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AID P - 5004

Teploenergetika, 9, 35-42, S 1956

Card 2/2 Pub. 110-a - 6/17

Institution : All-Union Heat Engineering Institute and Moscow Regional Power System Administration.

Submitted : No date

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8(6), 14(6)

SOV/112-59-4-6628

Translation from: Referativnyy zhurnal. Elektrotekhnika, 1959, Nr 4, p 34 (USSR)

AUTHOR: Davydov, N. I., Kantsyreva, L. N., and Mel'nikov, B. N.

TITLE: Testing a New System of Regulating Drum-Type Boilers at the Nr 11 Heat and Electric Power Plant, Mosenergo

PERIODICAL: Sb. inform. materialov Mosenergo, 1957, Nr 14, pp 3-22

ABSTRACT: Test results of 8 systems of regulating the base-load boiler have shown that the best system is the following: the fuel regulator acts depending on the steam rate-of-flow and on the steam-pressure rate-of-change in the boiler drum; the air regulator maintains the air feed constant in accordance with the prescribed load. This scheme is the basis for successful regulating of parallel-operating boilers. The system ensures a constant steam pressure in the main and a predetermined load distribution among the boilers.

Ya.V.R.

Card 1/1

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MEL'NIKOV, B. N.

New method of purification of direct dyes. B. N. Mel'nikov and P. V. Morreganov (Chem. Technol. Inst., Zhur. Prikład. Khim. 27, 916-20(1954).—An improved and rapid method of purification of direct dyes is described; this involves the use of Aniline Black (I) that had been freshly prepd. and air-dried. The method depends on the use of I as an anionite-exchange agent, which can be regarded as a form of RNH_2, or a basic polymer. All direct and acid dyes are capable of reacting with such a substance through salt formation and the salts are readily regenerated by addn. of base. A paste of I is prepd. by mixing 3 solns.: 25 g. $PhNH_2$ salt in 80 g. H_2O at 75°; 5 g. $CuSO_4$, 0 g. $NaClO_3$, and 50 ml. H_2O at 75°; and 4 g. NH_4Cl in 50 ml. H_2O at 75°; the mixed soln. is heated to boiling, the resulting ppt. of I is sepd. and washed with cold H_2O. The resulting paste is added to a boiling soln. of 5-7 g. crude dye in 500 ml. H_2O, and boiling is continued until dye absorption becomes complete; the ppt. is filtered and washed with hot H_2O (the filtrate is tested for halide ion) until free of halide, when it is treated with base and the dye is returned to its original state and I is left in soln. In this way Direct Blue and Direct Violet dyes were readily converted from 39.0-46.2% purity to 90.47-94.32% purity. The sorption capacity of I can be detd. readily by conventional colorimetric methods. I that had been subjected to hydrolysis and oxidation reactions has much lower sorption capacity than freshly prepd. I; this is explained by destruction of the reactive amino groups.

G. M. Kosolapoff

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MELNIKOV-B.N.

3

M.A. YOUTZ

Scopic

Matly

Equilibrium dyeing of cotton fibres with direct dyes. P. V. Moryganov and B. N. Melnikov (*Tekstil. Prom.*, 1955, 15, No. 8, 33—36).—The study has shown the complete reversibility of the interaction between cellulose and direct dyes, the same equilibrium constants being obtained in the direct and reverse reactions. It is shown that, under the usual dyeing conditions, the theoretically calculated quantity of dye on the fibre, according to its thermodynamical characteristics, corresponds to the amount found experimentally. The affinity of the dye for cellulose fibres is a purely energetic characteristic and depends on the structure of the dye mol. and not on the concn. of dye and electrolyte in the dye bath.

J. Text. Inst. (R.B.C.).

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"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001033420015-2

Mel'nikov, B.N.

USSR.

Solubility of direct and acid dyes. B. N. Mel'nikov and P. V. Moryganov (Inst. Chem. Technol., Ivanovo). Kol'loid. Zhur. 17, 95-106(1955).—The samples used contained, after purification, 82-88% dye, 8-15% H_2O, and 1.5-6.1% C impurities. The soly. of Chrysophenine (I) and Benzopurpurin 10B (II) in H_2O depended on the size of the sample; thus, it was at 25° 4.8 and 9.9 g./l. when 0.3 and 1.2 g., resp., of I were added to 60 cc. H_2O, and 3.9 and 4.6 g./l. when 0.1 and 1.5 g., resp., of II were added to 25 cc. H_2O. The soly. of all samples increased with temp.; e.g., at 25 and 70°, resp., it was 9.7 (for 1 g. I in 50 cc.) and 30.8 (for 1.8 g. I), 5 and 95 for Methyl Orange, 46 and 117 for Direct Blue, 25 and 185 for Acid Orange, and 45 and 200 for Acid Brilliant Orange G. The soly. of II at 45° (no higher temp. was used) and of the 4 last-named dyes at all temps. was independent of the amt. The soly. of I in 10% pyridine +90% H_2O and 20% pyridine +80% H_2O also was independent of the amt. (at 25°, it was 74 and 104, resp.). Thus, only I in H_2O and II in H_2O below 45° formed colloidal particles. The temp. coeff. of soly. was greater above 40° than below 40°; probably, the dyes were aggregated at the lower temps. Addn. of salts having no common ion raised, and addn. of salts with a common ion lowered, the soly. of some dyes.

J. J. Bikerman

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MEL'NIKOV, B N

I-19

USSR /Chemical Technology. Chemical Products and Their Application

Dyeing and chemical treatment of textiles

Abs Jour: Referat Zhur - Khimiya, No 9, 1957, 32187

Author : Mel'nikov B.N., Moryganov P.V.

Inst : Ivanovo Chemico-Technological Institute

Title : Solubility of Direct and Acid Dyestuffs

Orig Pub: Tr. Ivanovsk. khim.-tekhnol. in-ta, 1956, No 5, 159-168

Abstract: See RZhKhim, 1956, 20470

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"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001033420015-2

MORYGANOV, P.V.; MEL'NIKOV, B.N.

Continuous method for dyeing fiber. Tekst.prom.16 no.12:59-61 D'56. (MLRA 10:1)

(United States--Dyes and dyeing)

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MEL'NIKOV, B.N.

(2)

1/2

Thermodynamic study of the dyeing process of cotton fibers. P. V. Mocrysheev and B. N. Mel'nikov (Chem.-Technol. Inst., Ivanovo). Khim. Zhur. 18, 49-60 (1960).—Purified dyes (conts. 80-88% dye and 10-15% H_2O) were equilibrated with a bleached cotton fabric in the presence of NaCl. The equil. was reached, e.g., in 1760-2660 hrs. at 25°, 5-14 hrs. at 70°, and 0.75-2 hrs. at 100°; usually, chrysophenine (I) was taken up most, and Direct Diazoblack O (II) least, rapidly. The attainment of the equil. was checked also by desorption expts. which at 60° lasted 70-90 hrs. and, at 80°, 50-70 hrs. The equil. concn. a (in g. for 1 kg. dry fabric) at 60° for I was, e.g., 8 and 13 when its concn. c in the 0.5% NaCl soln. was 0.1 and 0.3 g./l., resp.; from 2% NaCl soln. a was 20 when c was 0.1; and at 80° a from 1.5% NaCl soln. at 60°; many other values are given in a graph. The uptake of Direct Light Blue K (III) was smaller; e.g., at 60° from 0.5% NaCl soln. a was 8 at c = 0.16. The enthalpy ΔH of dyeing was calcd. from these expts. by the formula $\Delta H = R\ln(c_1/c_2)T_1T_2/(T_1 - T_2)$; R is

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the gas const., c_i is that concn. of the dye in the soln. which gives the same c at temp. T_i as c_e gives at T_e. The ΔH was 14,000–16,000 cal./mole for both I and III. From similar dyeing expts. at lower concns. of NaCl (0.02–0.04 N) the Gibbs free energy ΔZ of the process was calcd. by the equation $-\Delta Z/RT = \ln a + z \ln [Na^+]_s - \ln c - z \ln [Na^+]_f - (z + 1) \ln v$; a and c are expressed in g. ions/L., $[Na^+]_f$ and $[Na^+]_s$ are concns. of Na^+ in the fiber and the soln., resp., z is the valency of the dye anion, and v is the available vol. of the solid phase, assumed to be 0.3 ml./g. The ΔZ was, e.g., 4300 and 3300 cal./mole for I at 60° and 100°, respectively, about 15%, 30%, and 50% greater for III, Direct Violet, and II, resp. The ΔZ was not markedly affected by either the NaCl concn. or c_i; it was smaller the greater the no. of sulfo groups and the smaller the no. of OH and NH_2 groups in the dye mol.

