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E140/E335

169500 (1024,1031,1132)

AUTHOR: Il'in, B.V., Candidate of Technical Sciences, Acting Docent

TITLE: Choice of Non-interacting Control Circuit With Simplest Corrective Networks (II)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Elektromekhanika, 1960, No. 10, pp. 20 - 37

TITLE: The first part of this paper was published in the 1960, No. 8 issue of this journal, pp. 27-43. It deals with non-interacting control systems, i.e. automatic control systems for several parameters in which the interactions between the parameters are compensated in such a manner that each channel is effectively non-interacting. In previous work the author investigated four basic non-interacting control-system structures: 1) automatic control system with "external" autonomy and forward corrective network; 2) automatic control system with "internal" autonomy and forward corrective network; 3) automatic control system with "external" autnomy and reverse corrective network; 4) automatic control system with "internal" autonomy and

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Choice of Non-interacting Control Circuit With Simplest Corrective Networks (II)

reverse corrective network. In the present study these types are investigated from the point of view of simplification of corrective networks.
While the four types have the same general properties there are differences in detail, presenting various advantages and disadvantages, depending on the dynamic characteristics of the process, character and point of introduction of external disturbances, etc. which were examined in the previous work. Since the quality obtainable with each type is essentially the same, the choice of type is dictated by simplicity of corrective network obtainable. This result is valid for linear systems; in earlier work the author has considered the effects of nonlinearity of the type of insensitive zone. For a given structure variations are obtained by shifting the points at which signals are collected and summed. This leads to varying requirements on the corrective network complexity. Various criteria of complexity are advanced such as:
1) simplicity of detecting, summing and transforming

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corrective signals, whereby transformation means such operations as transforming mechanical displacements into electrical signals, etc; 2) requirements on amplification of corrective signals; 3) complexity of the corrective networks. Since the first criterion depends on the concrete system considered, only the last two criteria are examined here. Analysis of the gain required in the corrective networks shows that systems with reverse corrective networks are superior to those with forward corrective networks since the gain in the control circuit enclosed by the corrective network generally is sufficient to permit purely passive corrective networks in the former.
The simplest corrective network is the "stiff" corrective network which is, however, useful only for realization of static autonomy. For dynamic autonomy in the majority of cases dynamic couplings are needed between the regulators, which may be too difficult for technical realization.

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Limiting performance is obtained by circuits and methods permitting a complex automatic control system to be separated into individual systems both statically and dynamically by stiff corrective networks. Where this is not possible partial simplification of dynamic couplings will also be useful. It is desirable, in particular, to eliminate ideal differentiating networks and integrating networks, which may be achieved by structural variation. With $n > 2$, the number of regulated parameters, the number of corrective networks increases more rapidly than the number of control channels. In this case, it may be frequently found desirable to accept more complicated controller circuits to permit simplification of the corrective networks.
Where the dynamic characteristics in the various channels are essentially different, it may frequently be possible to group the channels with respect to similarities in the transient processes, permitting simplification of the forward corrective

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networks between controllers of a single group, while among the groups they retain the original complexity. The possibilities of simplifying reverse corrective networks, connected from the output of one controller to the input of another, are not very promising since the controller characteristics enter into the transfer characteristic of the corrective network.
The greatest flexibility is given by systems in which the structure and parameters of the controllers can be widely varied. Then the overall transfer characteristics of the controllers are selected with respect to control quality, the output networks of the controllers designed to simplify the corrective networks, while the transfer functions of the input networks match the two criteria. Most present industrial controllers have not been designed for operation in interacting systems so that the full possibility of simplifying the corrective networks or choice of transient

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characteristics is not available.
In this second part of the paper, the author first considers the possibility of reducing the number of or completely eliminating the corrective couplings between controllers. Analysis shows that automatic control systems with internal autonomy are superior to those with external autonomy in this respect. The conditions under which the number of corrective networks can be reduced for systems with internal autonomy are found and it is shown that this is possible when the transfer functions of the controllers are selected for the autonomy condition. In this case, however, freedom in the choice of process quality is restricted or lost. This case is further analysed in Appendix 1.
It is found that for a certain class of automatic-control systems the separation into independent systems is obtained merely by unlimited increase of the controller gain factors.
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This limiting result is only approximately realisable in practice but in general the autonomy conditions are always realised approximately, so that this result is not a cause of difficulty. On the contrary, for processes in which the regulated parameter interactions are very strong, even approximate autonomy cannot be realised without the use of corrective networks between the controllers. This case is further analysed in Appendix 2.
In the second part of this article the author considers the use of corrective networks with industrial type controllers containing one internal feedback. A number of Soviet types of industrial controller are mentioned and it is stated that these controllers usually operate in a creeping mode. The analysis is usually based on linearisation and the relay in this mode is effectively an infinite-gain amplifier. Two possible configurations are analysed, one in which the corrective networks (either forward or reverse) are connected to the

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outputs of the feedback network or to their inputs. The dynamic characteristics of the controllers are defined principally by the feedback networks, in which the basic controller adjustment elements are located, which results in the requirement of more complex and difficult to realise corrective networks. With forward corrective networks the advantage of coupling them to the inputs of the feedback network is that unilateral autonomy is preserved, i.e. with readjustment of the s-th controller the autonomy of the regulated parameter x_s is preserved without requiring adjustment of the forward corrective networks to the s-th controller. However, automony in the reverse direction - of the other regulated parameters with respect to x_s - is disturbed. This requires adjustment of the corrective couplings from the s-th regulator. Unilateral autonomy,

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however, does facilitate adjustment of the automatic-control system. With reverse corrective networks, coupling to the inputs of the feedback loops can only be used if the inputs to the corrective networks are not taken from the outputs of integrating circuits. In automatic-control systems with external autonomy the use of reverse corrective networks acting on the inputs of the controller internal feedbacks permits bilateral autonomy to be preserved with respect to controller adjustment. This does not apply to systems with internal autonomy. In such systems, when using forward corrective networks technical difficulty may be found in realising ideal differentiating networks. This is avoided by introducing derivative control in the controller circuit, as discussed more fully in Appendix 3.
Analysis shows that the order of the equations of the individual systems in automatic-control systems with external autonomy

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is higher than in those with internal autonomy, which is one of the advantages of the latter. There are 10 figures and 14 Soviet references.

ASSOCIATION: Leningradskiy tekhnologicheskiy institut (Leningrad Technological Institute)

SUBMITTED: April 19, 1960

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16.8000

Boris Vladimirovich

AUTHOR: Il'in, B.V., Candidate of Technical Sciences, Docent

TITLE: Theory of combined control systems of interrelated magnitudes

PERIODICAL: Izvestiya vyschikh uchebnykh zavedeniy. Elektromekhanika, no. 6, 1962, 632-645

TEXT: The author considers a general structure of multiple control systems of linear objects having a number of interrelated inputs and outputs. Expressions for the evaluation of the perturbation compensating loops are of two types: (i) Suitable for an object represented by linear differential equations of a given type and, (ii) Represented by channel transfer functions, taking into account the overall effect of the controlling, or the perturbing, actions on the controllable magnitudes in all channels of the first case. Formulas for the evaluation of the perturbation compensating loops are also given for the case of autonomy control. Systems with both internal and external autonomy are considered. The degree of coincidence between the autonomy and the invariance conditions, as a func-

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tion of the external perturbing actions, is examined. This coincidence is greatest for objects in which direct connection between controllable magnitudes does not exist, and when each external perturbance acts only on one of these magnitudes. In automatic control systems of such objects minimum number of compensating loops is required, one for each perturbance; all other objects require, for the realization of the compensation conditions, a greater number of loops. Autonomously controlled multiple systems having direct and reverse compensating loops between the control elements are examined; appropriate formulas for the calculation of the transfer functions are deduced. There are 7 figures.

