"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

S/188/62/000/004/010/010
B108/B102

AUTHORS: Vasil'yev, S. S., Romanovskiy, Ye. A., Timushev, G. F.

TITLE: Cross section of 6.6-Mev proton absorption by F^{19} nuclei

PERIODICAL: Moscow. Universitet. Vestnik. Seriya III. Fizika, astronomiya, no. 4, 1962, 93

TEXT: In order to collect evidence for the hypothesis of surface absorption of low and medium-energy nucleons by nuclei (Bjorklund F. E., Fernbach S. Phys. Rev., 10, 1295, 1958) the authors studied the collision of 6.6-Mev protons with F^{19} nuclei. Such collisions involve several processes: elastic and inelastic scattering, (p,n), (p,α), and (p,γ). Nine levels with energies between 0.110 and 4.036 Mev are excited by such processes. The total cross section of inelastic scattering of 6.6-Mev protons from F^{19} nuclei as found from the level excitation cross sections is approximately 450 mb. Data on the cross sections of the other processes were taken from publications. The total absorption cross section is

Card 1/2

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

$$\sigma_r = \sigma_{p,p'}(450\ \text{mb}) + \sigma_{pp}(20\ \text{mb}) + \sigma_{p\alpha}(10\ \text{mb}) + \sigma_{pn}(55\ \text{mb}).$$

As the accuracy of the (p,n) and (p,p) reaction cross sections is not known it is difficult to estimate the error in the total absorption cross section. The exact value of σ_r will certainly be between 500 and 550 mb.

ASSOCIATION: NIIYaF

SUBMITTED: March 14, 1962

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

S/056/62/043/003/001/063
B125/B102

AUTHORS: Vasil'yev, S. S., Komarov, V. V., Popova, A. M.

TITLE: Study of decay reactions of carbon and oxygen nuclei under the action of 15-29-Mev protons

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 43, no. 3(9), 1962, 737-748

TEXT: The energy distribution of the products of the reactions $C^{12}(p,p'3\alpha)$ and $O^{16}(p,p'4\alpha)$ was determined from 5 and 6-pronged stars in photographic plates. These plates were irradiated in the 120-cm synchrocyclotron of the Institut yadernoy fiziki MGU (Institute of Nuclear Physics of MGU). For $C^{12}(p,p'3\alpha)$ reactions and with 15 Mev $\leq E_p \leq$ 29 Mev the following reaction mechanisms are possible:

Card 1/4

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

$$
\begin{array}{ll}
C^{12} + p \to N^{13*} \to C^{12*} + p \to Be^{8} + \alpha + p \to & 3\alpha + p, \\
C^{12} + p \to N^{13*} \to C^{12*} + p \to & 3\alpha + p, \\
C^{12} + p \to N^{13*} \to B^{9} + \alpha \to Be^{8} + \alpha + p \to & 3\alpha + p, \\
C^{12} + p \to N^{13*} \to B^{9} + \alpha \to Li^{5} + 2\alpha \to & 3\alpha + p, \\
C^{12} + p \to N^{13*} \to B^{9} + \alpha \to & 3\alpha + p, \\
C^{12} + p \to N^{13*} \to Be^{8} + Li^{5} \to & 3\alpha + p, \\
C^{12} + p \to N^{13*} \to Be^{8} + \alpha + p \to & 3\alpha + p, \\
C^{12} + p \to N^{13*} \to 2\alpha + Li^{5} \to & 3\alpha + p, \\
C^{12} + p \to N^{13*} \to & 3\alpha + p, \\
C^{12} + p \to C^{12*} + p \to Be^{8} + \alpha + p \to & 3\alpha + p, \\
C^{12} + p \to C^{12*} + p \to & 3\alpha + p, \\
C^{12} + p \to B^{9} + \alpha \to Be^{8} + \alpha + p \to & 3\alpha + p, \\
C^{12} + p \to B^{9} + \alpha \to 2\alpha + Li^{5} \to & 3\alpha + p, \\
C^{12} + p \to B^{9} + \alpha \to & 3\alpha + p.
\end{array}
\qquad (1)-(14)
$$

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

In these reactions Be^8 may be formed. At excitation energies of the Be^8 nucleus from 0 to 15 Mev only the wide levels 2.9 ± 1.5 Mev and 11.3 Mev occur. At this E_p of the C^{12} nuclei there is only a very low decay probability, according to the mechanisms (1), (2) and (10), (11), with production of the first compound nucleus C^{12*}. In the reaction $C^{12}(p,p'3\alpha)$ the probability that B^9 will be produced as the first compound nucleus is 20% (mechanisms (12), (13) and (14)). The probability of the mechanisms (3) and (5) is low. The hypothetic mechanisms for the direct decay of the compound system N^{13*} in 2, 3 or 4 noninteracting particles are not confirmed by the experimental energy distributions. At 15 Mev $\leq E_p \leq$ 29 Mev the reaction $C^{12}(p,p'3\alpha)$ very probably proceeds by way of a direct nuclear decay of a compound system into three α particles and one proton. These final particles react in pairs. In the reaction $O^{16}(p,p'4\alpha)$ the compound nucleus F^{17} decays into 4α+p. These particles resonance-interact in the ground states of the nuclei Li^5 (ground-state) and Be^8 (ground-state, 30-40% probability; excited states 2.9 ± 1.5 Mev, 50%; 11.3 ± 0.3 Mev, 10-20% probability). There are 8 figures and 2 tables.

Card 3/4

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

Study of decay reactions of ...

S/056/62/043/003/001/063
B125/B102

ASSOCIATION: Institut yadernoy fiziki Moskovskogo gosudarstvennogo universiteta (Institute of Nuclear Physics of the Moscow State University)

SUBMITTED: December 20, 1961

Card 4/4

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

CHESUNOV, V.M., aspirant; VASIL'YEV, S.S., prof., doktor khimicheskikh nauk

Studying the kinetics of ethyl alcohol evaporation from a free surface into a closed gas filled space in connection with the gas passage. Nauch.trudy MTILP no.18:156-166 '60. (MIRA 15:2)

1. Kafedry teplotekhniki i fiziki Moskovskogo tekhnologicheskogo instituta legkoy promyshlennosti.
(Ethyl alcohol) (Evaporation)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

MENTSOV, V. S., inzh.; VASIL'YEV, S. S., doktor khimicheskikh nauk, prof.

Use of high-frequency current for gluing fabrics. Izv.vys. ucheb. zav.; tekh.leg.prom. no.4:113-118 '61. (MIRA 14:10)

1. Moskovskiy tekhnologicheskiy institut legkoy promyshlennosti. Rekomendovana kafedroy fiziki.
(Gluing)
(Induction heating)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

SHEYNIS, Ye.S., kand.tekhn.nauk, dotsent; VASIL'YEV, S.S., doktor khimicheskikh nauk, prof.

Effect of high-frequency currents on the reactions of strained leather. Nauch.trudy MTILP no.18:52-60 '60. (MIRA 15:2)

1. Kafedra fiziki Moskovskogo tekhnologicheskogo instituta legkoy promyshlennosti.
(Leather--Testing) (Strains and stresses)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

VASIL'YEV, S.S.; KOMAROV, V.V.; KOSHELYAYEV, G.V.; POPOVA, A.M.

Production of proton beams of different energies within a synchrocyclotron chamber for medium energies. Prib. i tekh. eksp. 6 no.1: 17-18 Ja-F '61. (MIRA 14:9)

1. Nauchno-issledovatel'skiy institut yadernoy fiziki Moskovskogo gosudarstvennogo universiteta.
(Protons) (Cyclotron)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

VASIL'YEV, S.S.; ROMANOVSKIY, Yo.A.; TIMUSHEV, G.F.

Lower excited states of Ca^{40}. Vest. Mosk. un. Ser. 3: Fiz., astron. 16 no.6:88-89 N-D '61. (MIRA 14:12)

1. Nauchno-issledovatel'skiy institut yadernoy fiziki Moskovskogo gosudarstvennogo universiteta.

(Quantum theory)
(Calcium)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

VASIL'YEV, S.S.; ROMANOVSKIY, Ye.A.; TIMUSHEV, G.F.