F. J. Bikerman

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"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001033420015-2

MELNIKOV, B.N.; MORYGANOV, P.V.

Diffusion of direct dyes into cellulose fibers [with English summary in insert] Koll.zhur. 18 no.5:566-573 S-O '56. (MLRA 9:11)

1. Ivanovskiy khimiko-tekhnologicheskiy institut, Laboratoriya kafedry khimicheskoy tekhnologii voloknistykh materialov.
(Dyes and dyeing--Cellulose)

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"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001033420015-2

MEL'NIKOV, B. N.

Effect of hydrophilic substances on the diffusion of direct dyes in cellulose fibers. - B. N. Mel'nikov and P. V. Moryganov (Chem.-Technol. Inst., Ivanovo). *Kolloid. Zhur.* 18, 711-16(1956); cf. *C.A.* 51, 5426c.—Dyes diffuse in a fiber slowly because they have an affinity for the fiber; if this affinity is reduced by a 3rd substance, the coeff. of diffusion D should be greater. That was confirmed by adding pyridine (50 x/L) to a soln. of Color Index No. 395 and No. 401 in x% NaCl soln. and immersing Cu-NH_3 rayon in the soln. The D (10^{-8} sq. cm./min.) was, e.g., at 60° and x = 4 for the 2 dyes 0.74 and 0.60 without, and 1.38 and 1.83 with pyridine; and at 100° and x = 15, D for No. 395 was 8.3 and 21.2 without and with pyridine, resp. The energy of activation of diffusion was lowered by pyridine.

J. J. Bikerman

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Mel'nikov, B N

2

Kinetics of dyeing processes. P. V. Moryganov and B. N. Mel'nikov. (*Usp. Khim.*, 1956, 25, 1149–1164).—Literature relating to dyeing processes and technology is reviewed and thermodynamics are discussed in relation to type of fibre, chemical structure of dye, temp., and degree of coloration obtainable. [24 references.] A. L. B.

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"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001033420015-2

MORYGANOV, P.V.; MEL'NIKOV, B.N.

Interaction of azotols with cotton fiber. Tekst.prom. 17 no.2: 41-43 F '57. (MLRA 10:2)

(Dyes and dyeing--Cotton) (Azotol)

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"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001033420015-2

MEL'NIKOV, B.N.

MORYGANOV, P.V.; MEL'NIKOV, B.N.; KLEMIN, N.G.

New textbook on the chemical technology of fibers. ("Chemical technology of fibers" by F.I.Sadov, M.V.Korchagin, A.I.Matetskii. Reviewed by P.V.Moryganov, B.N.Mel'nikov, N.G.Klemin.) Tekst.prom. 17 no.9:66-68 S '57. (MIRA 10:11)

1. Ivanovskiy khimiko-tekhnologicheskiy institut.
(Textile chemistry)

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001033420015-2"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001033420015-2

MEL'NIKOV, B. N.

The relationship between the affinity of direct dyes and their structure. P. V. Moryganov and B. N. Mel'nikov (Inst. Chem. Technol., Ivanovo). *Kolloid. Zhur.* 19, 100-3(1957); cf. *C.A.* 50, 9022*h*.—The affinity $\mu = RT[\ln C_1c_1 - \ln C_2c_2 - (s + 1) \ln V]$; C_1 and C_2 are the concns. of dye in cellulose fiber and soln., resp., c_1 and c_2 are the corresponding concns. of Na; s is the valency of the dye anion, and V is the vol. (in l.) of dry cellulose per kg.

The μ (at 80 and 100°) increased from Na salt of bis[4-(3,6-disulfo-8-amino-1-hydroxy-2-naphthylazo)phenyl]amine (I) to Na salts of C.I. 305, 8,8'-dibenzoyl deriv. of I, and bis[4-(3-sulfo-7-amino-1-hydroxy-2-naphthylazo)phenyl]amine (II) (all 3 approx. equal), and to Na salts of C.I. 406 and 7,7'-dibenzoyl deriv. of II. When NH interrupted the chain of conjugated double bonds, μ decreased but it was restored by Bz groups. The increase $\Delta\mu$ of μ by Bz was accounted for by Meggy's equation (*C.A.* 45, 357*b*) $\Delta\mu = 0.021S$, S = area of a Bz radical. — I. J. Bikerman

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MEL'NIKOV, B N

AUTHORS: Krasovitskiy, B. M., Moryganov, P. V., Titarenko, N. I., Mel'nikov, B. N. 20-3-21/46

TITLE: A Comparative Study of the Affinity of Direct Azodyes - of the Diphenyl and p - Terphenyl Derivatives - to Cellulose Cotton Fibre (Sravnitel'noye issledovaniye srodstva pryamykh azokrasiteley - proizvodnykh difenila i para-terfenila - k tsellyuloznomu khlopkovomu voloknu).

PERIODICAL: Doklady AN SSSR, 1957, Vol. 116, Nr 3, pp. 425-428 (USSR)

ABSTRACT: The question of the relation between the structure of the azo dyes and their affinity to cellulose fibre, attracts since long the attention of many researchers. To enable a dye to express its substantive properties, the presence of a long chain of conjugated double bonds in its molecules is required. Then the molecules become unsaturated and can easily be fixed on the cellulose fibre. An essential condition of the dye is that the substantive properties are correlated to a large extent with the planear structure of their molecules, or respectively with the assumption of such a structure in the case of an interaction with the cellulose fibre. An essential condition of the properties

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"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001033420015-2

A Comparative Study of the Affinity of Direct Azodyes - of the Diphenyl and p - Terphenyl Derivatives - to Cellulose Cotton Fibre. 20-3-21/46

is, after all, the capacity of forming at least two hydrogen bonds between the molecules of the dye and the hydroxil groups of the cellulose. In spite of antithetical assertions, Robinson has proved that distances between the groups of molecules of dyes able to form hydrogen bonds, must not be approximated to the identity period of the cellulose (= 10.3 Å). Hydrogen bonds may occur at almost every place of the cellulose chain. After quoting further references the authors state that the investigation of the p-terphenyl derivatives allows to trace a successive agglomeration of benzene-rings. In this way the influence of the chain prolongation of the conjugated double bonds on the affinity of dyes to the cellulose fibre can be traced too. Further it can be stated in this context how far the mutual position of the groups able to form hydrogen bonds with cellulose, and the distance between them is of importance. Since this method was available to the authors, they compared some benzidine dyes with corresponding p-terphenyl derivatives. The azo-component to which very little attention is paid,

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"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001033420015-2

A Comparative Study of the Affinity of Direct Azodyes - of the Diphenyl and p - Terphenyl Derivatives - to Cellulose Cotton Fibre. 20-3-21/46

together with its influence on the activity of the dyes, should be investigated simultaneously. Properties of benzidine dyes with 8 various azo components and of p - terphenyl derivatives with 3 azo-components were investigated. The data in table 1 show that the introduction of an additional benzene-ring in the molecule of the dye increases in all cases the affinity of the dyes to cotton cellulose fibre. In the case of dyes with the azo components Chicago SS and E -acids the affinity grows more at 80° than at 100°. This difference can be well explained by a greater tendency to aggregation in the case of decline of temperature with these dyes. The affinity is thus correlated also with the great entropy changes at the transition of an individual dye molecule into aggregates since the fibre is able to absorb also the later ones. In the coloring process this phenomenon is presented by the fact that the fibre is able to absorb a larger quantity of dyes than provided by the nature of the forces acting between the dye and the fibre. Thus the prolongation of the

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"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001033420015-2

A Comparative Study of the Affinity of Direct Azodyes - of the Diphenyl and p - Terphenyl Derivatives - to Cellulose Cotton Fibre. 20-3-21/46

chain of the conjugated double bonds lead to an enlargement of the hydrophobic surface and to an intensification of polarization of the molecules of the dyes. By this, the affinity to the cellulose fibre increases regardless of the fact that the distance between the groups forming hydrogen compositions with cellulose, does not agree with the identity period of the cellulose. Concluding, further comparisons between the benzidine dyes with various azo components are quoted and conjectures about differences between them enounced. There are 1 table, and 21 references 10 of which are Slavic.