ASSOCIATION: Leningradskiy tekhnologicheskiy institut (Leningrad Technological Institute)

SUBMITTED: April 28, 1961

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D289/D308

16.8000

AUTHOR: Il'in, Boris Vladimirovich, Candidate of Technical Sciences, Docent

TITLE: Theory of combined schemes of regulation of interconnected quantites

PERIODICAL: Izvestia vysshikh uchebnykh zavedeniy. Elektromekhanika, no. 7, 1962, 759 - 767

TEXT: Invariance with respect to control actions in systems of intercoupled regulation produces absolutely exact reproduction of control action from each regulating quantity and also independence of regulated quantities from 'foreign' control actions. This is achieved by the use of compensating couplings from control actions. This paper is a continuation of the first article on this subject (Elektromekhanika no. 6, 1962), where all symbols were defined. The author analyzes conditions of invariance with respect to control actions and obtains formulas for compensating couplings of the form

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$$W_{comp\ r^{q^y}} = \frac{\sum_{k=1}^{n} D_{kq}\ \Delta F_{kr}}{\Delta_F}, \quad \text{with } r, q = 1, 2, \ldots\ldots, n \qquad (1)$$

where

$$D_{qq} = 1, \qquad \Delta_F = | F_{kq} |_1^n \qquad [3]$$

Combined schemes of self-regulation with internal and external self-governing are analyzed; also combined schemes of self-regulation with direct and reverse compensating couplings between regulators are considered. Conditions of invariance of interconnected quantities with respect to control actions are considered in both self-governing and non-self-governing systems. Four different cases of self-governing schemes are analyzed and formulas given. In the schemes with external self-governing the conditions of self-governing coincide with the conditions of invariance with respect to 'foreign' control actions. In schemes with internal self-governing these coincidences do not occur,

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therefore the number of compensating ties has to be increased. An appendix gives formulas for compensating ties for conditions of invariance with respect to both control actions and perturbing actions. There are 3 figures.

ASSOCIATION: Leningradskiy politekhnicheskiy institut (Leningrad Polytechnic Institute)

SUBMITTED: February 8, 1962

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"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5

AMATUNI, Napoleon Leonovich, dots.; BARDINSKIY, Sergey Ivanovich, dots.; DREVS, Georgiy Vyacheslavovich, dots.; IL'IN, Boris Vladimirovich, dots.; KNORRING, Gleb Mikhaylovich, kand. tekhn.nauk; PASECHNIK, Stepan Yakovlevich, prof.; PREOBRAZHENSKIY, Aleksey Alekseyevich, dots.; ROZENBERGER, Boris Fedorovich, dots.; SOLOV'YEV, Vladimir Ivanovich, dots.; YASTREBOV, Petr Parfen'yevich, prof.; BELOVIDOV, B.S., doktor tekhn.nauk, prof., retsenzent; ARTEMOVA, T.I., red. izd-va; TUPITSYNA, L.A., red.izd-va; SHVETSOV, S.V., tekhn. red.

[Electrical engineering and electric equipment] Elektrotekhnika i elektrooborudovanie; obshchii kurs. [By] N.L.Amatuni i dr. Moskva, Rosvuzizdat, 1963. 646 p. (MIRA 16:9)

1. Novocherkasskiy politekhnicheskiy institut (for Belovidov).
(Electric engineering--Handbooks, manuals, etc.)
(Electric apparatus and appliances--Handbooks, manuals, etc.)

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"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5

IL'IN, Boris Vladimirovich, kand. tekhn. nauk, dotsent; RUKIN, Vladimir L'vovich, mladshiy nauchnyy sotrudnik

Limitations imposed by objects on the realization of conditions of invariancy and autonomy. Izv. vys. ucheb. zav.; elektromekh. 7 no.8:979-990 '64. (MIRA 17:10)

1. Kafedra avtomatizatsii khimicheskikh proizvodstv Leningradskogo tekhnologicheskogo instituta.

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ACC NR: AM6016006 Monograph UR/

Obnovlenskiy, Petr Avenirovich; Korotkov, Petr Arkhipovich; Gurevich, Aleksandr L'vovich; Il'in, Boris Vladimirovich

Fundamentals of automatic control and automation in chemical industries (Osnovy avtomatiki i avtomatizatsii khimicheskikh proizvodstv) Moscow, Izd-vo "Khimiya", 1965. 607 p. illus., biblio., index. 9500 copies printed.

TOPIC TAGS: automatic control equipment, automatic control technology, industrial automation, chemical plant equipment

PURPOSE AND COVERAGE: The book deals with the automation of the production processes in the chemical industry. The components of automatic control systems, checking and measuring devices, automatic regulators, and general principles of automation of chemical processes is described. Diagrams and drawings of some processes and devices are supplied. The book is intended for engineers and technicians of chemical enterprises and for students of higher technical schools specializing in this field.

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[illegible] phenomena and mechanical properties of disperse substances. P. V. Il'in. *Colloid J.* (U. S. S. R.) 1, 317-[illegible](1935).—Data are given for the mech. strength of barite, charcoal and plaster of Paris blocks compressed in the presence of various media such as CCl_4, H_2O, lauric acid, iso-Bu alc., paraffin oil, toluene. Lauric acid greatly increases the strength of compressed barite blocks.

F. H. Rathmann

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Ca

Molecular surface potential and dielectric constant of the medium. Heat and adsorption capacity as functions of the dielectric constant of the adsorbed gas. B. V. Il'in. *J. Gen. Chem.* (U.S.S.R.) 1, 750-9(1931); cf. *C. A.* 19, 3188.—The relationship between heat of adsorption Q and capacity of adsorption (amt. of gas adsorbed) A on the one hand and the dielec. const. of the adsorbed gas on the other, can be expressed by the formulas: $Q = (E_0^2/8\pi)[(\epsilon_0 - 1)/N_0]$ and $A = Sr_0 n_0 \phi (E_0^2/8\pi)[(\epsilon_0 - 1)N_0RT]$ where E_0 = mol. field potential of the adsorbing surface, ϵ_0 = dielec. const. of the gas at 0° and 760 mm. pressure, N_0 = no. of mols. of gas in 1 cc. at 0° and 760 mm. pressure, S = adsorbing surface, r_0 = thickness of adsorbed layer, n_0 = d. of the gas in the free space at temp. T and R = gas const. These equations are derived without the limiting hypothesis that the mol. is a dipole, and are therefore applicable to such gases as H_2, A, N_2, CO, CH_4, CO_2 and C_2H_4 which do not consist of polar mols. S. L. M.

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The processes of aging and hysteresis in disperse systems. Sedimentation hysteresis of charcoal suspensions in dye solutions. B. V. Il'in and Z. G. Pinsker. *J. Gen. Chem.* (U. S. S. R.) 1, 569-83(1931); *Kolloid-Z.* 59, 326-31(1932).—The sedimentation velocity (in centrifuge) of blood-charcoal suspensions with particles 1-[illegible] diam was detd. for H_2O and for methyl violet solns. 0.025-0.2%. Hysteresis is the change in sedimentation velocity on standing of the suspension. The relative stabilization varies from 32 to 22%.

Arthur Fleischer

METALLURGICAL LITERATURE CLASSIFICATION

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2

Kinetics of adsorption of high-molecular substances from solution by porous powders. B. V. [illegible] AND N. N. [illegible]. *J. Gen. Chem.* (U. S. S. R.) 3, 436-41(1932).—The kinetics of adsorption of Me violet from aq. solns. of 0.1, 0.08, 0.06 and 0.04% concn., on powd. blood charcoal, was studied. Charcoal powder heated in boiling water for 2 hrs. and left standing with the water for 2-4 weeks adsorbed more Me violet when the soln. of the latter was introduced into its suspension, than when the dry powder was introduced into the soln. In the formula $A = A_0(1 - e^{-at})$, where A_0 and A are the initial concn. of Me violet and the concn. at time t, the mean values of the const. a are 0.0[illegible], 0.0[illegible] and 0.144 for concns. 0.1, 0.08 and 0.04, resp., in dry-powder adsorption, and 0.0[illegible], 0.0[illegible], 0.0[illegible] and 0.1161 for concns. 0.1, 0.08, 0.06 and 0.04 in wet-powder adsorption.