Collective excited states in Mn^{55}. Vest. Mosk. un. Ser. 3: Fiz., astron. 16 no.6:89-90 N-D '61. (MIRA 14:12)

1. Nauchno-issledovatel'skiy institut yadernoy fiziki Moskovskogo gosudarstvennogo universitota.

(Quantum theory)
(Manganese)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

BASKOVA, K.A.; VASIL'YEV, S.S.; NO SEN CHAN; SHAVTVALOV, L.Ya.

Decay scheme of Br^{75}. Zhur. eksp. i teor. fiz. 41 no.5:1484-1486 N '61. (MIRA 14:12)

1. Institut yadernoy fiziki Moskovskogo gosudarstvennogo universiteta.

(Bromine—Decay)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

VASIL'YEV, S. S.

Ekonomika Torgovli [by] S.S. Vasil'yev [i Dr] Red. koleegiya: S.S. Vasil'yev, G. S. Grigor'yan [i] A.I. Fefilov. Moskva, Gostorgizdat, 1962.
727 p. Tables.

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

VASIL'YEV, S.S.; ROMANOVSKIY, Ye.A.; TIMUSHEV, G.F.

Inelastic proton scattering on F^{19} nuclei. Zhur.eksp.i teor.fiz. 41 no.4:1040-1042 O '61. (MIRA 14:10)

1. Institut yadernoy fiziki Moskovskogo gosudarstvennogo universiteta.
(Protons—Scattering)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

VASIL'YEV, S.S.; KOMAROV, V.V.; POPOVA, A.M.

Study of the reaction C^{12} (α, 4α). Zhur. eksp. i teor. fiz. 41 no.6:1757-1760 D '61. (MIRA 15:1)

(Nuclear reactions) (Carbon)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

VASIL'YEV, S.S.; ROMANOVSKIY, Ye.A.; TIMUSHEV, G.F.

Inelastic scattering of 6.6 Mev. protons on Ca^{40} and Mn^{55} nuclei [with summary in English]. Zhur. eksp. i teor. fiz. 42 no.2:395-402 F '62. (MIRA 15:2)

1. Institut yadernoy fiziki Moskovskogo gosudarstvennogo universiteta.
(Protons—Scattering)(Calcium)(Manganese)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

BASKOVA, K.A.; VASIL'YEV, S.S.; NO SEN CHAN; SHAVTVALOV, L.Ya.

Study of some radioactive nuclei in the region of the filled 1 f_7 shell [with summary in English]. Zhur. eksp. i teor. fiz. 42 no.2:416-426 F '62. (MIRA 15:2)

1. Institut yadernoy fiziki Moskovskogo gosudarstvennogo universiteta.

(Radioisotopes)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

VASIL'YEV, S.S.; MIKHALEVA, T.N.; RUDENKO, N.P.; SEVAST'YANOV, A.I.; ZAZULIN, V.S.

Long-lived isotope Al^{26} in structural aluminum used in a nuclear reactor. Atom. energ. 11 no.4:401-403 O '61. (MIRA 14:9)
(Aluminum--Isotopes) (Nuclear reactors)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

VASIL'YEV, S.S.; NO SEN CHAN; SHAVTVALOV, L.Ya.

Study of Mn^{56} radiation. Izv. AN SSSR. Ser. fiz. 25 no.9:1115-1116 '61. (MIRA 14:8)

1. Nauchno-issledovatel'skiy institut yadernoy fiziki Moskovskogo gosudarstvennogo universiteta im. M.V. Lomonosova.
(Manganese--Isotopes)
(Radiation)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

36140
S/137/62/000/003/105/191
A060/A101

18.8100

AUTHORS: Artsishevskiy, M. A., Vasil'yev, S. S., Koshelyayev, G. V., Selisskiy, Ya. P.

TITLE: Action of deuteron irradiation upon the electric resistance of alloys undergoing ordering and aging

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 3, 1962, 6, abstract 3I38 ("Sb. tr. Tsentr. n.-i. in-t chernoy metallurgii", 1959, no. 22, 168-176)

TEXT: The effect of deuteron irradiation upon the electric resistance R of alloys Ni_3Fe, Fe_3Al undergoing ordering and of an alloy of Fe with 35% Ni and 4.5% Ti undergoing aging was investigated. The specimens were irradiated in a cyclotron with deuterons having an energy of 4 Mev. The thickness of the specimens constituted 20 - 30 μ. The R measurement was carried out by the potentiometric method. Because of the small dimensions of the specimens the voltage and the current leads constituted a single whole with the working part. The specimens of Ni_3Fe and of Fe_3Al were investigated in the ordered and the unordered states; the specimens of Fe-Ni-Ti - in the aged and hardened states.

Card 1/2

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

S/137/62/000/003/105/191
A060/A101

Action of deuteron irradiation ...

It was established that when the ordered Fe_3Al alloy is irradiated its R is increased considerably, and the R of the hardened alloy - drops. The bombarding of the Ni_3Fe alloy in the ordered and unordered states causes a considerable decrease in R. In all cases irradiation in fluxes up to $5 \cdot 10^{17}$ deuterons per 1 cm^2 causes a sharp change in R, at a further increase of the total flux the rate of change of R drops. The effects uncovered in the Fe-Ni-Ti alloy do not exceed the limits of experimental errors. It is considered that the most probable process causing the reduction in R is the ordering. A considerable drop in the R of the alloy Ni_3Fe is noted, whose degree of ordering corresponds to a temperature of 250 - 300°C. In this alloy a further occurrence of ordering under irradiation is possible. The shape of the R curves of the irradiated specimens tempered at 250°C confirms the hypothesis as to the attainment of an intermediate degree of ordering as result of the irradiation. In tempering the Ni_3Fe the soaking time of the specimens at the respective temperatures was insufficient to obtain an equilibrium. The character of the R variation of an irradiated unordered specimen is close to the R variation of an unirradiated ordered specimen. In tempering the Fe-Ni-Ti alloy no great difference in the behavior of irradiated and unirradiated specimens was discovered.

A. Rusakov

[Abstracter's note: Complete translation]

Card 2/2

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

A-1

Coagulating action of alcohols on protein solutions and the Traube rule. S. S. VASSILIEV (J. Phys. Chem. Russ., 1939, 13, 43—50).—Coagulation of egg-albumin by the primary alcohols C_1—C_5 was measured. It cannot be due to dehydration as assumed by Kruyt since the coagulating power increases, and the affinity to H_2O decreases, with rising mol. wt. A real coagulation by dehydration, *e.g.*, with $(NH_4)_2SO_4$, is reversible whilst the effect of alcohols is irreversible. The validity of the Traube rule indicates an adsorption mechanism for the coagulation. The amount of the alcohols adsorbed by proteins is calc. J. J. B.

Div Organic Chem., Chem Dept. VIEM

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

USSR/Chemistry, Colloid - Proteins Jul/Aug 52

"The Connection Between the Constitution of Organic Compounds and Their Coagulating Effect on Solutions of Egg Albumin," A. P. Sychev, S. S. Vasil'yev, Chair of Phys and Colloid Chem, Moscow Petroleum Inst imeni Acad I. M. Gubkin

"Kolloid Zhur" Vol XIV, No 4, pp 260-266

Detd the coagulating effect of monocarbinols, polyhydric alcs, phenols, aromatic alcs, alicyclic alcs, aliphatic ketones, alicyclic ketones, aldehydes (including formaldehyde) and aldehyde alcs on solns of dialyzed egg albumin. Found that addn of one

225T13

CH_2, CH_3, or CH group in any series increases the coagulating effect by a factor of 2-2.5; that the relative position of substituents in mono- and polyphenols influences the coagulating effect in a definite manner; etc. Believe that discovery of relationships of this type between the constitution of org compds and their effect on proteins will clarify problems connected with the biol action of org compds.

225T13

VASIL'YEV, S. S.

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

VASIL'YEV, S.S.