ASSOCIATION: Khar'kov State University, imeni A. M. Gor'kogo. Ivanovo Chemical Technological Institute (Khar'kovskiy gosudarstvennyy universitet im. A. M. Gor'kogo. Ivanovskiy khimiko-tekhnologicheskiy institut).

PRESENTED: May 15, 1957, by B. A. Kazanskiy, Academician

SUBMITTED: May 14, 1957.

AVAILABLE: Library of Congress

Card 4/4

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"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001033420015-2

VEL'NIKOV, B.N., Cand Tech Sci -- (diss) "State of direct dyes in solution and the kinetics of their dyeing of cellulose materials." Ivanovo, 1958, 22 pp (Min of Higher Education USSR. Len Textile Inst im S.M. Kirov) 100 copies (KL, 28-58, 107)

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"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001033420015-2

AUTHORS: Mel'nikov, B. N., Moryganov, P.V. 153-58-1-23/29

TITLE: Investigation of the Diffusion of Direct Dyes by a Cellophane-Film (Izucheniye diffuzii pryamykh krasiteley cherez tsellofanovuyu plenku)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya tekhnologiya, 1958, Nr 1, pp. 157-163 (USSR)

ABSTRACT: The authors proved in previous reports (References 1 to 3) that the introduction into the dye vat of substances which increase the dispersiveness of the dyes in the solution and decrease the affinity of the former to the cellulose fibers, lead to an acceleration of the diffusion of the dyes in the fiber or in the film and to a reduction of the activation-energy of diffusion. The following problems were not investigated: a) The influence of the aforesaid substances on a possible swelling of the fiber or of the film, and on its dyeing capacity (nakrashivayemost'); b) The dependence of the degree of dispersiveness of direct dyes in the solution

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"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001033420015-2

Investigation of the Diffusion of Direct Dyes by a Cellophane-Film 153-58-1-23/29

on the concentration of the dispersing agents. The present work is devoted to the clarification of these problems. Coefficients of diffusion of direct dyes in the cellophane film and in the solution were measured and moreover, the swelling and the dyeing capacity were investigated under the same conditions. The method by Nortop and Anson was applied for the determination of the coefficient of dispersion (Northop & Anson, Reference 4); the calculation of the coefficients of diffusion was carried out according to the equation by Kholms and Stending (Holmes & Standing, Reference 5). The method of determination of the same coefficients both in the film and in the solution was described in previous works by the authors (References 1,2). For the purpose of comparison of the coefficients of diffusion of the direct dyes in the cellophane film and of the practical velocity of dyeing of the cellulose fibers with these dyes, tests with the dyeing capacity of the films in presence of the dispersing addition in the dye vat were carried out. The conditions were far distanced from the equilibrium. The test lasted 1o,

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Investigation of the Diffusion of Direct Dyes by a Cellophane-Film 153-58-1-23/29

3o and 6o minutes. 3 direct dyes were tested: direct light blue K (pryamoy-goluboy K), direct diazo black S and direct pure light blue (chisto-goluboy). Triethanolamine was used as dispersing agent. The concentration of the dyes amounted to 0,2 g/liter, that of triethanolamine to 0; 5o; 1oo and 15o g/liter. Salt concentrations for the two light blue amounted to 7o g/liter and to 5o g/liter for the black one. The results are given in the tables 1 to 4.

Conclusions: 1) It was proved that in the presence of triethanolamine the coefficients of diffusion of the direct dyes increase 5 to 8 times. The values of activation energy decrease by half, compared with the same values without triethanolamine. 2) Triethanolamine changes the degree of dispersiveness of the direct dyes in the solution: its concentration up to 5o g/liter increases it, a further increase of its concentration reduces this degree. The coefficients of diffusion of some dyes (direct light blue K and diazo black S)

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"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001033420015-2

Investigation of the Diffusion of Direct Dyes by a Cellophane-Film

153-58-1-23/29

continue to increase, however, which is apparently due to a reduction of the affinity to the fiber. 3) Triethanolamine does not effect any noticeable swelling of the cellophane-films. Yet the formation of adsorption--layers of triethanolamine-molecules on the surface of the films is possible. This accelerates the penetration of the dyes into the film. 4) The dyeing-capacity (nakrashivayemost') of the cellophane films increases according to the increase of the coefficients of diffusion of the dyes in the film. This holds for pure light blue within the whole range of temperature investigated and for the two other dyes only at 45°.
There are 1 figure, 5 tables, and 9 references, 5 of which are Soviet.

ASSOCIATION: Ivanovskiy khimiko-tekhnologicheskiy institut. Kafedra khimicheskoy tekhnologii voloknistykh materialov (Ivanovo Chemical Technological Institute, Chair for the Chemical Technology of Fiber-Materials)

SUBMITTED: September 24, 1957

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"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001033420015-2

MEL'NIKOV, B.N.

MORYGANOV, P.V.; MEL'NIKOV, B.N.

Dyes reacting chemically with cellulose materials. Izv.vys.ucheb.zav.; tekh.tekst.prom. no.2:181-192 '58. (MIRA 11:5)

1. Ivanovskiy khimiko-tekhnologicheskiy institut.
(Dyes and dyeing--Cellulose) (Textile chemistry)

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001033420015-2"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001033420015-2

MORYGANOV, P.V.; MEL'NIKOV, B.N.

Physicochemical properties of alkaline azotol solutions and their interaction with cellulose fibers. Izv.vys.ucheb.zav.; tekh.tekst.prom. no.4:151-156 '58. (MIRA 11:11)

1. Ivanovskiy khimiko-tekhnologicheskiy institut.
(Azo dyes) (Dyes and dyeing--Cotton)

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001033420015-2"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001033420015-2

MORYGANOV, P.V.; MEL'NIKOV, B.N.

Kinetics of dyeing processes. Izv. vys. ucheb. zav.; tekh. tekst. prom. no.5:96-108 '58. (MIRA 11:12)

1. Ivanovskiy khimiko-tekhnologicheskiy institut.
(Dyes and dyeing--Chemistry)
(Diffusion)

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001033420015-2"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001033420015-2

MORYGANOV, P.V., doktor tekhn.nauk; MEL'NIKOV, B.N., kand.tekhn.nauk

Hydrolysis and the washing-off from cotton fiber of sodium salts of azotol dyes. Tekst.prom. 19 no.1:55-58 Ja '59. (MIRA 12:1)

(Dyes and dyeing--Cotton) (Sodium salts) (Azo dyes)

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"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001033420015-2

SOV/69-21-1-12/21

5(4)

AUTHORS: Moryganov. P.V. and Mel'nikov, B.N.

TITLE: The Interaction of Direct Dyes With Cellotriose (Vzaimodeystviye pryamykh krasiteley s tsellotriozoy)

PERIODICAL: Kolloidnyy zhurnal, 1959, Vol XXI, Nr 1, pp86-90 (USSR)

ABSTRACT: The mechanism of dyeing cellulose materials by direct dyes has been elucidated on the example of the system: direct dyes - water soluble analog of cellulose (cellotriose). The thermodynamic characteristics of the process have been calculated from experimental data on the increase in solubility of the direct dyes in a cellotriose solution, as compared with pure water. The values of the affinities obtained have been compared with analogous data obtained during the interaction of direct dyes with the cellulose fibers. The effective volume of the cellulose phase, calculated by

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SOV/69-21-1-12/21

The Interaction of Direct Dyes With Cellotriose

other scientists in a purely formal way, has been shown to agree with the value the authors have computed on the basis of a comparison of the affinity of the dyes for cellulose and cellotriose. There are 2 tables and 6 English references.

ASSOCIATION: Laboratoriya kafedry khimicheskoy tekhnologii volokknistykh materialov, Ivanovskiy khimiko-tekhnologicheskiy institut (The Laboratory of the Chair of Chemical Technology of Fibrous Materials of the Ivanovo Chemical-Technological Institute)

SUBMITTED: May 14, 1957

Card 2/2

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001033420015-2"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001033420015-2

MELNIKOV, B. N.