S. L. MADORSKY

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Physicochemical analysis and surface molecular forces. Heat of melting and inversion of composition-properties diagram. B. V. Il'in, V. A. Oshman, N. L. Rebenko and N. K. Arkhangelskaya. *Ann. inst. anal. phys.-chim.* 6, 91-6(1933).—Expts. on wetting powd. charcoal with a soln. of AcOH in H_2O show that the curve expressing the relation between heat of wetting and percentage compn. of soln., consists of 2 parts intersecting at a point near 50 mols. % Ac_2O. S. L. Madorsky

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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Physically disperse materials and their use in mortar-binding materials. B. V. Vrii'ne. *Trudy Vsesoyuz. Nauch.-Issledovatel. Inst. Tsement.* No. 15, 7-108 (in German, 108-16) (1935); *Chem. Zentr.* 1938, II, 3002; cf. *C. A.* 30, 7902.—An attempt is made on the basis of lab. results to formulate scientific principles to meet the tech. problem of disperse matter. The work covers the following topics: surface forces; disperse systems; heat of wetting and degree of dispersion; sedimentation of suspensions; hysteresis; plasticity, friction and hardness of disperse systems; influence of admixts.; surface phenomena in disperse systems; and phys.-chem. analyses. W. A. Moore

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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3RD AND 4TH ORDERS

Heats of wetting at various temperatures and the affinity of wetting. B. V. Il'in and A. V. Kiselev. *J. Phys. Chem.* (U. S. S. R.) 13, 660-74(1939).—Using a new adiabatic calorimeter, the heats of wetting of silica gel were detd. to be: H_2O, 20 at 14 to 60°, Me salicylate, 17.7 at 8.2, 16.2 at 48, 14.5 at 78°; propionic acid, 13.8 at 12.8, 13.0 at 26.2°; trans-decalin, 8.0 at 13.6, 6.4 at 60.8°; on charcoal: trans-decalin, 27.2 at 14.0, 26.9 at 60.1°; Me salicylate 35.8 from 14.6 to 69.5°; H_2O, 6.6 at 13.5, 6.0 at 61.2°; $(C_6H_5)_2SO_4$ 18.5 at 31.8, 22.0 at 97.9°; and on $BaSO_4$: α-Bu alc., 0.355 at 15.40°. For viscous systems such as $C-(C_6H_5)_2SO_4$ the evolution of heat is very slow. In most cases the affinity of wetting falls linearly with the temp. The theoretical significance of these data and those of other authors is discussed. F. H. Rathmann

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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CA

23

Effect of a stable hydrophobic treatment of papers. P. V. Il'in, D. N. Kursanova, V. N. Setkina, and I. A. Yakovlev. *Uchenye Zapiski, Moskov Ordena Lenina Gosudarst. Univ. M. V. Lomonosova, Fizika* 74, 211-12 (1944).—Paper is made waterproof by treating the pulp with reagents forming a water-repellent film on the cellulose fibers; no details are disclosed. J. J. Bikerman

A10-144 METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5

CA

2

The van der Waals forces at the edges of crystals. The work of the electrostatic forces in the wetting of the alkaline earth sulfates. [illegible] (Moscow State Lomonosov Univ.). *Doklady Akad. Nauk S.S.S.R.* 56, [illegible]-71(1947); *Chem. Zentr.* (Russian Zone Ed.) 1948, II, [illegible].—When crystals of $CaSO_4$, $SrSO_4$, and $BaSO_4$ are wet with water, BtOH, or other alts., van der Waals forces develop between the mols. of the liquid and those of the solid material. These consist of adsorptive forces of 3 components: electrostatic, dispersive, and repulsive forces. The dispersive component amounts to only 1-9% of the experimentally obtained energy of adsorption. Neglecting this component, the electrostatic work of wetting was calcd. for the above salts (cf. Il'in, et al., *J. [illegible]*, [illegible], 1158(1938); Clark and Thomas, *C.A.* 35, [illegible]) and compared with the experimentally detd. heat of wetting. The agreement was only in order of magnitude.

M. G. Moore

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5

CA

The nature of van der Waals' forces on the interphase of various phases. B. V. Il'in. *Inst. Sektora Fiz.-Khim. Anal., Inst. Obshchei i Neorg. Khim., Akad. Nauk S.S.S.R.* 17, 18-20(1949).—Lecture delivered at the Dec. 6, 1946, meeting of the N. S. Kurnakov Institute of General and Inorg. Chem. M. Hasch

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5"

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2

CA

Absolute heats of wetting of barium sulfate by water and by alcohols. B. V. Il'in, A. V. Kiselev, V. F. Kiselev, O. A. Likhachova, and K. D. Shcherbakova (Moscow State Univ.). *Doklady Akad. Nauk S.S.S.R.* 75, 827-30(1950). —Calorimetric detns. were made on 2 samples of $BaSO_4$, one of sp. surface area 7 sq. m./g. (I), the other 9.7 sq. m./g. (II), outgassed at 400 and 300°, resp. (at the lower temp. for the finer-grained II, to avoid sintering). The exptl. values, at 20°, are, on I, H_2O 0.75 ± 0.02, MeOH 0.85 ± 0.005, BuOH 0.85 ± 0.08 cal./g.; on II, H_2O 1.07 ± 0.08, MeOH 0.81 ± 0.005, EtOH 0.80 ± 0.01, PrOH 0.80 ± 0.01, BuOH 0.79 ± 0.02, $C_6H_{13}OH$ (at 50°) 0.81 ± 0.01, $C_6H_{13}OH$ (at 50°) 0.79 ± 0.01. The values for all the alcs. are practically identical, i.e. the chain length has no effect on the heat of wetting; on the other hand, the heats of wetting for H_2O and for the alcs. are distinctly different. The data recalcd. for equal surface area, are (av. of I and II), H_2O 455, alcs. 325-350 ergs/sq. cm. N. Thon

1951

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5

ILIN, Boris Vladimirovich.

Nature of adsorption forces Moskva, Gos. izd-vo tekhniko-teoret. lit-ry, 1952. 124 p. (54-26698)

QD182.I5

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5

CA

Absolute heats of wetting of strontium, lead, and barium sulfates, with water and with alcohols. B. V. Il'in and V. F. Kiselev (Moscow State Univ.). *Doklady Akad Nauk S.S.S.R.* 82, 85-7(1952).—The heats of wetting (Q) were detd. by calorimetry on $SrSO_4$ and $PbSO_4$ preliminarily heated to a temp. low enough (200°) to guarantee against sintering. Sp. surface areas, as detd. by the B.E.T. method of adsorption of N_2 at −195.7°, were: $SrSO_4$ 4.5, $PbSO_4$ 2.3 sq. m./g., comparing with 5.3 and 2.4 by electron-microscope photography. The mean values of Q, with H_2O, $MeOH$, and C_4H_9OH, are, for $SrSO_4$, 0.34 ± 0.01, 0.22 ± 0.005, and 0.23 ± 0.02, and for $PbSO_4$, 0.28 ± 0.01, 0.17 ± 0.01, and 0.17 ± 0.02 cal./g. The abs. values of Q, per unit surface area, are, for $SrSO_4$, 315, 200, and 215, and for $PbSO_4$, 490, 220, and 310 ergs/sq. cm. The values of Q for $SrSO_4$, $PbSO_4$, and $BaSO_4$ (*cf. ibid.* 59, 925-7(1948); *Zhur. Eksptl. Teoret. Fiz.* 6, 1155(1936); *C.A.* 45, 3232b) are of the same order as the theoretically calcd. electrostatic component of the adsorption energy. However, the decrease of Q from $SrSO_4$ to $PbSO_4$ to $BaSO_4$ predicted by the theory is not observed. Likewise, there is no difference in the abs. adsorption isotherms of the 3 sulfates for N_2 at −195.7°, in micromoles/sq. m. as a function of p/p_0: the points for all 3 sulfates lie on the same isotherm. This absence of any systematic variation could be due to differences of drying conditions, or in the structure of the adsorbing surfaces; such differences appear in the electron-microscope photographs. On the other hand, there is, for each given adsorbent, a systematic decrease of Q from H_2O to the alcs. The ratio of Q for H_2O and for alcs. is approx. the same for $SrSO_4$ and $PbSO_4$, 1.5-1.6. From the electrostatic theory, on the basis of the 2:1 ratio of the areas of alcs. and of H_2O, a ratio of Q of 1.8-1.9 should be expected. This ratio is reduced to 1.5 if the radius of the SO_4^{--} ion is taken into account.