Chemical Abst.
Vol. 48 No. 8
Apr. 25, 1954
Organic Chemistry

2

Relation between the structure of organic compounds and their coagulating action on egg albumin solutions. A. P. Sychev and S. S. Vasil'ev. *Colloid J.* (U.S.S.R.) 14, 285-91(1952)(Engl. translation).—See *C.A.* 47, 2127a.
H. L. H.

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

5(

SOV/69-21-2-4/22

AUTHORS: Vasil'yev, S.S. and Yushina, V.V.

TITLE: The Stabilizing Effect of Silver Ions on Albumin (Stabilizi-ruyushchiye deystviye ionov serebra na al'bumin)

PERIODICAL: Kolloidnyy zhurnal, 1959, Nr 2, pp.148-150 (USSR)

ABSTRACT: This article deals with the effects of silver ions introduced into albumin solutions. After the adsorption of small quantities of silver, the stability of albumin solutions with regard to heating is increased. If larger quantities of silver are adsorbed, the ions produce a coagulating effect. Coagulation takes place, when 30 silver ions per albumin molecule have been adsorbed by the solution. There are 2 graphs and 3 references, 2 of which are German and 1 Soviet.

ASSOCIATION: Tekhnologicheskiy institut legkoy promyshlennosti, Moskva (Technological Institute of Light Industry, Moscow)

SUBMITTED: December 12, 1957

Card 1/1

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

BOCHAGOV, B.A.; VASIL'YEV, S.S.; SEMENCHUK, G.G.; SOLYAKIN, G.Ye.

Energy characteristics of fragments resulting in the fission of Th^{232} and U^{238} nuclei by charged particles. IAd. fiz. 1 no.3:461-470 Mr '65. (MIRA 18:5)

1. Fiziko-tekhnicheskiy institut im. A.F.Ioffe AN SSSR i Institut yadernoy fiziki Moskovskogo gosudarstvennogo universiteta.

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

BASKOVA, K.A.; VASIL'YEV, S.S.; KHAMO-LEYLA, M.A.; SHAVTVALOV, L.Ya.

Radiations from W^{187} and $Tl^{200}W^{187}$ (T = 24 hrs).
Izv. AN SSSR. Ser. fiz. 27 no.10:1258-1260 O '63.
(MIRA 16:10)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

VASIL'YEV, S.S.; SHAVTVALOV, L.Ya.

Gamma radiations from Au^{197*} and the β^{+-}-spectrum of O^{15}.
Izv. AN SSSR. Ser. fiz. 27 no.10:1261-1262 O '63. (MIRA 16:10)

1. Nauchno-issledovatel'skiy institut yadernoy fiziki Moskovskogo gosudarstvennogo universiteta im. M.V. Lomonosova.

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

MENTSOV, V.S., starshiy prepodavatel'; VOLODINA, N.Ya.; VASIL'YEV, S.S., doktor khim. nauk, prof.

Kinetics of the gluing of shoe materials by means of high-frequency currents. Nauch. trudy MTILP no.24:69-73 '62. (MIRA 16:7)

1. Kafedra fiziki Moskovskogo tekhnologicheskogo instituta legkoy promyshlennosti.

(Gluing) (Induction heating)
(Shoe manufacture)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

GRIGOR'YAN, G.S., prof.; KISTANOV, Ya.A., prof.; FEFILOV, A.I., dots.; GENKINA, L.S., dots.; VASIL'YEV, S.S., dots.; SEREBRYAKOV, S.V., prof.; DNEPROVSKIY, S.P., prof.; PIROGOV, P.V., dots.; GOGOL', B.I., doktor ekon. nauk; SMOTRINA, N.A., dots.; KULIKOV, A.G., prof.; KUZIN, N.I., dots.[deceased]; AVETISYAN, Ye., red.; MUKHIN, Yu., tekhn. red.

[Economics of Soviet trade] Ekonomika sovetskoi torgovli; uchebnik. 2., dop. izd. Moskva, Politizdat, 1963. 519 p. (MIRA 16:12)

(Russia--Commerce)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

VASIL'YEV, , S.S., dots.; GENKINA, L.S., dots.; GRIGOR'YAN, G.S., dots.; KISTANOV, Ya.A., dots.; KULIKOV, A.G., dots.; LIFITS, M.M., prof.[deceased]; OBLOVATSKIY, F.Ya., dots.; PIROGOV, F.V., dots.; POPOV, A.N., dots.; SMOTRINA, N.A., dots.; FEFILOV, A.I.; STARCHAKOVA, I.I., red.; EL'KINA, E.M., tekhn. red.

[Ekonomics of commerce] Ekonomika torgovli. Red. kollegiia; Vasil'ev, S.S., Grigor'ian, G.S., Fefilov, A.I. Moskva, Gostorgizdat, 1962. 727 p. (MIRA 15:6)
(Commerce)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

VASIL'YEV, S.S.; ROMANOVSKIY, Ye.A.; TIMUSHEV, G.F.

Measuring the angular distribution for the Al^{27} (p, p')Al^{27*} reaction with the aid of a magnetic analyzer when E_p = 6.6 Mev. Zhur.eksp.i teor.fiz. 40 no.3:972-973 Mr '61. (MIRA 14:8)

1. Institut yadernoy fiziki Moskovskogo gosudarstvennogo universiteta.
(Nuclear reactions) (Magnetic measurements)
(Aluminum--Isotopes)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

S/048/61/025/009/002/007
B104/B102

24.6400

AUTHORS: Vasil'yev, S. S., Komarov, V. V., and Popova, A. M.

TITLE: Properties of the lower states of the Li^5 and Be^8 nuclei produced in decays of light nuclei

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya, v. 25, no. 9, 1961, 1117 - 1120

TEXT: This paper was read at the 9th Annual Conference on Nuclear Spectroscopy. It deals with the question how the influence of interaction of reaction products in the final state can be taken into account when studying the integral energy distribution of particles produced by direct decay of a compound nucleus. The differential cross section of the decay of a compound nucleus with spin I and parity π into n particles with the energies E_i and the momenta $\vec{p}_i$ can be written as

$$d\sigma \sim \delta\left\{\sum_{i=1}^{n} (E_i - E)\right\} \delta\left(\sum_{i=1}^{n} p_i\right) \prod_{i=1}^{n} d^3p_i \left|H_{ab}\right|^2 ,$$

Card 1/6

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

where E is the total energy of the system, and H_{ab} is the matrix element of the transition from the initial state a into the final state b. This element has the form

$\langle \prod_{i=1}^{n} \psi_i \; \chi(S_i) | V | \Psi_{jjz} \rangle$, Ψ_{jjz} being the wave function of the compound nucleus and $\psi_i \; \chi(S_i)$ the wave and spin function of the i-th particle. If the particles do not interact in the final state, the ψ_i represent plane waves. In this case, the motion of two particles, i and j, can be represented as the product of two plane waves: $\exp(-i\vec{q}\vec{\rho}/\hbar) \exp(-i\vec{p}\vec{R}/\hbar)$, where $\vec{q} = \frac{1}{2}(\vec{p}_i - \vec{p}_j)$ is the momentum of the relative particle motion. The wave function of the relative motion of the interacting particles i and j is a distorted wave. The radial part of the wave function of the relative motion of the scattered particles is approximately given by $\varphi(\rho) = f(E_{rel})g(\rho)$, as was shown by E. W. Hamburger (Thesis, University of Pittsburgh, 1959). Using this expression, the differential reaction

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

cross section is written as $\frac{d\sigma}{dE_i} \sim f(E_i) \frac{\sin^2(\delta + \Phi)}{q^2}$. If a simultaneous interaction between two pairs of particles in the final state is possible, the differential cross section acquires the form

$$\frac{d\sigma}{dE_i} \sim f(E_i) \frac{\sin^2(\delta_1 + \Phi_1)}{q_1^2} \cdot \frac{\sin^2(\delta_1 + \Phi_2)}{q_2^2} \qquad (6).$$