"Equations for the Description of the Kinetics of Fiber Dyeing."

report presented at the Section on Colloid Chemistry, VIII Mendeleyev Conference of General and Applied Chemistry, Moscow, 16-23 March 1959.
(Koll. Zhur. v. 21, No. 4, pp. 509-511)

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001033420015-2"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001033420015-2

MEL'NIKOV, B.N.; KRASOVITSKIY, B.M.; MORYGANOV, P.V.

Relationship of the structure of the direct dye series, the size of their particles in solution, and the speed of diffusion in cellulose fibers. Izv.vys.ucheb.zav.; tekh. tekst.prom. no.1:110-120 '60. (MIRA 13:6)

1. Ivanovskiy khimiko-tekhnologicheskiy institut Khar'kovskiy gosudarstvennyy universitet im. A.M.Gor'kogo.
(Dyes and dyeing--Cellulose)

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001033420015-2"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001033420015-2

MORYGANOV, P.V.; MEL'NIKOV, B.N.; KUDRYAVTSEV, S.I.; OVCHINNIKOVA, R.S.

Indelible finishing coating for cotton fabrics, obtained with the aid of colloidal solutions of melamine formaldehyde resins. Izv.vys. uchebn.zav.; tekh.tekst.prom. no.2:91-96 '60. (MIRA 13:11)

1. Ivanovskiy khimiko-tekhnologicheskiy institut.
(Textile fininshing) (Melamine)

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"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001033420015-2

MEL'NIKOV, B.N.; KRASNOVITSKIY, B.M.; MORYGANOV, P.V.; ZAKHAROVA, T.D.

Relation between the structure of azo dyes (oxa- and thiodiazol derivatives) and the rate of their diffusion in copper rayon fibers. Izv.vys.ucheb.zav.; tekh.tekst.prom. no.6:120-124 '60. (MIRA 14:1)

1. Ivanovskiy khimiko-tekhnologicheskiy institut i Khar'kovskiy gosudarstvennyy universitet imeni A.M. Gor'kogo.
(Dyes and dyeing--Rayon) (Azo dyes)

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"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001033420015-2

MORYGANOV, P.V., doktor tekhn.nauk; MEL'NIKOV, B.N., kand.tekhn.nauk

"New equipment and technology in the finishing industry" by A.S.Stepanov. Reviewed by P.V.Moryganov, B.N.Mel'nikov. Tekst. prom. 20 no.1:92-94 Ja '60. (MIRA 13:5)
(Textile finishing) (Stepanov, A.S.)

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001033420015-2"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001033420015-2

MOHYGANOV, P.V.; MEL'NIKOV, B.N.

Formation of insoluble hydroxyazo dyes on nylon. Tekst.prom. 20 no.6:40-42 Je '60. (MIRA 13:7)
(Dyes and dyeing--Nylon)

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001033420015-2"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001033420015-2

MORYGANOV, P.V.; MEL'NIKOV, B.N.; PANINA, Z.N.

Using basic dyes for dyeing nitron. Izv.vys.ucheb.zav.; tekh. tekst.prom. no.5:99-104 '61. (MIRA 14:11)

1. Ivanovskiy khimiko-tekhnologicheskiy institut.
(Dyes and dyeing--Rayon)

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001033420015-2"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001033420015-2

MORYGANOV, P.V., prof., doktor tekhn.nauk; MEL'NIKOV, B.N., dotsent, kand.-tekhn.nauk

Producing the effects of wrinkle resistance and permanent embossing on cotton fabrics. Biul.tekh.-ekon.inform. no.11:56-57 '61. (MIRA 14:12)

(Cotton finishing)

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001033420015-2"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001033420015-2

MORYGANOV, P.V.; MEL'NIKOV, B.N.; KUDRYAVTSEV, S.I.

Cotton fabrics with crease resistant and permanent embossing effect. Tekst. prom. 21 no. 4:32-34 Ap '61. (MIRA 14:7)
(Cotton finishing)

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001033420015-2"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001033420015-2

MEL'NIKOV, B.N.; KOTOVA, I.B.

Studying the effect of hydrophilic organic solvents on the kinetics of the dyeing of cellulose hydrate fibers with direct dyes. Izv.-vys.ucheb.zav.; tekh.tekst.prom. no.1:106-114 '62. (MIRA 15:3)

1. Ivanovskiy khimiko-tekhnologicheskiy institut.
(Dyes and dyeing--Cellulose)

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"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001033420015-2

L 12316-63 EWP(j)/EWT(m)/BDS ASD/AFFTC Pc-4 RM
S/081/63/000/005/073/075

AUTHOR: Moryganov, P. V., Mel'nikov, B. N. and Vinogradov, G. I.

TITLE: A possibility of intensification of the dyeing process of nylon with formation of insoluble oxyazo dyes on fibers

PERIODICAL: Referativnyy zhurnal, Khimiya, no. 5, 1963, 645, abstract 5T492 (Izv. bysh. ucheb. zabedeniyy. Tekhnol. tekstil'nikh. prom-sty, 1962, no. 3, 107-144)

TEXT: An investigation of the possibility of intensifying the dyeing process was conducted with the purpose of developing conditions for continuous dyeing of polyamide fibers with oxyazo dyes which form on the fibers and are insoluble in water. On the basis of the analysis of spectrophotometric curves of the alkaline solutions of azotholes (AZ) and their solutions in dimethylformamide (DMF) it was established that solution of AZ in DMF is accompanied by a bathochromic displacement of absorption bands in comparison with alkaline systems, which could be attributed to the interaction of AZ with DMF. The affinity values of azotol A for MNA comprises 4.12 k cal/mole and for PA 8 k cal/mole. The sorption of A by the fibers increases with an increase in concentration of water in the DMF solution. In the 10 - 20 % concentration limits of AZ, the property of DMF to cause the swelling of

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L 12316-63

S/081/63/000/005/073/075

A possibility of intensification ....

the fiber rather than to interact with the solvent becomes apparent. In higher concentrations of DMF its tendency to interact with AZ and to decrease its relationship to the fiber is observed. With rise in temperature, the absorption of AZ by the fiber in the presence of DMF increases, and it decreases in AZ suspensions in water-leucanol. In the presence of DMF the speed of diffusion of AZ and azoamines in the fiber rises sharply. The article gives diffusion coefficients of azotoles A, MNA, PA into the fiber for water-leucanol and in water containing DMF suspensions. The magnitude of the change of heat contents and relationships for the same systems were calculated. A method was developed for continuous dyeing of nylon fibric with formation of insoluble oxyazo-dyes on its surface. A. Boldenko.

[Abstractor's note: Complete translation]

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"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001033420015-2

MEL'NIKOV, B. N.; KOTOVA, I. B.

Interaction of direct dyes with organic solvents. Izv. vys. uchsb. zav.; tekh. tekst. prom. no.4:89-94 '62. (MIRA 15:10)

1. Ivanovskiy khimiko-tekhnologicheskiy institut.

(Dyes and dyeing)

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001033420015-2"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001033420015-2

MORYGANOV, P.V.; MEL'NIKOV, B.N.; LYAKISHEVA, O.B.

Mechanism of the reaction of cation dyes with nitron. Izv.vys.-ucheb.zav.; tekh.tekst.prom. no.5:114-117 '62. (MIRA 15:11)

1. Ivanovskiy khimiko-tekhnologicheskiy institut.
(Dyes and dyeing—Textile fabrics)

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001033420015-2"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001033420015-2

MEL'NIKOV, B.N.; KOTOVA, I.B.

Effect of some organic solvents on the swelling of rayon fibers during dyeing. Izv. vys. ucheb. zav.; tekh. tekst. prom. no.4:103-107 '63. (MIRA 16:11)

1. Ivanovskiy khimiko-tekhnologicheskiy institut.

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"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001033420015-2

MEL'NIKOV, B.N.; KIRILLOVA, M.N.; MORYGANOV, P.V.

Microphotometric method for studying the diffusion of dyes in a cellophane film. Izv. vys. ucheb. zav.; tekh. tekst. prom. no.6:118-123 '63 (MIRA 17:8)

1. Ivanovskiy khimiko-tekhnologicheskiy institut.

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001033420015-2"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001033420015-2

VINOGRADOVA, G.I.; MEL'NIKOV, B.N.; MORYGANOV, P.V.