N. Thon

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"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5

ILYIN, B.V.

ILI'IN, B.V., prof.; NOVOSELOVA, A.V., prof., otv.red.

[Program in physics; for the Chemistry Faculty] Programma po fizike (dlia khimicheskogo fakul'teta). 1956. 5 p. (MIRA 11:3)

1. Moscow. Universitet. 2. Chlen-korrespondent AN SSSR (for Novoselova)
(Physics--Study and teaching)

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5

ILIN, B.V.

Category: USSR / Physical Chemistry - Surface phenomena. Adsorption. Chromatography. Ion exchange. B-13

Abs Jour: Referat Zhur-Khimiya, No 9, 1957, 30174

Author : Il'in B. V.
Inst : Not given
Title : Nature of Molecular Interactions During Adsorption

Orig Pub: Zh. neorgan. khimii, 1956, 1, No 7, 1559-1565

Abstract: A review of the data found in the literature and of those secured by the author and his associates, relating to the measurement of summative heat values Q of wetting of solid surfaces by polar solvents and the determination of the component parts Q : Q_0 and Q_1, corresponding to the wetting of the surface by the non-polar and the polar portion, respectively, of the molecule. The necessity is pointed out of gathering experimental data, relative to Q, for different series of polar molecules, for the purpose of preparing tables of Q_0 and Q_1 values which are of great importance in calculations of adsorption energy values of various molecules.

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"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5

IL'IN, B.V.

BELIK, A.Ye., inzhener; IL'IN, B.V., inzhener.

Never let vessels containing liquefied gases be heated. Bezop. truda v prom. 1 no.4:23 Ap '57. (MIRA 10:6)
(Gases, Compressed)

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5

IL'IN, B.V.; KISELEV, V.F.; KRASIL'NIKOV, K.G.

Effect of the surface nature of silica on its absorption properties. Part 1. Vest. Mosk. un. Ser. mat., mekh., astron. fiz., khim. 12 no. 6:35-50 '57. (MIRA 11:10)

1. Kafedra obshchey fiziki dlia khimicheskogo fakul'teta Moskovskogo gosudarstvennogo universiteta.
(Silica)
(Absorption)

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5

5(4)

AUTHORS: ~~Il'in, R.V.,~~ Kiselev, V.F., and Krasil'nikov, K.G.

SOV/55-58-2-31/35

TITLE: Heat of Wetting of the Silica Gels of Different Degrees of Hydration (Teploty smachivaniya silikageley razlichnoy stepeni gidratatsii)

PERIODICAL: Vestnik Moskovskogo Universiteta. Seriya matematiki, mekhaniki, astronomii, fiziki, khimii, 1958, Nr 2, pp 223-232 (USSR)

ABSTRACT: The paper contains the results of a systematic investigation of the heat of wetting of different kinds of silica gels. The wetting of the surface was carried out by water, n-propyl-alcohol's and n-heptane. The structural water content of the silica gel was taken into account. Already known properties were essentially confirmed. The opinion of A.V. Kiselev and his collaborators [Ref 9-16] was not confirmed according to which the unit of the surface of the silica gel possesses certain "absulute" energetic properties. This is not the case : The properties of the surface essentially depend on the preceding treatment (annealing etc), i.e. on the bound water content of the surface layer.
There are 6 figures, and 25 references, 15 of which are Soviet,

Card 1/2

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"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5

Heat of Wetting of the Silica Gels of Different Degrees of Hydration SOV/55-58-2-31/35

7 American, 1 English, and 2 French.

ASSOCIATION: Kafedra obshchey fiziki dlya khimicheskogo fakul'teta (Chair of General Physics of the Faculty of Chemistry)

SUBMITTED: April 14, 1957

Card 2/2

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5

OBNOVLENSKIY, Petr Avenirovich, dots.; KOROTKOV, Petr Arkhipovich, dots.; GUREVICH, Aleksandr L'vovich, dots.; IL'IN, Boris Vladimirovich, dots.; MUSYAKOV, L.A., kand. tekhn. nauk, red.; BARKAN, A.B., inzh., red.

[Fundamentals of automatic control and automation in the chemical industries] Osnovy avtomatiki i avtomatizatsii khimicheskikh proizvodstv. Moskva, Khimiia, 1965. 607 p. (MIRA 19:1)

1. Kafedra avtomatizatsii khimicheskikh proizvodstv Leningradskogo tekstil'nogo instituta(for Obnovlenskiy).

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5

1. TYUTYUNNIKOV, M.; IL'IN, D.

2. USSR (600)

4. Sausage casings

7. Progressive work practices in producing of casings., Mias.ind.SSSR, 23, No. 5, 1952.

9. Monthly List of Russian Accessions, Library of Congress, February 1953. Unclassified.

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5

IL'IN, D.

Device for locating metallic objects. Radio no.8:22-23 Ag '60. (MIRA 13:9)

(Metal detectors)

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5

IL'IN, D.F., inzh.

Comparative efficiency of standard reinforced concrete and steel crane beams for one-story industrial buildings. Izv. ASiA 4 no.4:89-93 '62. (MIRA 16:1)
(Industrial buildings—Equipment and supplies)

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5

IL'IN, D.F., inzh.

Comparative effectiveness of standard reinforced concrete and steel trusses for roofs of single-story industrial buildings. Izv.ASiA 4 no.1:107-113 '62. (MIRA 15:11)

(Trusses)

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5

ILIN, D.I.

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records center

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BIOPHYSICS

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5

SHELAGUROV, A.A., prof.; DOBROVOL'SKAYA, T.I., dotsent; IL'IN, D.P.

Hospitalization and treatment of patients with myocardial infarction complicated by collapse. Klin. med. 40 no.11: 62-68 N'62 (MIRA 16:12)

1. Iz kafedry propedevtiki vnutrennikh bolezney (zav. - prof. A.A.Shelagurov) lechebnogo fakul'teta II Moskovskogo meditsinskogo instituta imeni N.I.Pirogova.

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5

IL'IN, D.T.; YEREMIN, Ye.N.

Pyrolysis of gasoline vapors to acetylene and olefins in hydrogen plasma. Vest.Mosk.un.Ser.2: Khim. 17 no.2:29-30 Mr-Ap '62. (MIRA 15:4)

1. Kafedra fizicheskoy khimii Moskovskogo universiteta.
(Acetylene) (Olefins) (Gasoline) (Plasma (Ionized gases))

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5

IL'IN, D.T.; YEREMIN, Ye.N.

Effect of preheating of gas in the electrocracking of methane to acetylene. Zhur.prikl.khim. 35 no.11:2496-2504 N '62. (MIRA 15:12)
(Methane) (Acetylene) (Cracking process)

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5

S/076/62/036/007/009/010
B101/B138

AUTHORS: Il'in, D.T., and Yeremin, Ye. N.