This is illustrated by a study of the energy distribution of protons from the decay of C^{12} into three alphas induced by 15 - 30 Mev protons. A previous paper by the authors (S. S. Vasil'yev et al., Izv. AN SSSR, Ser. fiz., 24, 1145 (1960)) has shown that four- and three-particle decays of C^{12} may be accompanied by interactions of two alphas at the levels 0, 2.9, and 11.8 Mev of the Be^8 nucleus, and by an α- p interaction at the ground level of the Li^5 nucleus. This indicates that Li^5 and Be^8 occur, not as

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

compound nuclei of a cascade, but as a result of interaction of the decay products. The excitation energies of the Be^8 and Li^5 nuclei should then appear in the histograms, and the alpha and proton spectra should be described by statistical distributions calculated on the assumption of a four-particle decay with the above-mentioned interactions. To prove this assumption, the authors investigated the energy distribution of protons from the $C^{12}(p,p')3\alpha$ reaction at energies of 15 - 30 Mev of the primary protons. (6) is represented in a form corresponding to this case. The resulting curve for the proton energy distribution agrees well with the experimental results. There are 1 figure and 7 references: 5 Soviet and 2 non-Soviet. The references to English-language publications read as follows: Hamburger E. W., Thesis, University of Pittsburgh, 1959; Brueckner K., Phys. Rev., 82, 598 (1951).

ASSOCIATION: Institut yadernoy fiziki Moskovskogo gos. universiteta im. M. V. Lomonosova (Institute of Nuclear Physics of Moscow State University imeni M. V. Lomonosov)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

VASIL'YEV, S.S. (Moskva)

Calculation of the concentration of excited molecules in the zone of stationary electrical discharges. Zhur. fiz. khim. 35 no. 4:761-771 Ap '61. (MIRA 14:5)

1. Moskovskiy tekhnologicheskiy institut legkoy promyshlennosti.
(Molecular dynamics) (Electric discharges through gases)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

VASIL'YEV, S.S.; SHAVTVALOV, L.Ya.

β^+ -spectrum of Si^{27}. Zhur.eksp.i teor.fiz. 39 no.5:1221-1223 N '60. (MIRA 14:4)

1. Institut yadernoy fiziki Moskovskogo gosudarstvennogo universiteta.

(Silicon--Spectra)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

S/120/61/000/001/003/062
E032/E114

AUTHORS: Vasil'yev, S.S., Komarov, V.V., Koshelyayev, G.V., and Popova, A.M.

TITLE: Production of Proton Beams of Various Energies Inside the Synchrocyclotron Chamber at Intermediate Energies

PERIODICAL: Pribory i tekhnika eksperimenta, 1961, No.1, pp.17-18

TEXT: In nuclear reaction studies employing protons of intermediate energies inside the synchrocyclotron chamber, it is convenient to use a method in which a number of targets are simultaneously irradiated by proton beams of approximately equal intensity but different energy (with sufficiently small energy spread in each beam). For this purpose the main proton beam is directed on to an internal target in the form of a wedge. In the latter the original protons are slowed down and scattered in different ways so that the protons leaving the wedge have an energy spectrum. In the magnetic field protons of different energies move over trajectories of different radii. These trajectories are intercepted by a set of slits which thus define a number of proton beams of different energies. The slits are located on the bottom

Card 1/4

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

S/120/61/000/001/003/062
E032/E114

Production of Proton Beams of Various Energies Inside the Synchrocyclotron Chamber at Intermediate Energies

of the chamber and are arranged in such a way that they let through only those protons which are scattered at small angles in the downward direction but are practically unscattered in the horizontal plane. This method has been used in nuclear reaction studies using the 120 cm synchrocyclotron of the Scientific Research Institute of Nuclear Physics of the Moscow State University (Nauchno-issledovatel'skiy institut yadernoy fiziki MGU) (initial proton energy 30 MeV). The wedge was made of copper and had an angle of 40°. The intercepting slits were 3 mm wide each and defined 9 proton beams in the energy range 7.5-30 MeV. The energy spread in each channel was smaller for the smaller energies. The nine beams were allowed to strike nuclear emulsions at an angle of 6°. In order to obtain approximately equal intensities in the 9 channels the working part of the wedge was made approximately equal to the radial half-width of the synchrocyclotron beam.

There is 1 figure.
Card 2/ 4

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

S/120/61/000/001/003/062
E032/E114

Production of Proton Beams of Various Energies Inside the Synchrocyclotron Chamber at Intermediate Energies

Fig.

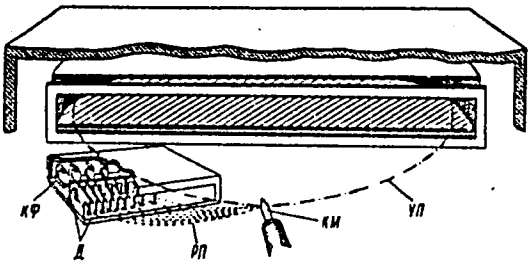

Figure caption: КМ - wedge target; УП - main beam; РП - scattered protons; Д - slits; КФ - emulsions

Card 3/4

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

S/120/61/000/001/003/062
E032/E114

Production of Proton Beams of Various Energies Inside the Synchrocyclotron Chamber at Intermediate Energies

ASSOCIATION: Nauchno-issledovatel'skiy institut yadernoy fiziki MGU (Scientific Research Institute of Nuclear Physics, MGU)

SUBMITTED: December 10, 1959

Card 4/4

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

VASIL'YEV, S.V.

Action of nitrogen tetroxide on crotonic acid. Zhur.ob.khim. 30 no.10:3412-3414 O '61. (MIRA 14:4)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii
(Crotonic acid) (Nitrogen oxide)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

VASIL'YEV, S.V.; ZHURAVLEVA, A.A.; KOSTOMAROVA V.L.; VASIL'YEV, G.S.

Action of nitrogen tetroxide on dibenzalacetone. Zhur.ob.khim. 30 no.10:3414-3416 O '61. (MIRA 14:4)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii.
(Nitrogen oxide) (Pentadienone)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

KHORIN, Vasiliy Ivanovich, kand.ekonom.nauk; VASIL'YEV, S.S., red.; PAVLOVA, A.S., red.izd-va

[The turnover of consumers' cooperatives in the postwar period] Tovarooborot potrebitel'skoi kooperatsii v poslevoennyi period. Moskva, Izd-vo TSentrosoiuza, 1959. 134 p. (MIRA 13:8)
(Cooperative societies)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

Inversion of heats of melting of powders by various methods. [illegible] and S. S. Vasil'ev. *J. Phys. Chem.* (U. S. S. R.) 2, 827-9(1931). - Data on florida heated for various times show a reverse order of heat effect toward various MeOH-H_2O mixts.

F. H. Rathmann

METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

PROCESSES AND PROPERTIES INDEX

CO

4

Catalytic influence of mercury vapor on the cracking of methane by means of glow discharge. N. I. Kobosev, S. S. Vasil'ev and E. E. Gal'braith. *Compt. rend. acad. sci. U. R. S. S.* 2, 200-40(in German 241-3)(1935).—Electrodes of Al, Cu, Zn, Pb or Fe cracked CH_4 to yield 1.5% C_2H_4 and C_2H_2. Hg electrodes gave 5.2% unsatd. hydrocarbons and heated Hg electrodes, 14%. Amalgam (2% Na) electrodes reduced the yield to less than 1%. CH_4 was passed through the 20-cm. tube at 20 l. per hr. at 100 mm. The electrodes were 20 cm. apart and the current was 12-15 m a. F. H. Moser

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

PROCESSES AND PROPERTIES INDEX

The kinetics of the oxidation of sulfur dioxide solutions. S. S. Vasil'ev, L. I. Kashtanov and T. L. Kastorskaya. *Acta Physicochim. U. R. S. S.* 3, 413-34 (1935) (in German); *J. Phys. Chem.* (U. S. S. R.) 7 (in press) (1936).—When air bubbles through a soln. of SO_2 in H_2O, the SO_2 is removed from soln. at a rate given by the equation $dc/dl = r_3 s - r_1 c$, where c is the concn. of SO_2 in soln., s the concn. in the gas-phase bubbles, l the height of the soln. through which the bubbles pass, and $r_1 = 0.1$ and $r_3 = 0.0018$, are absorption and desorption consts., resp. The rate of oxidation of SO_2 solns. by an air stream at 15° is given by $\Delta = \delta/lc^x$, where δ = mols. oxidized, x is an exponent slightly less than unity and decreasing with increasing c, and Δ is a const. = 7.7. While c changes from 0.5 to 5×10^{-4} M the x decreases from 0.9 to 0.75 owing to insufficiency of O. On addn. of 0.01% $MnSO_4$ to the SO_2 soln. the value of Δ for a molar soln. is increased to 35.0 but x takes on much smaller values, decreasing from 0.6 to 0.2 over the same range. Math. analysis of the data indicates that the catalytic effect of $MnSO_4$ is due to the formation of an unstable intermediate compd. The *intensity of oxidation* is characterized by the function $r = r_2/(r_1 + a)$, where a is a rate const. for the oxidation reaction.