Investigating the sorption of azoamines by capron fibers. Izv.vys. ucheb.zav.; tekh.tekst.prom. no.5:88-94 '64. (MIRA 18:1)

1. Ivanovskiy khimiko-tekhnologicheskiy institut.

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"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001033420015-2

MEL'NIKOV, B.N.; PROROKOV, N.I.; KUDRYASHOVA, A.A.

Experience in the use of organic solvents in the dyeing [illegible] fabrics with sulfide dyes. Izv. vys. uchebn. zav.; tekn. tekst. [illegible] no.1:152-157 '65. (MIRA [illegible])

1. Ivanovskiy khimiko-tekhnologicheskiy institut i Ivanovskiy khlopchatobumazhnyy kombinat.

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001033420015-2"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001033420015-2

LYAKISHEVA, O.B.; MEL'NIKOV, B.N.; MORYGANOV, P.V.

Studying the development of the technology for a continuous dyeing method of nitron with cationic dyes. Izv. vys. ucheb. zav.; tekh. tekst. prom. no.2:114-120 '65. (MIRA 18:5)

1. Ivanovskiy khimiko-tekhnologicheskiy institut.

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001033420015-2"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001033420015-2

VINOGRADOVA, G.I.; MEL'NIKOV, B.N.

Studying the mechanism of the reaction of coupled hydroxy azo dye development on polyamide fibers. Izv. vys. ucheb. zav.; tekh. teks. prom. no.6:81-85 '65. (MIRA 19:1)

1. Ivanovskiy khimiko-tekhnologicheskiy institut. Submitted February 20, 1965.

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001033420015-2"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001033420015-2

MEL'NIKOV, B.N.

Relation of frost swelling of eluvial, clay soils of the Urals to the moisture, granulometric, and mineralogical composition. Osn., fund. i mekh.grun. 8 no.1:12-13 '66. (MIRA 19:1)

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001033420015-2"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001033420015-2

MEL'NIKOV, B.N.

Effect of the flight velocity of a Tu-124 airplane on the noise emanated by its engines. Akust. zhur. 10 no.3:324-329 '64. (MIRA 17:11)

1. Gosudarstvennyy nauchno-issledovatel'skiy institut grazhdanskogo vozdushnogo flota, Moskva.

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001033420015-2"

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L 45561-65 EWT(d)/EWT(m)/EWP(w)/FA/EWP(v)/T-2/EWP(k)/EWP(h)/EWA(h) Pf-4/Peb
EM

ACCESSION NR: AP5013703 UR/0046/65/011/002/0207/0209

23
B

AUTHOR: Mel'nikov, B. N. (Moscow)

TITLE: Noise affecting populated areas during the takeoff and landing of the TU-124 passenger aircraft

SOURCE: Akusticheskiy zhurnal, v. 11, no. 2, 1965, 207-209

TOPIC TAGS: TU 124, noise level, noise suppression test, engine noise

ABSTRACT: Partial and total night-flight restrictions, necessitated by high-level engine noise, have been recently extended over a number of airports located in the vicinity of densely populated areas. Today's air traffic commands a permissible noise level of 110—112 PN db for daytime and 102 PN db for night flights at a distance normally exceeding 1.5 km from the end of the runway. As air traffic becomes increasingly heavier, the permissible noise level decreases. By 1970, it may be as low as 5—10 PN db. Considerable noise reduction has been realized through newly developed techniques for piloting the TU-124, which is equipped with two bypass engines, during the initial climb. The initial altitude gain and flight over populated areas is accomplished at a speed of V_2 + 20 km/hr, where V_2 is the safe climbing speed with flaps deflected at 20°. With regard to landing, the high-frequency noise stemming from compressor and turbine, rather than the jet-stream noise,

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ACCESSION NR: AP5013703

is the determining factor. Average noise levels were determined on the basis of experimental data obtained from flights which were made at speeds of 250—280 km/hr at various altitudes and under varying operating conditions. These data show that the TU-124 plane ensures permissible noise levels in virtually all cases and at any time of day or night. Orig. art. has: 3 figures and 1 table. [VM]

ASSOCIATION: none

SUBMITTED: 01Apr64 ENCL: 00 SUB CODE: AC

NO REF SOV: 000 OTHER: 001 ATD PRESS: 4001

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"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001033420015-2

ACC NR: AP6004118 SOURCE CODE: UR/0420/65/000/001/0017/0020

AUTHOR: Mel'nikov, B. N.; Okorokov, V. S.
ORG: none

TITLE: Results of a study of noise generated by an AN-24 aircraft over populated areas

SOURCE: Samoletostroyeniye i tekhnika vozdushnogo flota, no. 1, 1965, 17-20
TOPIC TAGS: aerodynamic noise, aircraft, turboprop engine / AN-24 turboprop aircraft, AI-24 turboprop engine

ABSTRACT:

A great deal of consideration has been given lately to the damaging effects of noise generated by civil aircraft. The State Scientific Research Institute of the Civil Air Fleet of the USSR in 1962 initiated a research project aimed at ascertaining the magnitude of the noise generated by the AN-24 airplane. The test airplane, powered by two AI-24 turboprop engines, carried on board a type-4111 condenser-microphone, a type-2110 spectrometer, and a type-2304 noise-level recorder. The MAG-8M tape recorder was used for measuring the intensity of noise generated by the flying aircraft. The near-ground air temperature ranged from 13° to 19° C. The takeoff weight of the airplane was 18—19 tons.

The results of this investigation are shown in Figs. 1 through 4 and Tables 1 and 2. Total noise intensities are determined by the

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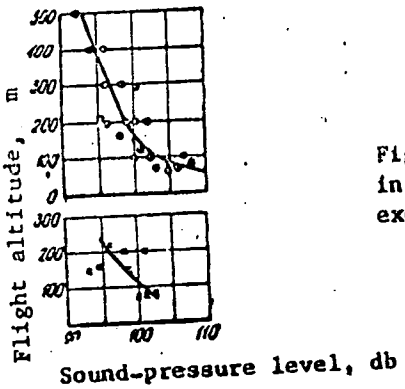

Fig. 1. Test curves showing changes in maximum total noise levels for flights executed under varying conditions

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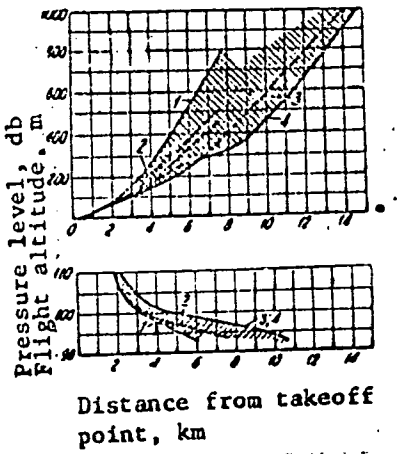

Fig. 2. The area of fixed takeoff trajectories and the corresponding zone of maximum noise levels affecting a populated region

1 - Ascent with engines operating at maximum efficiency; 2, 3, and 4 - ascent with engines operating at nominal efficiency.

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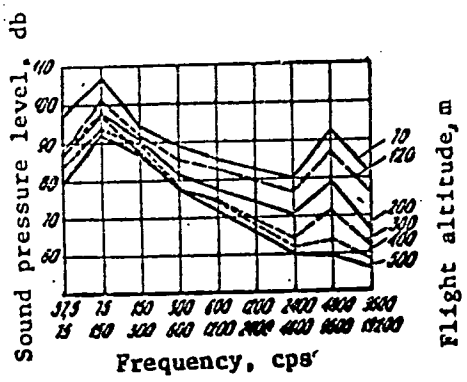

Fig. 3. Noise spectra produced by an AN-24 aircraft

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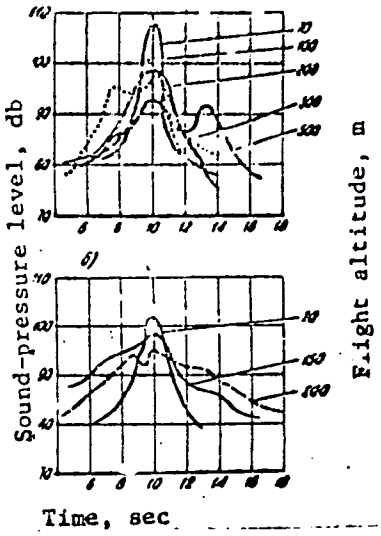