TITLE: Pyrolysis of gasoline vapor to acetylene and olefins in water vapor plasma

PERIODICAL: Zhurnal fizicheskoy khimii, v. 36, no. 7, 1962, 1560 - 1562

TEXT: Water vapor plasma was produced in a plasmotron (7 a, 1.5 kv, 1 kwhr/liter H_2O), mixed with gasoline vapor, and fed through tangential inlets into the pyrolysis chamber. After liberating the water vapor the pyrolysis products were investigated by gas analysis and chromatography. Results: Water vapor consumption was 14 m^3/hr. At 0.25-0.35 specific consumption of gasoline δ (δ - liter of liquid gasoline per liter of liquid H_2O) 30 % by volume of unsaturated compounds were obtained: ~11% by volume of C_2H_2, and ~19 vol.% of olefins. The energy consumption α did not exceed 7 kwhr per m^3 of unsaturated compounds. In contrast to pyrolysis in hydrogen plasma, about 5 % by volume CO_2, about 5% by volume

Card 1/2

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CO, and about 1% by volume O_2 were formed in addition. With increasing δ, the maximum yield of unsaturated compounds and minimum α are rapidly attained. It is suggested that large plants would yield 40-50 % by volume of unsaturated compounds at lower α. There are 2 figures.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Moscow State University imeni M. V. Lomonosov)

SUBMITTED: November 14, 1961

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5

IL'IN, D.T.; YEREMIN, Ye.N.

On the improvement of the method of electrocracking of methane to acetylene. Vest. Mosk. un. Ser. 2: Khim. 18 no.3:41-44 My-Je '63. (MIRA 16:6)

1. Kafedra fizicheskoy khimii Moskovskogo universiteta.
(Methane) (Cracking process) (Acetylene)

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5

IL'IN, D.T.; YEREMIN, Ye.N.

Pyrolysis of benzene vapors to acetylene and olefins in the hydrogen plasma. Zhur.fiz.khim. 36 no.10:2222-2224 O '62. (MIRA 17:4)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova.

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5

IL'IN, D.T.; YEREMIN, Ye.N.

Effect of the dimensions of the reaction channel and discharge chamber on methane electrocracking. Zhur. prikl.khim. 38 no.11:2479-2487 N '65. (MIRA 18:12)

1. Submitted December 31, 1963.

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5

L 30778-66 EWP(j)/EWT(m) RM/WW/JW/WE

ACC NR: AP6022138 SOURCE CODE: UR/0080/65/038/012/2786/2796

64
63
B

AUTHOR: Il'in, D. T.; Yeremin, Ye. N.

ORG: none

TITLE: Pyrolysis of vapors of certain hydrocarbons and gasoline by mixing them with a stream of hydrogen plasma produced in an electric arc

SOURCE: Zhurnal prikladnoy khimii, v. 38, no. 12, 1965, 2786-2796

TOPIC TAGS: gasoline, pyrolysis, hydrocarbon, electric arc, hydrogen plasma, plasma beam

ABSTRACT: A study of the pyrolysis of vapors of low-octane gasoline and certain hydrocarbons (n-C_6H_{14}, n-C_7H_{16}, n-C_8H_{18}, and iso-C_8H_{18}) in hydrogen plasma produced in a high voltage direct-current electric arc, at a pressure of about 1.1 - 2 absolute atmospheres and equivalent in temperature to up to 5000°, under the condition that hydrocarbons do not enter the discharge zone, has shown that the qualitative composition of end products of pyrolysis depends but little on the nature of the original compounds. Pyrolysis of a gasoline representing a mixture of 76 individual compounds, as well as pyrolysis of the specific hydrocarbons led to the formation chiefly of acetylene, ethylene, and methane. The degree of overall conversion of gasoline into gaseous compounds approximated 100%, while formation of carbon black and other solid

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L 30778-66

ACC NR: AP6022138

products was slight. The extent to which gasoline was converted to unsaturated compounds (acetylene and ethylene) in this case amounts to 80%, and the maximum concentration of unsaturated compounds—to 17.5 volume %. Orig. art. has: 7 figures and 1 table. [JPRS]

SUB CODE: 07, 21, 20 / SUBM DATE: 31Dec63 / ORIG REF: 004 / OTH REF: 007

Card 2/2

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5

IL'IN, D.P.

Experience of leading workers of the Gnivan' Factory. Sakh. prom. 33 no.4:42 Ap '59. (MIRA 12:6)

1.TSentral'nyy komitet profsoyuza rabochikh pishchevoy promyshlennosti.
(Gnivan'--Sugar manufacture)

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5

IL'IN, D. T.; YEREMIN, Ye. N.

Pyrolysis of gasoline vapors to acetylene and olefins in water vapor plasma. Vest. Mosk. un. Ser. 2: Khim. 16 [i.e.17], no.6:41-42 N-D '62. (MIRA 16:1)

1. Kafedra fizicheskoy khimii Moskovskogo universiteta.

(Gasoline) (Acetylene) (Olefins)
(Pyrolysis)

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5

GROSHEV, I.A., inzh.; IL'IN, E.I., inzh.; RABINOVICH, G.A., inzh.; SITKOVSKIY, A.Ya., inzh.; TSIBULEVSKIY, A.I., inzh.

Automatic conveyor line. Mekh. i avtom. proizv. 17 no.5:5-6 My '63. (MIRA 16:6)

(Balaklava—Conveying machinery)
(Electronic control)

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5

ACCESSION NR: AP5001773

... phosphoric anhydride (1/2 grams). The steps in preparing the additive are given. The effect of the additive on the ...

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"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5

BARYSHOK, G.I.; IL'IN, F.N.; Ivanov, N.I., kandidat ekonomicheskikh nauk.

On the possible elimination of short hauls on the Stalino Railroad line. Zhel.dor.transp. 37 no.1:68-70 Ja '56. (MLRA 9:3)

1. Zamestitel' nachal'nika kommercheskoy slushby dorogi (for Baryshok); 2. Nachal'nik otdela planirovaniya perevozok (for Il'in)

(Railroads--Management)

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5

IL'IN, G.

IL'IN, G.

On the place of the old Gushon Plant . Vop.ekon. no.10:162-165 O '57. (MIRA 10:12)

1.Direktor Moskovskogo zavoda "Serp i molot."
(Moscow--Metallurgical plants)

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5

ILIN, G., and others.

Cast steel alloyed with copper. p. 235

Academia Republicii Populare Romine. Baza de Cercetari Stiintifice, Timisoara. STUDII SI CERCETARI STIINTIFICE. SERIA I: STIINTE MATEMATICE, FIZICE, CHIMICE SI TEHNICE.
Vol. 2, No. 1/4, Jan./Dec. 1955

Timisoara, Rumania

SOURCE: East European List (EEAL) Library of Congress, Vol. 6, No. 1, January 1957

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5

AKHANOV, N.P.; IL'IN, G.A.

Experimental mining with over-all mechanization and automatization in the "Proletarskaia-Glubokaia" mine of the Donets Basin; over-all mechanization and automatization are miners' main objectives. Ugol' 34 no.8:45 Ag '59. (MIRA 12:12)

1.Glavnyy inzhener shakhty "Proletarskaya-Glubokaya" tresta Makeyevugol' (for Akhanov). 2.Pomoshchnik glavnogo mekhanika po avtomatizatsii shakhty "Proletarskaya-Glubokaya" tresta Makeyevugol' (for Il'in).

(Donets Basin--Coal mines and mining)
(Automatic control)

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5

PASAL'SKIY, S.S.; IL'IN, G.A.; SERGEYEV, S.T.

Automatic recording of the number of men entering and leaving the mine. Ugol' 34 no.8:47-48 Ag '59. (MIRA 12:12)

1.Nachal'nik shakhty "Proletarskaya-Glubokaya" tresta Makeyevugol' (for Pasal'skiy). 2.Pomoshchnik glavnogo mekhanika shakhty "Proletarskaya-Glubokaya" tresta Makeyevugol' (for Il'in). 3.Pomoshchnik glavnogo inzhenera shakhty "Proletarskaya-Glubokaya" tresta Makeyevugol' (for Sergeyev).
(Coal mines and mining) (Automatic control)

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5

ILI'IN, G.G.