F. H. Rathmann

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

CA

2

A study of chain processes in the reaction between sulfur dioxide and ozone. I. Stoichiometry in the oxidation of sulfur dioxide with ozone in aqueous solution. S. S. Vasil'ev, M. V. Frolov, L. I. Kashtanov and T. I. Kastorskaya. *J. Gen. Chem.* (U. S. S. R.) 3, 140-54 (1935). Two series of expts. were made on the oxidation of SO_2 dissolved in H_2O with ozonized air. In one series, the concn. of O_3 in the air was const. (1.2%), while the concn. of SO_2 in H_2O varied (0.02, 0.1 and 0.5 N); in the other series, the concn. of SO_2 was const. (0.02 or 0.1 N), while the concn. of O_3 varied (from 0.018 to 4.2%). The "stoichiometric" coeff. η, defined as the number of mols. of oxidized SO_2 per mol. of O_3 used up, varied from 1 to 5, depending on the concn. of SO_2 (0.02-0.5 N), at an O_3 concn. of 1%. For each concn. of SO_2 there is a definite concn. of O_3 for which η is a max. This max. varied between 9 and 13, *i. e.*, it was 1 & 2 times as high as found by other workers. The high value of η leads to the assumption of a chain character of the reaction involved.

S. L. Madorsky

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3C

a-1

Thermodynamics of endothermic processes of nitrogen fixation. N. I. Kobosev, S. S. Vassiliev, and J. S. Kasarnovski (Acta Physicochim. U.R.S.S., 1936, 4, 245—262).—Equilibrium and energy relations have been calc. thermodynamically at 2000°, 3000°, and 3500° for the reactions $0{\cdot}5N_2+0{\cdot}5O_2=NO$ (a), $0{\cdot}5N_2+CO_2=NO+CO$ (b), $0{\cdot}5N_2+0{\cdot}5H_2+C=HCN$ (c), $0{\cdot}5N_2+0{\cdot}5C_2H_2=HCN$ (d), and $0{\cdot}5N_2+CH_4=HCN+1{\cdot}5H_2$ (e). The neglect of concomitant changes such as dissociation gives rise to serious errors, and the results obtained by Krase and Mackey (A., 1926, 1324) for (b) are considered to be incorrect. The reactions (c) and (d) give considerable yields of HCN and require little energy. The considerable yields of NO obtained in the glow discharge are connected with the low temp.

R. S. B.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3C

a-1

Reaction kinetics in electric discharges. S. S. Vassiliev, N. I. Kobosev, and E. N. Eljemin (Acta Physicochim. U.R.S.S., 1936, 5, 201—242).—The following discharge reactions have been subjected to kinetic analysis: the oxidation of N_2, the formation of O_3 and H, and the cracking of CH_4. The relation between the actual yield and the limiting energy yield and the influence of the power of the discharge are discussed. R. S.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

CA 2

Kinetics of reactions in electric discharges. S. S. Vasil'ev, N. I. Kobozev and F. N. Kremin. *J. Phys. Chem.* (U. S. S. R.) 7, 619-44(1936). The authors, applying the laws of chem. kinetics, discuss the theory of reactions, reaction velocities, course and yields as a function of discharge intensity and apply their ideas to data from the literature on the oxidation of NO, formation of ozone and of at. H and to the cracking of methane. It is shown that the energy distribution is different for thermal and discharge reactions, that the kinetic constants and the course of the reaction are functions of the power of the discharge. F. H. Rathmann

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

PROCESSES AND PROPERTIES INDEX

The equation of state of a gas. S. S. Vasil'ev. *J. Phys. Chem.* (U. S. S. R.) 7, 728-32(1936). Using the data of Ramsay and Young (*Phil. Trans.* A178, 85(1887)) for Et_2O vapors from 320° to 490°K., V. finds that the function $E = (RT - pV)V$ where $R = 841.680$ cm.³ atm./degree is not a function of V and is not a linear function of V but is given by $E = 10^{9.10}/T^{1.10}$ to within the exptl. error. The data of Battelle also lead to this equation.

P. H. Rathmann

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

BC

B-I-8

Oxidation of nitrogen in high-frequency glow discharge. [illegible] S. S. Vassiliev, and N. I. Kobrinov (J. Phys. Chem. Russ., [illegible], 8, 314—[illegible]).—The velocity coeffs. of formation and decomp. of NO, and the yield of NO per 1 kw.-hr. were measured at various frequencies [(50—2·7) × 10⁶ per sec.], powers (65—[illegible] watts), gas pressures (70—180 mm. Hg), and compositions of gas ([illegible]—79% of N_2). High-frequency discharge gives at small intensities a higher yield than does the low-frequency; at high intensities the order is inversed. J. J. B.

COMMON ELEMENTS

COMMON VARIABLES INDEX

MATERIALS INDEX

OPEN

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

AUTHOR INDEX

1ST AND 2ND LETTER

3RD AND 4TH ORDERS

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

CA

2/

Application of catalysts and ozone in the water purification of flue gases from sulfur dioxide. S. S. Vasil'ev, L. I. Kashtanov, T. L. Kastorskaya and O. G. Nemkova. *Novosti Tekhniki* **1936**, No. 58-9, 12-13.—A soln. of Mn salts (0.1%) used for the absorption of SO_2 results in a 25% H_2SO_4 soln. This may be explained by the formation (under certain conditions) of an active form of catalyst. The action of O_3 in the process of SO_2 oxidation depends on the ratio of its concn. to that of SO_2. At equal concn. one mol. of H_2SO_4 is formed per mol. of O_3, and if there is a high excess of SO_2 then 15-20 mols. of H_2SO_4 is formed per mol. of O_3. This is explained by the chain reaction between O_3 and SO_2. The formation of an active form of the catalyst is probably promoted by O_3.