Fig. 4. Variation of total noise levels with time during the flight of an AN-24 aircraft under varying conditions

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ACC NR: AP6004118

Table 1. Maximum noise levels under varying operati g conditions at various flight altitudes

Operating regime of engines	Flight altitude m	Maximum noise levels		Listening time for total noise level, sec	
		db	PN db (perceptible noise)	Above 90 db level	The upper 10 db
Maximum or nominal	70	108	122.5	2	1
	100	103.5	116.5	2	1.5
	150	100.5	112	2.5	3
	200	99	109	3.5	4
	300	97	103.5	5	5.5
	400	95	100.5	5	8
	500	93	99	5	8.5
Landing	70	102.5	119.5	2.5	2
	100	100.5	116.5	-	-
	150	98	112	6	8.5
	200	96	108	6.5	11

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ACC NR: AP6004118

Table 2. Maximum noise levels at different distances from point of takeoff

Distance from takeoff point, km	Maximum noise levels	
	db	PN db
2	110	123.5
3	100.5—104.5	112—117
4	97.5—101	105—113
5	95 — 99.5	100.5—109.5
6	93 — 98.5	99—107
7	97.5	105
8	96.5	102.5
9	95.5	101.5

sound-pressure levels of the first, second, third, and eighth octave frequency bands (20—300 and 1800—9600 cps). As the flight altitude increases, the effect of the sound-pressure level in the eighth octave diminishes due to the more rapid attenuation of the high-frequency noise in the atmosphere. The primary source of low-frequency noise

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ACC NR: AP7004118

is the propeller, while high-frequency noise is produced main by the compressor and turbine. Tests have indicated that the eak noise level of the AN-24 does not exceed the permissible nois evel set at 112 PN db at a distance of approximately 4.5 km from th point of takeoff for an ascent along a slanting trajectory. For an as ent along a "steep" trajectory (with engines operating at maximum efficiency) the noise would not exceed the permissible level at distance of 3—3.5 km from the takeoff point. Orig. art. has: 4 figures and 2 tables. [ATD PRESS: 4180-F]

SUB CODE: 01,20,21 / SUBM DATE: none

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APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001033420015-2"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001033420015-2

MEL'NIKOV, B.P.

Production resources for output in the piedmont "40th anniversary of October" Collective Farm. Trudy AZVI 10:537-547 '57. (MIRA 12:8)

1. Iz kafedry ekonomiki i organizatsii sel'skogo khozyaystva (zav.kafedroy - kand.ekon.nauk, dots. M.V.Chebyshev) Alma-Atinskogo zoovetinstituta.
(Alma-Ata Province--Collective farms)

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[illegible].4310,[illegible].2520

77705
SOV/109-5-2-16/26

AUTHOR: Mel'nikov, B. S.

TITLE: Formation of a Pulse Peak in a Blocking Oscillator on a Plane Junction Type Triode

PERIODICAL: Radiotekhnika i elektronika, 1960, Vol 5, Nr 2, pp 323-329 (USSR)

ABSTRACT: A quasi-linear method of analysis of a blocking oscillator permits the determination of form, amplitude, and width of generated oscillation pulses. The method is based on peculiarities of junction triodes: Pulse characteristics coincide with those taken at direct current, if the power dissipated on the triode is below the nominal. A triode at the peak of the pulse is in a state of oversaturation; output resistance of the triode during amplification is high; during oversaturation input characteristics depend only on saturation current, and the output resistance is low. Linearization is thus possible;

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"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001033420015-2

Formation of a Pulse Peak in a Blocking Oscillator on a Plane Junction Type Triode

77785
SOV/109-5-2-18/26

$$\frac{\partial I_c}{\partial U_b} = R_{tr} = \text{const}, \quad \frac{\partial I_b}{\partial U_b} = R_{bc} = \text{const}, \quad \frac{\partial I_c}{\partial U_c} = 0,$$

$$I_c = \frac{1}{R_{tr}}(U_b - U_{bo}), \quad U_{bo} = \text{const}, \tag{1}$$

$$I_b = \frac{1}{R_{bc}}(U_b - U_b^{*}), \quad U_b^{*} = f(I_c). \tag{2}$$

For a blocking oscillator using a triode with grounded emitter (Fig. 1), as per equivalent base circuit (Fig. 2) a system of equations can be set up:

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Formation of a Pulse Peak in a Blocking Oscillator on a Plane Junction Type Triode

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SOV/109-5-2-18/26

$$
\left.
\begin{aligned}
& nI_c = I_s - I_b, \\
& L = \frac{U_c}{n} - L\frac{dI_s}{dt}, \\
& E = U_c - \frac{1}{C}\int I_b\,dt = R_b I_b + U_b, \\
& I_c = I_c R_c + U_b, \\
& I_b = f(U_b, I_c) \\
& \text{where } n = W_b/W_b'
\end{aligned}
\right| \qquad (3)
$$

Equation $I_b = f(U_b, I_c)$ describes the dynamic characteristic of a semiconductor triode. Linearized characteristics of collector and base currents are shown in Fig. 3.

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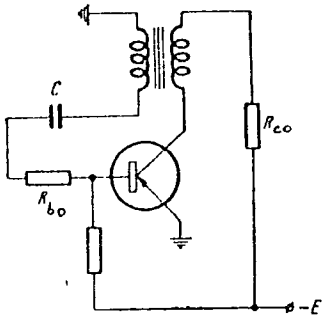

Fig. 1. Basic blocking oscillator circuit.

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Formation of a Pulse Peak in a Blocking Oscillator on a Plane Junction Type Triode

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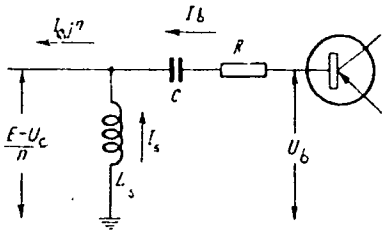

Fig. 2. Equivalent base circuit of blocking oscillator.

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Formation of a Pulse Peak in a Blocking Oscillator on a Plane Junction Type Triode

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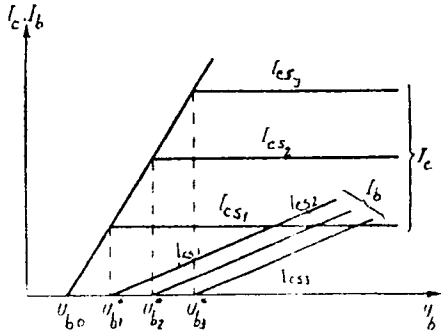

Fig. 3. Linearized inp[illegible] and transient characteristics of a semiconduct[illegible] triode.

Insofar as collector cur[illegible] is independent of collector voltage, the a[illegible]ing branch of family

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characteristics of collector current (which is the transient characteristics) is the same for all curves. While the triode is in amplification stage, base current is small, as amplification coefficient β is adequately high. When saturation is reached, β drops sharply, and base current grows rapidly. During saturation, the transit base-emitter can be considered as a diode having a resistance R_{bn}, much lower than that of the triode during the amplification period. Input characteristic begins from points U_b^* corresponding to the transition of the triode from amplification to saturation. Taking into consideration (1) and (2), we obtain:

$$I_b = \frac{1}{R_{bs}}(U_b - U_{bo} - I_c R_{re}) \quad (4)$$

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Using (4) and considering that $I_c R_c \gg U_b$, we find:

$$\left.\begin{aligned} &\left(R_{tk} + \frac{R_c}{n}\right) I_c(p) + L I_b(p) = \frac{E}{np} + L I_{c0}, \\ &\left(\frac{R_c}{n} + R_{tk}\right) I_c(p) + \left(\frac{1}{pC} + R_b'\right) I_b(p) = \frac{1}{p}\left(\frac{E}{n} + U_{b0} - U_{c0}\right). \end{aligned}\right\} \quad (5)$$

where $R_b = R_{bs} + R_b$; I_{m0} is initial magnetizing current; U_{C0}, initial voltage at capacitance C. For zero initial conditions under self-excitation, at Re b $\neq$ 0 and Im b = 0 and at Re b = 0, Im b $\neq$ 0, the author derives equations for varying collector and base currents, during generation of pulse peak. For determination of pulse width, one must know amplification coefficient β_c at the end of pulse. The latter corresponds to the intersection of the dynamic characteristic of blocking oscillator with line B (Fig. 4), which is the geometrical location

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of all tangent points of load lines and characteristics of differential current. For determination of β_c nonlinear input, transient and differential current characteristics must be used. β_c values functionally tied to I_c determine the relation of collector and base currents at the termination point of the generated pulse peak:

$$I_c(\tau) = \beta_c(I_c)\, I_b(\tau). \qquad (10)$$

The latter equation is a transcendental expression and can be solved with reference to τ either graphically or by successive approximations (solution given in the appendix). (2) Comparison With experiment. The above theoretical considerations were verified for three different shape pulses: with a falling, constant, and rising amplitude of collector

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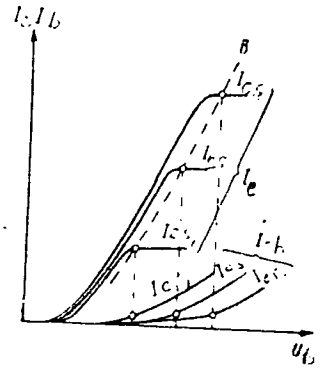

Fig. 4. Input and transient characteristics of a semiconductor triode.