Category : USSR/Solid State Physics Phase Transformation in Solid Bodies E-5

Abs Jour : Ref Zhur - Fizika, No 3, 1957, No 6668

Author : Luchkin, G.F., Il'in, G.G.
Inst : Mining and Metallurgical Institute, Irkutsk, USSR

Title : Study of the Process of the High-Temperature Oxidation of Metallic Titanium in Water Vapor.

Orig Pub : Fiz. metallov i metallovedeniye, 1956, 2, No 3, 521-523

Abstract : Experimental data are given on high-temperature oxidation of titanium in water vapor in the range from 700 -- 1200°. It has been established that the oxidizability of titanium is higher in water vapor than in air. X-ray-diffraction study has shown that only the TiO_2 phase enters into the composition of the scale. Other phases (Ti_2O_3 and TiO) have not been detected by X-ray diffraction means. The size of the grain of the scale diminishes monotonically from the outside portion to the surface of the metal. The greater oxidizability of titanium in water vapor is connected with the facilitated diffusion of O_2 through the layer of scale, which in turn is caused by its structural features.

Card : 1/1

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"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5

IL'IN, G. G.

5(4) PHASE I BOOK EXPLOITATION SOV/2216

Soveshchaniye po elektrokhimii, 4th, Moscow, 1956.

Trudy...; [sbornik] (Transactions of the Fourth Conference on Electrochemistry; Collection of Articles) Moscow, Izd-vo AN SSSR, 1959. 868 p. Errata slip inserted. 2,500 copies printed. Sponsoring Agency: Akademiya nauk SSSR. Otdeleniye khimicheskikh nauk.

Editorial Board: A.N. Frumkin (Resp. Ed.) Academician, O.A. Yesin, Professor; S.I. Zhdanov (Resp. Secretary), B.N. Kabanov, Professor, S.I. Zhdanov (Resp. Secretary); B.N. Kabanov, Professor; Ya. M. Kolotyrkin, Doctor of Chemical Sciences; V.V. Losev, P.D. Lukovtsev, Professor; Z.A. Solov'yeva; V.V. Stender, Professor; and G.M. Florianovich; Ed. of Publishing House: N.G. Yegorov; Tech. Ed.: T.A. Prusakova.

PURPOSE: This book is intended for chemical and electrical engineers, physicists, metallurgists and researchers interested in various aspects of electrochemistry.

COVERAGE: The book contains 127 of the 138 reports presented at the Fourth Conference on Electrochemistry sponsored by the Department of Chemical Sciences and the Institute of Physical Chemistry, Academy of Sciences, USSR. The collection pertains to different branches of electrochemical kinetics, double layer theories and galvanic processes in metal electrodepositon and industrial electrolysis. Abridged discussions are given at the end of each division. The majority of reports not included here have been published in periodical literature. No personalities are mentioned. References are given at the end of most of the articles.

Ksenzhek, O.S., and V.V. Stender (Dnepropetrovsk Institute of Chemical Technology imeni F.E. Dzerzhinskiy). Polarization of Graphite Electrodes During the Anodic Separation of Chlorine 823

Buyanova, N. Ye., and G.A. Tsyganov (Institute of Chemistry, Academy of Sciences, UzSSR). Hydrogen Overvoltage at Electrodes With Homogeneous Surface 827

Rakov, A.A., K. I. Nosova, and E.V. Kazatkin (Physicochemical Institute imeni L. Ya. Karpov). Mechanism of the Simultaneous Electrochemical Formation of Persulfuric Acid, Ozone and Oxygen at a Platinum Anode in Sulfuric Acid Solutions 834

Volkov, G.I., Z. L. Klitsa, Ye. K. Susorova and N. V. Cherabisina. Influence of Surface-Active Substances on the Rate of Decomposition of Sodium Amalgams 841

Il'in, G. G., and V.I. Skripchenko (Novocherkassk Polytechnic

Card 33/34

Transactions of the Fourth Conference (Cont.) SOV/2216

Institute imeni S. Ordzhonikidze). Influence of the Nature of an Electrolytic Cation on the Anode Process During the Electrolysis of Alkaline and Alkaline-Earth-Metal Chloride Solutions 845

Voronin, N.N. (Deceased), B. G. Prikhodchenko, A.A. Yedigaryan, O. V. Izbekova, I. G. Pavlenko, Ye. Kh. Ignatenko, and S.V. Trachuk (Kiyev Polytechnic Institute). Electrolytic Reduction of Oxygen at Porous Cathodes 849

Discussion [N. A. Fedotov, R.I. Kaganovich, Ye. M. Kuchinskiy, G.N. Kokhanov, and contributing authors] 856

AVAILABLE: Library of Congress

Card 34/34 TM/ee 9-30-59

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5

L 33165-66 EWT(1) IJP(c) WW/GG

ACC NR: AR6016183 SOURCE CODE: UR/0058/65/000/011/D017/D017

57

B

AUTHOR: Il'in, G. G.

TITLE: Effect of shift of spectral lines in inhomogeneous sources of light on the integral quantities

SOURCE: Ref. zh. Fizika, Abs. 11D119

REF SOURCE: Sb. Itog. nauchn. konferentsiya Kazansk. un-ta za 1963 g. Sekts.: paramagnit. rezonansa, spektroskopii i fiz. polimerov, radiofiz., astron., bion. Kazan', 1964, 35-37

TOPIC TAGS: spectral line, line shift, line width, light source, light dispersion, line intensity, light absorption

ABSTRACT: The author investigated the influence of the shift of a spectral line and a change of the half width of its contour along the radius of a cylindrical source, on quantities that characterize the emission of inhomogeneous sources of light. For simplicity, the case of a source with separated radiating and absorbing layers of atoms is considered, and the following assumptions are made: the line contour is of the dispersion type and its half width varies linearly to zero in the peripheral part of the source, the concentration of the absorbing atoms is constant over the entire volume. The results of the calculation show that the change in the shift of the contour of the spectral line over the cross section of the source compensates for the influence of the change in the half width of the contour, that the integral intensity

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L 33165-66

ACC NR: AR6016183 0

of the spectral lines depends little on the character of variation of the concentration of the absorbing atoms. The dependences of other integral quantities exhibit a similar behavior, whereas the visible line contours may differ strongly. Yu. Kutev. [Translation of abstract]

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LS

Card 2/2

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"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5

L 33163-66 EWT(1)

ACC NR: AR6016184 SOURCE CODE: UR/0058/65/000/011/D017/D017

AUTHOR: Il'in, G. G.; Fishman, I. S.

35
B

TITLE: Concerning the influence of asymmetry of the contour on the integral characteristics of the radiation

SOURCE: Ref. zh. Fizika, Abs. 11D120

REF SOURCE: Sb. Itog.nauchn. konferentsiya Kazansk. un-ta za 1963 g. Sekts.: paramagnitn. rezonansa, spektroskopii i fiz. polimerov, radiofiz., astron., bion. Kazan', 1964, 38-39

TOPIC TAGS: spectral line, light dispersion, radiation intensity

ABSTRACT: The authors consider qualitatively the influence of asymmetry of the initial contour of the spectral line on the observed contour and on the integral characteristics of the radiation. In the calculations, the initial contour is taken to be one made up of two halves of dispersion contours, which differ from each other in half width. It is established that in the case of an asymmetrical contour a certain deformation of the observed contour takes place, but its integral quantities do not change. Yu. Kutev. [Translation of abstract]

SUB CODE: 20

LS

Card 1/1

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5

FISHMAN, I.S.; IL'IN, G.G.

Applicability of the linear absorption method to nonuniform light sources. Opt. i spektr. 15 no.3:400-404 S '63. (MIRA 16:10)

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5

FISHMAN, I.S.; SHAYMANOV, I.Sh.; IL'IN, G.G.