A. A. Podgorny

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

4

Preventing the formation of aluminum carbide in the electrolytic production of aluminum. S. Vasil'ev. *Novosti Tekhniki* 6, No. 23, 3(1937); *Chem. Zentr.* 1938, II, 3737.—The formation of Al carbide is promoted by an excess of NaF in the electrolyte and very definitely repressed when AlF_3 predominates. Carbide formation is accelerated by elevated temps. The carbide formed in the cell can be decompd. by blowing air or O_2 through it

M. G. Moore

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

Nitrogen oxidation in the high-frequency glow discharge. I. E. N. Eremin, S. S. Vasil'ev and N. I. Kobozev. *Acta Physicochim. U. R. S. S.*, 6, 317-70(1937); cf. following abstr. —An investigation of the kinetics of N_2 oxidation in a high-frequency discharge (2.7×10^6 Hz) showed that the effective energy of discharge at 2.7×10^6 Hz frequency, 70 watts and 180 mm. pressure is more than 3 times greater than the effective energy of a 50-Hz discharge of the same power. A comparison of the action of the wattage of the discharge on A_0, the formation const., A_1, the diseorn. const. and a, the energy output, a, for high and low frequency showed a peculiar "inversion" of the effective energy of the high-frequency discharge. With lower power the effectiveness of the high-frequency discharge is greater; with high power, on the contrary, the effectiveness of the low frequency discharge is greater. Reduction in pressure shifts the "inversion" point toward the side of the higher power. Contrary to previous data, a change in gas compn. exerts the same action for different frequencies. The phenomenon of "inversion" was found to hold for all gas compns. investigated. M. McMahon

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

Influence of the current density on the yield of acetylene in electrical cracking of methane. S. S. Vasil'ev, S. I. Kolosov and E. N. Eremin. Akim. Tverdogo Topliva 8, 75-80(1937).—A criticism of the above paper.
A. A. Podgorny

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

Nitrogen oxidation in a high-frequency glow discharge. II. E. N. Eremin, S. S. Vasil'ev and N. I. Kobozev. *J. Phys. Chem.* (U. S. S. R.) 6, 48-61; *Acta Physicochim. U. R. S. S.* 6, 531-54(1937); cf. preceding abstr. —At from 70 to 190 mm. pressure and 70 w., a high-frequency (2.7×10^8 Hz) discharge is 3 times as efficient as a 50-Hz discharge. Above 90 w., the low-frequency discharge is the more effective. A comparison of the effects of $2.7 \times$, $5 \times$, $7 \times$ and 10×10^8 Hz frequencies shows that the effect is the same in all cases and hence not due to chem. resonance effects. No difference in effect was observed when either internal or external electrodes were used. At higher wattages the max. yield is obtained at higher relative concns. of O_2. Electron temp. as detd. from the spectra of the discharges is higher at 70 w. high frequency than at low frequency and is higher at low wattage than at high wattage, and higher at low pressure than at high pressure.

F. H. Rathmann

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

2

The kinetic mechanism of the chain oxidation of sulfur dioxide in solution by ozonized air. S. S. Vasil'ev, L. I. Kashtanov and T. L. Kastorskaya. *J. Phys. Chem.* (U. S. S. R.) 10, 320-41(1937). The chain lengths for the reaction $SO_2 + H_2O + O_3 \rightarrow H_2SO_4 + O_2$ involving the stages S_2O_7, $H_2S_2O_8$ and H_2SO_5 vary from 1.05 for 1.32% O_3 and 3.0% SO to 1.7 for 0.63% and 2.0% and to 16 for 0.04% and 2.0%. In the equation $W = \nu - 1 \cdot \theta$, where ν = chain length, θ = ratio SO_2 to O, $W = 0.30$ for the reaction as given above or catalyzed by Mn salts (0.01%). The reaction is unimol. with respect to ozone. In strong H_2SO_4 the reaction is accelerated 3-4 times. Ozone in low concns. can be successfully used to convert SO_2 to H_2SO_4.

F. H. Rathmann

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

2

The activation process during reactions in electric discharges. I. N. I. Koboarev, S. S. Vasil'ev and E. N. Kremin. *J. Phys. Chem.* (U. S. S. R.) 10, 543-67 (1937).—Theoretical and mathematical. The nature and use of the energy of elec. activation, the nature of the actual mols. produced, the kinetics of "elec. catalysis," the probability of energy transfer by "collisions of the second kind" as based on spectroscopic studies of nitrogen oxidation in an elec. discharge, are considered from the point of view of elucidating the relations between the rate of reaction, intermediate elementary processes, and the energy balance of the discharge. The exptl. data available indicate that theories based on ions as the active intermediate agents are not tenable; a mechanism involving pulsating excited mols. similar to active mols. is proposed. The difference between elec. and thermal catalysis and activation is that in the former Maxwellian energy distribution does not exist, activation catalysis taking place by energy transfers by "collisions of the second kind" between normal mols. and recombining ions and electron-excited mols. F. H. Rathmann

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

9C

a-1

Coagulating action of alcohols on protein solutions and the Traube rule. S. S. VASSILIEV. (Acta Physicochim. U.R.S.S., 1938, 9, 942—962).—The coagulating action of various alcohols on solutions of ovalbumin (I) has been investigated, using MeOH as a standard of comparison. The coagulating effect increases with increase in mol. wt. of the alcohol, thus following Traube's rule. Kruyt and Jong's theory of protein coagulation is adversely criticised as a general theory, although it may be valid under certain conditions. The first stage in coagulation is adsorption of alcohol on the surface of the protein micelle; the second stage is concerned with changes in the micellar structure, which are irreversible in the case of (I). C. R. H.

COMMON ELEMENTS

MATERIALS INDEX

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

AUTHOR INDEX

1ST AND 2ND LETTER

2ND LETTER

3RD AND 4TH ORDERS

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

PROCESSES AND PROPERTIES INDEX

RC

A-1

Activation process in reactions in electric discharges. II. N. I. Kobosev, S. S. Vassiliev, and E. N. Eremin (J. Phys. Chem. Russ., 1938, 11, 45—60; cf. A., 1936, I, 205).—Oxidation of N_2 is discussed. The electric energy supplied to the discharge apparatus is chiefly spent in (a) heating the electrodes, (b) light emission by excited mols., (c) ineffective excitation of O_2, and in (d) deactivation of active N_2 mols.; the remaining energy (e) is used for NO synthesis. The energy loss (a) explains the increase of the yield of NO per erg supplied with increasing distance between the electrodes. The loss (c) is partly responsible for the dependence of the NO yield on the ratio $[O_2]:[N_2]$, the yield increasing with that ratio at high c.d. and high pressures and decreasing with it at low c.d. and low pressures. Calculation of the energy (e) shows that the activation energy has a normal val.; hence the active mols. in the discharge are of the same kind as those in thermal reactions.

J. J. B.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

A correction to the article "Activation process during reactions in electric discharges." N. I. Kobozev, S. S. Vasil'ev and E. N. Eremin. *J. Phys. Chem.* (U. S. S. R.) 11, 880(1938); cf. *C. A.* 32, 508[7], 8250[1]. The calcn. of the spectrum appearing during the oxidation of N should be corrected to read: "To the emission energy of 1 e. v. corresponds the wave length 12,340 A. The continuous spectrum found during the elec. oxidation of N is distributed at 200 mm. Hg into the region of 5000-6000-A. wave lengths." After a further discussion K., V. and E. come to the conclusion that the difference between the full activation energy of N mols., calcd. from the wave lengths of the continuous spectrum, and the energy transferred during the collisions of "the second kind" can be regarded as the thermal energy of activation whose quantity lies in the limits from 4.27 3.2 = 1.07 e. v. = 24,600 cal./mol. to 3.86 3.05 = 0.21 e. v. = 4830 cal./mol.

W. R. Henn

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

Ca

2

Kinetics of the decomposition of nitric oxide in the electric discharge. A. L. Shneerson and S. S. Vasil'ev. *J. Phys. Chem.* (U. S. S. R.) 13, 1249-59(1939).—By use of pressures from 260 to 760 mm. Hg and currents from 100 to 250 ma., it was found that the elec. decompn. is a first-order reaction whereas the thermal decompn. is second order. The energy of activation is nearly that obtained in the thermal reaction and differs considerably from the value obtained from the ionization potential. Conclusion: The discharge and the thermal dissocns. differ not as regards the nature of the active mols. but only as to the means of obtaining them, in accord with the Eremin-Vasil'ev-Kobozev theory of energetic catalysis (cf. *C. A.* 30, 2474[5], 7980[7]; 32, 6556[8,9]). F. H. Rathmann

COMMON ELEMENTS

COMMON VARIABLES INDEX

OPEN

MATERIALS INDEX

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

MATERIALS INDEX

AUTHOR INDEX

1ST AND 2ND LETTER

3RD AND 4TH ORDERS

2ND LETTER

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

CA

2

Equation of state of gases. II. S. S. Vasil'ev. *J. Phys. Chem.* (U. S. S. R.) 14, 1139-42(1940); cf. C. A. 30, 6254[4].—From exptl. data on the p, v, T relations for diethyl ether at temps. from 100 to 225° and pressures up to 300 atm. it is found that the modified van der Waals equation $(RT - pv)v = a - bRT - (b^2RT/v)$ is satisfied for the individual isotherms with the values of $a \times 10^{-6}$ and b: 568, 7.28 at 100°, 438, 5.00 at 150°; 332, 3.11 at 190°; and 326, 2.99 at 223.25°. F. H. Rathmann

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

ca

2

New form of the van der Waals' equation applicable to compressed and very dense gases. S. S. Vasil'ev. *J. Phys. Chem.* (U.S.S.R.) 18, 260(1944).—The proposed equation is of the form $\left[p + \frac{a}{v(v+c)}\right] \cdot (v + c) = RT$ where a is a linear function of the temp. and c is a pos. const. For isopentane, $c = 4.10$, $a = 2704.9 \times 10^3 - 9801.3t$, for Et_2O, $c = 3.18$, $a = 2817.8 \times 10^3 - 9822.7t$.