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Formation of a Pulse Peak in a Blocking Oscillator on a Plane Junction Triode

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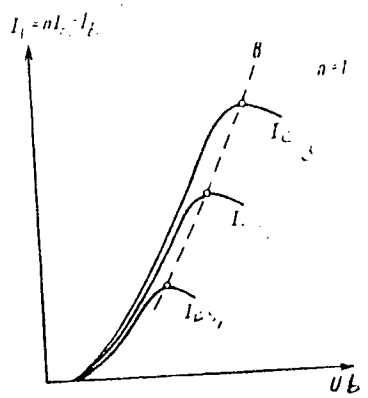

Fig. 5. Differential current characteristics for n = 1

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Formation of a Pulse Peak in a Blocking Oscillator on a Plane Junction Triode

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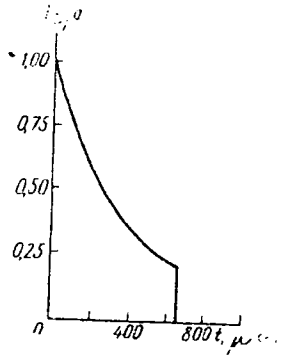
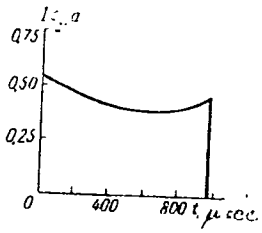
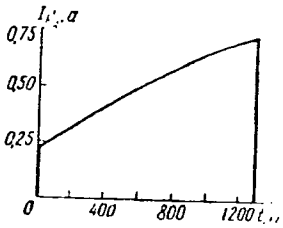
current. Measurements were made by changing the resistance in the base circuit. Triode П 4B was used. Calculated shapes of pulses are shown in Figs. 6, 8, and 10.







Card 12/13 Caption on Card 13/13

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Formation of a Pulse Peak in a Blocking Oscillator on a Plane Junction Triode

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Figs. 6, 8, 10. Calculated collector pulse current at R_b resistance 5.8 ohm, 40.8 ohm and 130.8 ohm, for (6), (8) and (10), respectively.

Oscillograms confirmed the correctness of calculations within a range of 15-20% both with regard to the duration and shape. In his conclusions the author indicates that a certain discrepancy between the beginning of the theoretical curve and oscillogram is natural and due to the triode inertia and to the scattering induction of the transformer. A blocking oscillator can therefore be successfully analyzed for pulses of determined duration and as a device assuring functional change in collector current. An appendix shows an approximate method for calculating Eq. (10). There are 11 figures; and 5 Soviet references.

SUBMITTED: April 23, 1959

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"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001033420015-2

24472

S/109/61/006/006/013/016
D204/D303

9.2586

AUTHOR: Mel'nikov, B.S.

TITLE: Electronic regulation of pulse duration in junction-transistor blocking-oscillators

PERIODICAL: Radiotekhnika i elektronika, v. 6, no. 6, 1961, 1015 - 1019

TEXT: On the basis of a linear approximation it is shown that the length of the pulse generated by a blocking oscillator can be electronically regulated within a range of 100x or more. The formulae derived describe the real processes with an accuracy of 10-15 %. Electronic regulation of the pulse length makes it possible to use the blocking oscillator as a delay element, or a pulse-length modulator. The linear approximation used is valid only when the rate of change of the base current is less than the rate of recombination of minority carriers at the collector junction, i.e. when the inertia of the saturated transistor can be ignored. The circuit diagram of the blocking oscillator is shown in Fig. 1, and the

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Electronic regulation of ...

equivalent circuit, reduced to the base, is given in Fig. 2.

Fig. 1. Basic diagram of the blocking oscillator.
Legend: D - diode; $E_б$ - base voltage; -E - collector voltage; $R_{ко}$ - collector resistance.

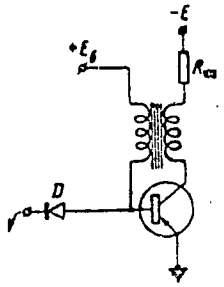

Рис. 1. Принципиальная схема L-генератора

Fig. 2. Equivalent circuit for the base circuit of the blocking oscillator.
Legend: n - transformer ratio, the other symbols are selfexplanatory.

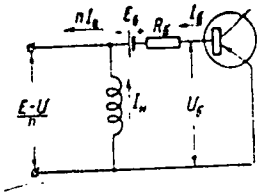

Рис. 2. Эквивалентная схема базовой цепи L-генератора

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From the basic equations written for the equivalent circuit and from an equation for the pulse duration, taken from literature, the following formula is obtained for the pulse duration:

$$\tau = \frac{LR_{\Sigma}}{R'_{б}R_{к}} \ln \left\{ \frac{E\left[\frac{R_{пр}}{R_{к}} + \frac{nR'_{б}}{R_{\Sigma}} + \frac{nR'_{б}(R_{пр} + nR'_{б})}{\beta' R_{к} R_{\Sigma}}\right]}{E'_{б} + \frac{E}{R_{к}}\left(R_{пр} + \frac{R'_{б}}{\beta}\right)} + \right.$$

$$\left. + \frac{E'_{б}\left[1 - \frac{n^2 R'_{б}}{R_{\Sigma}} + \frac{nR'_{б}}{\beta' R_{к} R_{\Sigma}}\right] - I_0\left[\frac{R'_{б}(nR_{пр} + R_{к})}{R_{\Sigma}} + \frac{R'_{б}}{\beta' R_{к} R_{\Sigma}}\right]}{E'_{б} + \frac{E}{R_{к}}\left(R_{пр} + \frac{R'_{б}}{\beta}\right)} \right\}, \quad (6)$$

where β' is the ratio of the collector and base currents at the instant when the generation of the pulse peak is completed; the simplifying assumption is made that $\partial\beta'/\partial I_k = 0$;

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$$R_{\Sigma} = R_{к} + nR_{пр} + n^2(R_{бн} + R_{б});$$
$$R_{б}' = R_{бн} + R_{б}; \quad E_{б}' = U_{б0} + E_{б}.$$

R_k is the sum of the load resistor and the collector winding resistance of the transformer; E is the collector supply voltage; $R_{пр} = \partial U_б/\partial I_k$; $U_б$ is the base voltage; I_k is the collector current; L is the inductance; $R_{бH} = \partial U_б/\partial I_б$. It is known from experiments that the duty ratio in free-running operation is small (1.2 - 1.5), therefore, it is reasonable to suppose that in single-shot operation with a duty ratio of more than 2 the system is completely restored, i.e. $I_0 = 0$. Also, for most practical circuits, the following inequalities can be used to simplify equation 6: $\beta' \gg 1$ (for real transistors $\beta' = 15 - 20$); $R_k \gg R_{бH} + R_б$; $R_k \gg R_{пр}$. The argument of the logarithm is nearly one, hence it can be replaced by

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[illegible] regulation of [illegible]

[illegible] The author simplifies Eq. (6), the [illegible] in its power [illegible] a first approximation the pulse [illegible] showing that in a first approximation the pulse [illegible] is determined by the circuit parameters and that it is [illegible] independent of the transistor parameters. The maximal possible [illegible] modulation is determined by the optimal choice of [illegible] and by the possible variation of the bias voltage E_σ. [illegible] of the maximal and minimal pulse durations is then given [illegible] and [illegible] are limited. This ratio is investigated as a [illegible] of R_K. For a maximal modulation range diffusion transistors must be used with a large permissible emitter-junction voltage. The value of R_K may be limited by stoppage of the oscillations. [illegible] an experimental test of the [illegible] the modulation characteristics of a blocking [illegible] were measured and the results [illegible] given in tabulated form. There are 1 table, 5 figures and 3 [illegible] references.