Some experimental relationships of the integral characteristics of radiation in an arc. Opt. i spektr. 15 no.5:595-600 N '63. (MIRA 16:12)

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5

ACCESSION NR: AP4032862 S/0051/64/016/004/0559/0561

AUTHOR: Il'in, G.G.

TITLE: Effect of radial variation of the spectrum line contour on the integral characteristics of the radiation of inhomogeneous sources

SOURCE: Optika i spektroskopiya, v.16, no.4, 1964, 559-561

TOPIC TAGS: spectroscopic source, light source, self-absorption, spectrum line, light absorption, Cowan-Dieke model, Cowan-Dieke theory

ABSTRACT: Generally, the radiation from an inhomogeneous source is calculated on the assumption that the line contour for an infinitely thin layer remains constant along any given radius, that is, in moving out from the center. Attempts to take into account radial variation of the line contour encounter serious mathematical difficulties. An attempt to evaluate the influence of this factor was made by H.Bartels (Zs.Phys.126,108,1949), who showed that in this case the peaks of the self-absorption lines do not remain constant with increase in the concentration of absorbing atoms, but grow to a certain limiting value. Thus, Bartels' calculations indicate that the visible line contour is strongly dependent on the variation of the initial

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ACCESSION NR: AP4032862

line contour over the source radius, whereas the integral intensity changes to a lesser degree. Accordingly, in the present work there were calculated the integral intensities of spectrum lines and some parameters characterizing their self-absorption on the assumption that the half-width of the initial contour, in accord with actual variations of the temperature and electron density, is constant only in the central region of the source and decreases more or less rapidly towards the edges. It is assumed that the line contour for an infinitely thin layer has the classical dispersion (Lorentzian) shape, which is true for sparks and arcs burning at atmospheric pressure. The results of the calculations are presented in the form of curves. Cases when the Cowan-Dieke (Revs.Mod.Phys.20,418,1948) model is and is not applicable are discussed; the Cowan-Dieke theory is valid for arc sources characterized by a relatively low degree of inhomogeneity and minor variation of the temperature and electron density in the central region. "The author expresses his deep gratitude to I.S.Fishman for proposing the topic and discussion of the results." Orig.art.has: 1 formula and 2 figures.

ASSOCIATION: none

SUBMITTED: 07Jun63

DATE ACQ: 07May64

SUB CODE: OP

NR REF SOV: 004

ENCL: 00

OTHER: 002

Card 2/2

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"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5

L 26699-66 EWT(1)/ETC(f)/EPF(n)-2/EWG(m) IJP(c) AT

ACC NR: AP6011551 SOURCE CODE: UR/0051/66/020/003/0387/0393

AUTHORS: Il'in, G. G.; Fishman, I. S.

ORG: none

54
52
B

TITLE: Concerning the problem of plasma diagnostics by means of self-inverted contours of spectral lines emitted by inhomogeneous layers

SOURCE: Optika i spektroskopiya, v. 20, no. 3, 1966, 387-393

TOPIC TAGS: plasma diagnostics, spectral line, plasma temperature, plasma density, line broadening, line intensity, line width

ABSTRACT: This is a companion to earlier work (Zh. Prikl. Spektr. v. 3, 320, 1965) dealing with various errors that arise in the calculation of the temperature, atom and ion density, inhomogeneity, electron density, and the broadening of spectral lines when the self-inverted contour method is used for plasma diagnostics. The present article presents improvements to the calculations obtained by representing the line contours in the form of a Voigt contour. The in-

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L 26699-66

ACC NR: AP6011551

2

homogeneous light source model proposed by R. D. Cowan and D. H. Dieke (Rev. Modern Phys. v. 20, 418, 1948) was used. The formula used for the intensity distribution of the line contour was reported by the authors elsewhere (Itogovaya nauchn. konf. Kazanskogo univ. za 1962 [Summarizing Scientific Conference of the Kazan' University in 1962], p. 47, Kazan', 1963). The tabulated values obtained for the width of the line contour and for the intensity ratio, and plots of the line contour and of the intensity ratio against the line widths are presented. The results of the calculations were verified experimentally and agree well with experimental data, with a few exceptions in the case of the lines of sodium plasma. New plasma diagnostic schemes based on this method are proposed. It is proposed that the results of the calculations be used to supplement and refine existing plasma diagnostic procedures. The authors thank N. K. Begovatova and R. V. Surinova for help with the calculations. Orig. art. has: 5 figures, 2 formulas, and 3 tables.

SUB CODE: 20/ SUBM DATE: 21Jan65/ ORIG REF: 023/ OTH REF: 004

Card 2/2 BLG

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5

IL'IN, G.I.; ANATOLIY, S.A.; PADERINA, Ye.M.; SAFRO, L.N.

Significance of biological activity of microbes for the development of experimental staphylococcal infection. Report No.2: Pathomorphological and microbiological characteristics of staphylococcal pneumonia depending on the virulence of the pathogen. Zhur. mikrobiol. epid. i immun. 42 no.6:77-80 '65. (MIRA 18:9)

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5

ARKHANGEL'SKIY, L.V., insh.; LOKSHIN, L.V., insh.; IL'IN, G.I., insh.

Redesigning the PK-2 transmitter. Vest. sviazi 19 no.11:7-10 N '59. (MIRA 13:8)

1. Oktyabr' peredayushchiy radiotsentr.
(Radio--Transmitters and transmission)

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5

SIGAL, A.B., inzh.; SAVOSTYUK, A.S., inzh.; IL'IN, G.I., inzh.

Condensate treatment. Energetik 12 no.11:17-20 N '64 (MIRA 18:2)

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5

IL'IN, G.I. (Leningrad)

Diagnosis of myocardial hypertrophy by the suspension mehtod. Arkh. pat. 18 no.8:97-101 (MLRA 10:2)

1. Iz kafedry patologicheskoy anatomii (zav. - prof. M.A.Zakhar'yevskaya) I Leningradskogo meditsinskogo instituta imeni akad. I.P. Pavlova.

(CARDIAC ENLARGEMENT, diagnosi, suspension method (Rus))

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5

IL'IN, G.I.

Influence of cortisone on the course of experimental staphylococcal infection. Biul. eksp. biol. i med. 51 no.6:46-49 Je '61. (MIRA 15:6)

1. Iz laboratorii infektsionnoy patologii (zav. - prof. M.V. Voyno-Yasenetskiy) otdela patologicheskoy anatomii (zav. - akademik N.N. Anichkov) Instituta eksperimental'noy meditsiny AMN SSSR, Leningrad. Predstavlena akademikom N.N. Anichkovym.

(STAPHYLOCOCCAL DISEASE)
(CORTISONE)

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5

BIRYUKOV, D.A., prof.; SMORODINTSEV, A.A., prof.; SELIVANOV, A.A., kand. med. nauk, starshiy nauchnyy sotrudnik; IL'IN, G.I., kand. med. nauk; PIGAREVSKIY, V.Ye., doktor med. nauk; GOKHLERNER, G., vrach

Grippe. Nauka i zhizn' 30 no.4:72-78 Ap '63. (MIRA 16:7)

1. Direktor Instituta eksperimental'noy meditsiny AMN SSSR, Leningrad, deystvitel'nyy chlen AMN SSSR (for Biryukov). 2. Otdel virusologii Instituta eksperimental'noy meditsiny AMN SSSR, Leningrad (for Selivanov). 3. Otdel patologicheskoy anatomii Instituta eksperimental'noy meditsiny AMN SSSR, Leningrad (for Il'in).

(INFLUENZA RESEARCH)

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5

MARKOVICH, A. V.; SOKOLOV, B. V.; MEDVEDKOVA, A. A.; PAYKIN, M. D.; FROLOVA, M. A.; IL'IN, G. I.