F. H. Rathmann

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

VASIL'YEV, S. S.

PA 18T77

USSR/Chemistry - Hydrocarbon Oils
Chemistry - Electrochemistry

Jun 1946

"A Kinetic Analysis of the Conversion of Methane to Acetylene and Hydrogen by Electrocracking," S. S. Vasil'yev, 22 pp Chair Physico Chem., Lab. Catalysis & Gaseous Electro-Chem, Moscow State U.

"Zhur Fiz Khim" Vol XX, No 6

Chemical formula and description of process used. Point is made that the experiments conducted enabled the observer to measure the output of the unsaturated compound under any given condition.

18T77

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

CA

3

Generalized formula for the calculation of effective electronic collisions in the electric discharge. S. S. Vasil'ev (Moscow State Univ.). *Vestnik Moskov. Univ.* 5, No. 3, *Ser. Fiz.-Mat. i Estest. Nauk* No. 3, 53-8(1950).—An Arrhenius-type formula is derived for the no. Z_{ej} of effective collisions between electrons and mols. per unit length of the discharge, $Z_{ej} = Z\, a_{ej}\, \sigma_{ej}\, e^{-\varepsilon_j/kT_e}$, where Z = total no. of "gas-kinetic" collisions per unit length of the discharge zone, ε_j = excitation potential. The factor a_{ej} is a function of $x = kT_e/\varepsilon_j(\eta-1)$, where η is defined by $E_m = \eta\, \varepsilon_j$, i.e. η is the proportionality factor between ε_j and the electronic energy at max. excitation; $\eta = 2$ is only a special case. In the case of excitation of the higher electronic levels, $x \to 0$, and $a_{ej} = [f_{ej(m)}]/(\eta - 1)$, where f_{ej} = excitation function; on the other hand, at very high T_e, the factor $a_{ej} \to 0$. The factor σ_{ej} allows for the effect of chain and stepwise processes in the discharge zone.

N. Thon

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

CA

Energy balance and fixed energy distribution function in the physicochemical processes in electrical discharges
S. S. Vasil'ev (Lomonosov State Univ., Moscow). *Zhur. Fiz. Khim.* 24, 1107-21(1950).—An interpretative review. The analytical math. derivations verify previous work. 19 references. Paul W. Howerton

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

CA

4

Kinetic analysis of chemical processes in electric discharge. S. S. Vasil'ev (Moscow State Univ.). *Vestnik Moskov. Univ.* 6, No. 8, *Ser. Fiz.-Mat. i Estestven. Nauk* No. 5, 79-96(1951). -(1) With the contact time t of a chem. reaction in a flow through an elec. discharge, defined as the reciprocal $t = 1/c$ of the feed rate c (l./hr.), the rate of formation of NO from $N_2 + O_2$ is formulated $dx/dt = k_0 - k_1 x$, where x = vol. fraction of NO in the outgoing gas, k_0 is the zero-order rate const. of formation, k_1 the 1st order rate const. of decompn. of NO. The correctness of 1st order kinetics of decompn. of NO in an elec. discharge, contrary to the 2nd order in thermal decompn., is borne out by agreement with exptl. data (see below). Without NO being added in advance, the integrated equation is $x = (k_0/k_1)(1 - e^{-k_1 t})$, with previous addn. of a vol. fraction x_0 of NO, $x = (k_0/k_1)(1 - e^{-k_1 t}) + x_0 e^{-k_1 t}$. At equil., at $t \to \infty$, $x = k_0/k_1 = x_\infty$. The const. k_1 can be detd. by varying τ and measuring the corresponding x, by $k_1 = \tau \ln [x_\infty/(x_\infty - x)]$. One series of expts. with τ varying from 0 to 135 l./hr. gave x varying from 5.8 to 1.5 vol. %, and k_1 (av.) = 41 l./hr. While the values of k_1 and k_0 vary with the type and conditions of the elec. discharge, the validity of the above kinetic equations is confirmed by plotting x/x_∞ as a function of $k_1 \tau$, which gives one single curve, $x/x_\infty = 1 - e^{-k_1/\tau}$, irrespective of the type of the discharge. A plot of the data of Shneerson and Vasil'ev (*C.A.* 35, 309[9]), in the form of x as a function of t, shows a merger of the NO formation and decompn. curves into a common stationary x_∞. Agreement between the exptl. points and the theoretical kinetic curves is obtained only with a 1st-order decompn. law for NO. (2) Cracking of CH_4 in elec. discharge can be described by the 3 reactions: $2CH_4 \to C_2H_2 + 3H_2$, $2CH_4 \to C_2H_4 + 2H_2$, $CH_4 \to C + 2H_2$. The total cracking degree is defined by $\Delta = (c_0 - c)/c_0$, where c = vol. fraction of CH_4, the fraction of decompd. CH_4 converted into unsatd. hydrocarbons is $\sigma = 2c_2/(c_0 - c)$, where c_2 = vol. fraction of unsatd. hydrocarbons relative to the initial vol. of gas. The yield of C_2H_2 is $\gamma = [C_2H_2]/c_2$. If, as usual, $\gamma \approx 1$, the vol. fraction c_2' of unsatd. hydrocarbons in the outgoing gas is $c_2' = (c_0/2)[\Delta\sigma/(1 + c_0\Delta)]$. Experimentally, and in contrast to the 2nd order thermal cracking of CH_4, the cracking in an elec. discharge is 1st order. Hence, $dc/dt = (k_1 + k_2 + k_3)c = k_1'c$ (as, experimentally, $k_1 \gg k_2$) and $-dc_2/dt = -\frac{1}{2}k_1 c + k_2 c$, the subscripts refer to (k_1) $CH_4 \to (C_2H_4 + C_2H_2)$, ($k_2$) $CH_4 \to C + H_2$, (k_3) $(C_2H_4 + C_2H_2) \to C + H_2$. Integration gives $c_1 = \frac{1}{2}c_0(1 - e^{-k_1 t})e^{-k_1 t}$, and, with the exptl. fact $k_1 \gg k_2$. Finally $c_2 = \frac{1}{2}c_0(1 - e^{-k_1 t})e^{-k_1 t}$, an equation typical of consecutive reactions. On account of $\Delta = 1 - e^{-k_1 t}$ and $\sigma = e^{-k_1 t}$, the final concn. of unsatd. hydrocarbons is $c_2' = \frac{1}{2}c_0(1 - e^{-k_1 t})e^{-k_1 t}[1 + c_0(1 - e^{-k_1 t})]$, i.e. passes through a max. as a function of t, this is confirmed by expt. The max. of c_2' is the result of superposition of the increase of Δ and the decrease of σ with time. The curves of Δ as a function of k_1/τ, and of σ as a function of k_2/τ, are independent of the type and the condition of the discharge. (3) Experimentally, both in $N_2 + O_2$, and in cracking of CH_4, the rate const. k of any reaction in elec. discharge is proportional to the length l of the discharge zone, $k = rl$, where r is the rate const. per unit length. In a spherical discharge vessel, as long as its diam. is not too different from the diam. of the visible discharge zone, and at not too low a pressure, k_2 for $N_2 + O_2$ and k_1 for CH_4 are independent of the diam. of the vessel. This means that practically all the gas fed passes through the discharge zone. (4) In terms of the compn. of the gas, the "limiting energy yield" defined by $\sigma = k_0/U$ (moles/kw. hr.), where U =