SUBMITTED: May [illegible]

Card 5/[illegible]

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"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001033420015-2

S/109/63/008/002/005/028
D413/D308

AUTHOR: Mel'nikov, B.S.

TITLE: The analysis of an L-oscillator incorporating a nonlinear transformer

PERIODICAL: Radiotekhnika i elektronika, v. 8, no. 2, 1963, 231-240

TEXT: A method is presented for analyzing inductive relaxation oscillator circuits in which the transformer is nonlinear, e.g. wound on a ferrite core or a core of material with pronounced saturation properties, as used for pulse generation, DC conversion etc. The following forms of approximation are considered for the transformer magnetization curve: and their applicability is determined: L constant, linear function of current, quadratic function of current, and compound linear function of current. The method of analysis deals only with the conditions where the nonlinearity of the transformer is strongly developed, as in the formation of the top of the pulse. The case considered is the practically important one where the width of

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the top of the pulse is determined only by the electronic processes in the circuit (the reabsorption time for excess carriers being negligibly small). The properties of both basic variants (load in collector circuit and in emitter circuit) are analyzed in terms of load resistance and transformer properties and compared with experimental data measured for a circuit with a particular transformer. The first two forms of approximation are shown to be satisfactory only for high resistances, but reasonably good agreement is obtained with the four-interval compound linear approximation. The method is therefore recommended for use in various quantitative design calculations on circuits in this type. There are 8 figures and 1 table.

SUBMITTED: February 17, 1962

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Ol'ga Sergeevna Kalashnikova; obituary. Elek.sta. 30 no.2:95 F '59. (MIRA 12:3)

(Kalashnikova, Ol'ga Sergeevna, 1914)

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BARANOVA, L.A., inzh. sluzhby puti (Chita); MEL'NIKOV, B.V. (Chita)

Safety engineering in the division. Put' i put.khoz. 9 no.6:11-12 '65. (MIRA 18:6)

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MEL'NIKOV, D.

Test and demonstration stand of electric equipment. Avt.transp. 38 no.1:48-49 Ja '60. (MIRA 13:5)
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KUCHEMANN, D.; WEBER, J.; BORISENKO, V.M. [translator]; YELISEYEVA, Yu.B. [translator]; SORKINA, L.I. [translator]; EL'PERINA, I.S. [translator]; MEL'NIKOV, D.A., redaktor; DANILOV, I.Ya., redaktor; KLIMENKO, S.V., tekhnicheskiy redaktor

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NECHAY, A.M.; MEL'NIKOV, D.A.

Studying reservoir characteristics of strata by the use of geophysical data in the northeastern regions of Ciscaucasia. Trudy VNII no.29: 44-54 '60. (MIRA 13:10)

1. Groznenskiy nauchno-issledovatel'skiy neftyanoy institut.
(Caucasus, Northern—Oil well logging)

GROZNYY Sci Res Petroleum Inst Sm I V. KOSSYUK
north Caucasus SOV NARKHOZ

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MEL'NIKOV, D.A. (Moskva)

Supersonic flow about a flat triangular plate. Izv.AN SSSR.Otd.tekh. nauk.Mekh.i mashionstr. no.6:33-39 N-D '62. (MIRA 15:12)
(Aerodynamics, Supersonic)

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"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001033420015-2

MEL'NIKOV, D.A.:

Effect of clayiness on the specific resistance of arenaceous rocks. Prikl. geofiz. no.44:185-201 '65. (MIRA 18:9)

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KULIK, Nikolay Alekseyevich [Kulyk, M.O.]; MEL'NIKOV, Dmitriy Ivanovich; RODNYANYY, Mikhail Ivanovich [Rodnianyi, M.I.]; SUSHKO, I.S., red.; YEROSHENKO, T.G. [IEroshenko, T.H.], tekhn. red.

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(Tractors) (Motortrucks)
(Anokhin, V.I.)

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MEL'NIKOV, D.I. [Mel'nykov, D.I.], aspirant

Dynamic measurements of a lateral force. Mekh. sil'. hosp. 14 no.9:32 S '63. (MIRA 17:1)

1. Ukrainskaya sel'skokhozyaystvennaya akademiya.

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MEL'NIKOV, D.I.

Determination of road reaction on directive wheels. Avt. prom. 30 no.11:23-24 N '64 (MIRA 18:2)

1. Ukrainskaya sel'skokhozyaystvennaya akademiya.

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MEL'NIKOV, D.M., elektromekhanik

Instruments for testing switchboard cords. Avtom., telem. i sviaz' 2 no. 8:22-23 Ag '58. (MIRA 11:8)

1. Starooskol'skaya distantsiya signalizatsii i svyazi Moskovsko-Kursko-Donbasskoy dorogi.
(Telephone switchboards--Testing)

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MEL'NIKOV, Daniil Yefimovich, kandidat istoricheskikh nauk; LIVSHITS, Ya.L., redaktor; ISLENT'YEVA, P.G., tekhnicheskiy redaktor

[German Federal Republic] Germanskaia Federal'naia Respublika. Moskva, Izd-vo "Znanie," 1956. 39 p. (Vsesoiuznoe obshchestvo po rasprostraneniiu politicheskikh i nauchnykh znanii. Ser. 7, no.3)
(Germany, West--Economic conditions)

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AFANAS'YEVA, N.A.; VANYARKOV, E.B.; NIKOL'SKIY, Kh.Sh.; MEL'NIKOV, D.Ye., doktor ist. nauk, red.; BACHININ, G.I., red.; CHATSKAYA, M.G., tekhn. red.

[Ruhr Valley as the economic basis of West-German militarism] Rur - ekonomicheskaia baza zapadnogermanskogo militarizma. (MIRA 17:2)

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MEL'NIKOV, E., mekhanik-nastavnik

Efficient flowsheet for the recovery of waste steam. Rech. transp. 20 no.12:31-32 D '61. (MIRA 14:12)

1. Moskovskoye rechnoye parokhodstvo.
(Heat regenerators)

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SHAMAYEV, Yu.M., dotsent, kand.tekhn.nauk; LISITSYN, G.F., kand.tekhn. nauk; MEL'NIKOV, E.A., inzh.; OVCHINNIKOV, V.M., inzh. SKUCHAREV, V.V., kand.tekhn.nauk; TITOV, D.G., inzh.

Developing and testing the method of automatic object adjustment of the width of the line on the screen for electron-beam tubes. Trudy MEI no.27:267-280 '58. (MIRA 13:4)
(Cathode ray tubes)

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"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001033420015-2

MEL'NIKOV, E.A.; SURDUTOVICH, A.F.

Transistor trigger network with three steady states of equilibrium. Izv.vys.ucheb.zav.; radiotekh. 5 no.6:738-739 N-D '62. (MIRA 16:1)

1. Rekomendovano kafedroy avtomatiki i telemekhaniki Moskovskogo energeticheskogo instituta.

(Pulse circuits)

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ACCESSION NR: AP4042852 S/0142/64/007/003/0358/0364

AUTHOR: Mel'nikov, E. A.

TITLE: Multistage cascode amplifier with a nonlinear load

SOURCE: IVUZ. Radiotekhnika, v. 7, no. 3, 1964, 358-364

TOPIC TAGS: amplifier, cascode amplifier, multistage amplifier, nonlinear load amplifier

ABSTRACT: Multistage cascode amplifier schemes with several electron tubes connected in series are theoretically and experimentally investigated. The general advantages and disadvantages of the cascode circuit are listed. Formulas for the cascode-amplifier gain are developed. It is found that, with a linear load resistance, the gain of the multistage cascode circuit is not much higher than the gain of the conventional multistage amplifier. On the other hand, if a nonlinear resistance (e.g., a high-resistance pentode) is used as a load, the gain will be:

Card 1/2

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