"Therapy of expeimental coccal infections by soluble tetracycline derivatives and by tetracycline."

report submitted for Antibiotics Cong, Prague, 15-19 Jun 64.

Sci Res Inst of Antibiotics, Leningrad.

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5

IL'IN, G.I.

Methodology of reproducing the pulmonary form of staphylococcal infection. Lab. delo no. 11:690-692 '64. (MIRA 17:12)

1. Laboratoriya infektsionnoy patologii (zaveduyushchiy-prof. A.V.Voyno-Yasenetskiy) otdela patologicheskoy anatomii (zaveduyushchiy - akademik N.N.Anichkov) Instituta eksperimental'noy meditsiny AMN SSSR, Leningrad.

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5

PIGAREVSKIY, V.Ye.; IL'IN, G.I.; ANATOLIY, S.A.; CHALKINA, O.M.

Paradoxical mitigation of toxic influenza manifestations under the influence of a mild course of a staphylococcal infection of the respiratory tracts. Vop. virus. 10 no.2:181-187 Mr-Ap '65. (MIRA 18:10)

1. Institut eksperimental'noy meditsiny AMN SSSR, Moskva.

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5

IL'IN, G.M.

Temperature conditions in the hydrothermal processing of natural phosphates. Trudy NIUIF no.208:133-142 '65.
(MIRA 18:11)

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5

SMUSHKOVICH, B.L.; IL'IN, G.N.; NIZOV, A.A.

Automation of a device for cupping test of sheet metals. Zav.lab. 30 no.4:491-492 '64. (MIRA 17:4)

1. Spetsial'noye konstruktorskoye byuro po razrabotke avtomaticheskikh sredstv izmereniya mass i priborov ispytatel'noy tekhniki Verkhne-Volzhskogo soveta narodnogo khozyaystva.

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"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5

ACC NR: AP6021478 SOURCE CODE: UR/0413/66/000/011/0105/0106

INVENTOR: Il'in, G. P.; Rublev, P. A.

ORG: None

TITLE: An aircraft instrument for measuring the velocity of wind gusts. Class 42, No. 182422

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 11, 1966, 105-106

TOPIC TAGS: wind meter, auxiliary aircraft equipment

ABSTRACT: This Author's Certificate introduces an aircraft instrument for measuring the velocity of wind gusts. The unit contains an intake section and a metal diaphragm. The instrument is designed for improved measurement accuracy and for eliminating the effect of extraneous factors on the measurements. The intake section of the device is made in the form of a movable hemispherical cap which is rigidly connected during measurement to the center of a diaphragm located between and acoustic receiver and a radiator of acoustic oscillations. The radiator and receiver are connected in an electronic unit with a signal generator, resonance tuning indicator and monitoring instrumentation.

 UDC: 551.508.54

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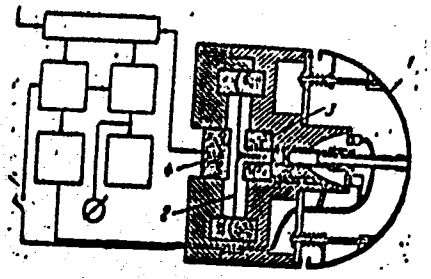
"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5

ACC NR: AP6021478



1—intake section of the unit; 2—diaphragm; 3—radiator; 4—receiver

SUB CODE: 01, 09, 13, 14/ SUBM DATE: 30Oct64

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APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5

BERDNIKOV, Leonid Nikolayevich, inzh.; ILIIN, Georgiy Petrovich, inzh.; SHATERIN, Mikhail Andreyevich, inzh.; SHIFRIN, A.M., red.

[Drilling and milling heat-resistant and low-magnetic steels; verbatum record of a lecture delivered at the Leningrad House of Scientific and Technical Information in May 1963] Sverlenie i frezerovanie zharoprochnykh i malomagnitnykh stalei; stenogramma lektsii, prochitannoi v LDNTP v mae 1963 g. Leningrad, 1964. 23 p. (MIRA 17:7)

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5

ILYASOV, V.A.; IL'IN, G.P.; MAKSIMOV, Yu.I.

Direct phase compounding system using a p-n-p-n device.
Sudostroenie no.8:40-42 Ag '65. (MIRA 18:9)

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5"

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80848

S/050/60/000/06/06/021
B007/B007

3.5000

AUTHOR: Il'in, G. P.

TITLE: Determination of the Lower Cloudiness Boundary

PERIODICAL: Meteorologiya i gidrologiya, 1960, No. 6, pp. 24-25

TEXT: A semiempirical formula for the determination of the lower cloudiness boundary during the warm season (April - September) is derived. For the purpose of determining the increase on the lower cloudiness boundary, the observations made from aircraft between 1953 and 1958 during the time from April to September in the area of Moscow were used. The results obtained are given in Table 1 and Fig. 1. It is shown that, if the temperature and the relative air-moisture at the preceding and present instance of time are known from the weather records in consideration of the constant of proportionality k (which depends upon the season of the year), it is possible to determine the lower cloudiness boundary. By adding this increase to the preceding height, the lower cloudiness boundary at the given instant of time is obtained. In

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80848

Determination of the Lower Cloudiness Boundary

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B007/B007

the case of sufficiently accurate air-temperature- and air-moisture data the height of the lower cloudiness boundary may be calculated at daytime (during the warm season) from the formula (3) derived here with an error of 6 to 8% of the quantity to be determined. There are 1 figure and 1 table.

X

Card 2/2

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"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5

IL'IN, O.P.

The speed of cyclone movement. Meteor,i gidrol. no.8:33-34 Ag '60. (MIRA 13:8)

(Cyclones)

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5"

"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5

IL'IN, G. P.

IL'IN, G. P.- "Investigation of Sowing Machines for Sowing Oak Acorns in Groups." Min of Higher Education USSR, Moscow Forestry-Engineering Inst, Moscow, 1955 (Dissertations For Degree of Candidate of Technical Sciences)

SO: Knizhnaya Letopis' No. 26, June 1955, Moscow

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"APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000518430005-5

ILI'IN, Gennadiy Pavlovich; USANOV, Aleksandr Vasil'yevich; MUKHIN, A.I., red.; IOFINOVA, TS.B., red. i izd-va; LOBANKOVA, R.Ye., tekhn. red.

[Machinery and equipment for the reforestation of cutover areas] Mashiny i orudiia dlia sozdaniia lesnykh kul'tur na vyrubkakh. Moskva, Goslesbumizdat, 1961. 95 p. (MIRA 14:8)
(Forests and forestry--Equipment and supplies) (Reforestation)

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IL'IN, G.P., kand.tekhn.nauk

The MLTI forest seeder. Trakt.i sel'khozmash. 32 no.9:35 S '62. (MIRA 15:12)

(Afforestation) (Tree planting--Equipment and supplies)

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AUTHOR: Il'in, G. P. (Candidate of technical sciences, Engineer); Ishmametov, A. S. (Candidate of technical sciences, Engineer)

ORG: none

16
B

TITLE: Equipment used with skid tractors 14 in forest husbandry

SOURCE: Lesnaya promyshlennost', no. 9, 1965, inside front cover and inside back cover

TOPIC TAGS: agricultural machinery, tractor

ABSTRACT: Plows, cultivators, ditch diggers, seeders, tree planters, and sprayers used with skid tractors in reforestation, soil preparation, fire fighting, and fire prevention are described. The basic technical specifications of the tractors are given. The authors identify the manufacturers and model numbers of the machines and recommend the various tractors with which the hook-on equipment should be used. Orig. art. has: 2 figures, 8 tables.

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IL'IN, Georgiy Sergeyevich; BOKOV, V.A., red.

[Ceramic piezoelectric elements] Keramicheskie p'ezoelementy. Leningrad, 1963. 19 p. (Leningradskiy dom nauchno-tekhnicheskoi propagandy. Seriia: Elektricheskie metody obrabotki materialov, no.2) (MIRA 17:9)

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