-phase; 4) heat- and mass balance of the c-phase; and 5) critical conditions for the steadiness of combustion of the c-phase. Equation system (1) is written down in this connection: $\lambda T'' - cmT' + Q_1\Phi + k_\varrho q_{rad}\exp(k_\varrho x) = 0$; $mN_1' + \Phi = 0$, $N_1 + N_2 = 1$, $1/\varrho = N_1/\varrho_0 + N_2 RT/PM$, $\varrho_1 = N_1\varrho$, $\varrho_2 = N_2\varrho$, at $T(-\infty) = T_0$, $N_1(-\infty) = 1$, $T(0) = T_s$, $N_1(0) = \mu$. λ denotes the coefficient of thermal

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conductivity, T_0 the initial temperature, T_s the temperature on the surface of the c-phase, T_1 the temperature in the f-phase, T_2 the temperature in the g-phase, c the specific heat, m the combustion rate, Q_1 the thermal effect of complete gasification of the c-phase (cal/g), Φ the conversion rate of the condensed substance (c-substance) ($g/cm^3 \cdot sec$), N_1, N_2 the relative concentration of the c-substance and of the gas, $q_{rad}(P) = 2\varepsilon^*\sigma T_2^4\left[E_3(k_1 P M_1 x_1/RT_1) - E_3(k_2 P M_2 \Delta x/RT_2)\right]$ the radiative heat transfer from the flame of the g-phase, ε^* the blackness degree of the powder, σ the Stephan constant, $E_3(x) = \int_1^\infty \exp(-xy)(dy/y^3)$, k_1, k_2, k_3 are the absorption coefficients in the c-, f-, and g-phase, P = pressure, M, M_1, M_2 are the molecular weights of the gas in the c-, f-, and g-phase, R = gas constant, x = coordinate, x_1 = width of the f-phase, Δx = width of the flame, μ = relative concentration of the c-substance on the surface of the c-phase (with colloidal powder = dispersion

degree), ϱ = density of the c-phase, ϱ_1, ϱ_2 are the weight concentrations of the c-substance and of the gas. Required are m, $T(x)$, $N_1(x)$, $N_2(x)$, $\varrho(x)$, $\varrho_1(x)$, and $\varrho_2(x)$. By considering equations (2) for the conservation of energy and the heat- and mass balance of the c-phase, equation system (6) is obtained from (1) by a method developed by D. A. Frank-Kamenetskiy (Ref. 8) for the theory of the steadiness of thermal explosion. m and all functions can be calculated from the said equation system (6). Equation (8) is written down furthermore for the heat balance of the c-phase as a function of pressure; it was confirmed experimentally by P. F. Pokhil, V. M. Mal'tsev, and G. V. Lukashenya (Ref. 9). For a steady combustion in rocket chambers, various conditions of heat balance (8) are favorable under different engineering factors. For the combustion in cylinders of the diameter D with heat lost to the surrounding medium criterion (11) was found for the steadiness of combustion, which was confirmed experimentally (Refs. 1,11). Steady combustion is only possible at a certain ratio between the values of D, the width x_{th} of the thermal layer, and the width x_{ch} of the chemical layer. The author

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mentions A. V. Belyayev (Ref. 6), K. K. Andreyev (Ref. 7), Ya. D. Zel'-dovich (Refs. 3,5), and Landau. There are 11 Soviet references.

ASSOCIATION: Institut khimicheskoy fiziki Akademii nauk SSSR (Institute of Chemical Physics of the Academy of Sciences USSR)

PRESENTED: April 7, 1960, by V. N. Kondrat'yev, Academician

SUBMITTED: April 5, 1960

Card 4/4

PLYUKHIN, D.S., kand.tekhn.nauk

Methods and examples of establishing advanced time norms for mechanized loading and unloading of coal, ore, coke, and metallurgical limestone from cars. Trudy TSNII MPS no.151: 72-118 '58. (MIRA 11:12)
(Loading and unloading) (Transportation)

PLYUKHIN, D.S., kand.tekhn.nauk

Methods and examples of establishing advanced time norms for mechanized loading and unloading of metal from cars. Trudy TSNII MPS no.151:119-138 '58. (MIRA 11:12)
(Loading and unloading) (Metals--Transportation)

LEPSKIY, A.V.; PLYUKHIN, D.S.; RAMODIN, V.N.; PETROVA, V.L.,red.; MEDVEDEVA, M.A., tekhn. red.

[Inertia system for the unloading of bulk and lump freight from box cars developed by the Central Scientific Research Institute of the Ministry of Railroad Transportation] Inertsionnaia ustanovka TsNII MPS dlia vygruzki sypuchikh i kuskovykh gruzov iz krytykh vagonov. Moskva, Vses. izdatel'sko-poligr. ob"edinenie M-va putei soobshcheniia, 1961. 26 p. (MIRA 14:12)
(Loading and unloading)

PLYUKHIN, D.S., kand.tekhn.nauk; RAMODIN, V.N., inzh.

Results of the testing of inertia unloading machines. Vest. TSNII MPS 20 no.5:33-37 '61. (MIRA 14:8)
(Loading and unloading) (Railroads—Freight cars)