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

power input, passes through a max. lying on the excess N_2 side under low pressures (130 mm.), and on the excess O_2 side under higher pressures (560 mm.). This shift of the max. rate of formation of NO is characteristic of the reaction in elec. discharge; as in the thermal formation of NO max. yield corresponds to a stoichiometric mixt. In the case of the cracking of CH_4, previous diln. with H_2 decreases the decompn. rate const. k_1 in such a way that the product k_1c_1 (c_1 = initial concn. of CH_4 in the $CH_4 + H_2$ mixt.) remains approx. const.; Δ calcd. with the mean k_1c_1 is in good agreement with the exptl. Δ. The constancy of k_1c_1 in electrocracking parallels the constancy of $k_1c_1^2$ in thermal cracking of CH_4. (5) As a function of the c.d. i of the elec. discharge, the rate const. per cm. length of the discharge zone, k_1c_1/l, for the cracking of CH_4, increases rapidly and linearly with i. For the formation of NO, k_1/l increases with i much more slowly, and only so at low i, and then becomes very nearly independent of i. (6) Empirically, in electrocracking of CH_4 under 60–100 mm., $\epsilon_1 = k_1c_1/i = 0.7 + 0.14\ W - 0.0014\ W^2 = 0.0039\ i$, where ϵ_1 is expressed in l.hr./cm.^{3}, the power input W in w./cm., and i in ma. The ratio $\lambda = k_1/k_2$ is, empirically, ~ 3.4. These relations permit calcn. of the fraction of unsatd. hydrocarbons in the outgoing gas, when i, W, l, and c_1 are given, and also calcn. of the energy expenditure A in kw. hrs./cu.m. of unsatd. hydrocarbons. A decreases with increasing i or W, attaining 6.2 kw.hr./cu.m. The thermochem. energy consumption being 4.8 kw.hr./cu.m. C_2H_2, the efficiency of electrocracking is about [illegible] %. (7) For NO, the formation rate const. k_2 increases from 30 to 89 with the frequency increasing from 50 to 2.7 × 10^6 cycles (at equal W = 70 w., pressure 180 mm.), whereas the decompn. rate const. k_1 increases only from 12 to 17. Consequently, the increase of the amt. of NO formed is faster at high frequency. The effect of variation of the N_2/O_2 ratio is the same at high as at low frequency. The higher efficiency of high-frequency discharge holds only at low W; at high W the order of efficiencies is reversed. (8) Thus

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

SEREBRYAKOV, S.V., prof., doktor ekonom.nauk; GOGOL', B.I., dotsent; LIFITS, M.M., prof.; FEFILOV, A.I., dotsent; KISTANOV, Ya.A., dotsent; GENKINA, L.S., dotsent; VASIL'YEV, S.S., dotsent; DNEPROVSKIY, S.P., prof.; PIROGOV, P.V., dotsent; SMOTRINA, N.A., dotsent; KULIKOV, A.G., dotsent; KUZIN, N.I., dotsent; PISKUNOV, V. red. ; MUKHIN, Yu., tekhn.red.

[Economics of Soviet commerce] Ekonomika sovetskoi torgovli; uchebnoe posobie. Moskva, Gos.izd-vo polit.lit-ry, 1959. 478 p. (MIRA 12:12)

(Russia--Commerce)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

sics held in Tbilisi 14-22 Feb 1964/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v.29, no.1, 1965, 181-185

TOPIC TAGS: proton scattering, aluminum, nuclear spectroscopy, spin, parity, excited state

27

Card 1/4

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

SOURCE: Moscow, Universitet, Vestnik, Seriya 3, Fizika, astronomiya, no. 1,

TOPIC TAGS: proton scattering

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

ACCESSION NR: [illegible]

[illegible] were measured at a scattering angle of 90° in the laboratory frame, in the energy interval 6.15--6.7 MeV. The experimental data were processed in the manner described in the earlier [illegible]

ASSOCIATION: NIIYaF

SUBMITTED: 01Apr64 [illegible] SUB CODE: NP

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

VASIL'YEV, S. S.

FA 248T13

USSR/Chemistry - Reaction Kinetics Jul 52

"Kinetic Analysis of Chain Reactions: I. Kinetics of Chain Reactions Which Take Place With the Assistance of One Kind of Intermediate Active Particles," S. S. Vasil'yev, Inst of Light Industry imeni L. M. Kaganovich, Moscow

Zhur Fiz Khim, Vol 26, No 7, pp 1024-1035

This work aims at applying the methods of chem kinetics to an analysis of the general principles of chain reactions. It also strives to set up mathematical relationships characterizing these reactions, so as to compare results obtained by other

(1) 248T13

researchers in this field. The author states that N. A. Shilov's eqs determine the fundamental form of mathematical relations which describe the kinetics of chain reactions. He criticizes N. N. Semenov for not recognizing the connection between Shilov's fundamental eq and the partial processes which determine the development of the chain reaction. Generalized kinetic consts made apparent the fundamental connection between the different values which can be applied for the characterization of chain reactions. The author applied the method for calcg the "kinetic constant of diffusion" of active particles against the walls of a reaction container. This permitted a generalization of all

(2) 248T13

calcs of kinetics of chain reactions, and evaluation of the possible role which processes that take place at the walls of reaction containers will play in the creation of new active particles.

(3) 248T13

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

1. VASIL'YEV, S. S.

2. USSR (600)

4. Chemical Reaction - Velocity

7. Analysis of kinetics of chain reactions. Part 2
Kinetics of chain reactions taking place with the aid of several kinds of intermediate active particles.
Zhur. fiz. khim. 26 no. 8, 1952

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

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

VASIL'YEV, S. S.

242T5

USSR/Chemistry - Electrochemistry Nov 52

"Basic Elementary Processes and Physical Parameters Which Determine the Kinetics of Reactions in the Region of Electric Discharges," S. S. Vasil'yev, Moscow Technological Inst of Light Industry imeni L.M. Kaganovich.

"Zhur Fiz Khim" Vol 26, No 11, pp 1577-1590

The author offers a system of relationships unifying the various "basic" elementary processes which take place in the pos column of an elec discharge. Shows the connection between these processes and the basic phys parameters of the discharge, i.e. the current strength, the potential gradient, and the power of the discharge. Pays particular attention to the generalization of eqs of step-wise processes, whose significance is especially striking during great strengths of current. The author also shows the possibility of setting up a system of eqs permitting decision of the question regarding the concn of the excited mols in the region of discharge. This demonstrated to him the possibility of quantitatively connecting the rate of chem processes in a discharge with the elementary processes which take place in the region of the discharge and with the phys parameters of the discharge.

242T5

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

VASILYEV, S.S.

Corrections and remarks on "kinetic analysis of chain reactions." S. S. Vasil'ev. *Zhur. Fiz. Khim.* 27, 312 (1953); cf. *C.A.* 47, 5771f.—A no. of corrections are given along with a brief discussion of the integration of the kinetic equations that were developed. J. Rovtar Leach

Chem; Phys.

PM

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

VASIL'YEV, S. S.

USSR/Chemistry - Reaction Kinetics Jul 53

"Kinetic Analysis of Chain Reactions. III. General Integrals of Systems of Differential Kinetic Equations for the Initial Stages of Chain Reactions," S. S. Vasil'yev, Technol Inst of Light Industry im L. M. Kaganovich, Moscow

Zhur Fiz Khim, Vol 27, No 7, pp 1081-1089

Calcd the general integrals of non-uniform systems of differential kinetic eqs for the initial stages of chain reactions. On the example of one of the possible cases of a chain reaction, carried out a complete soln of the general integrals and plotted

271T15

the corresponding curves. These curves indicate interesting characteristics of the development of chain reactions. Noted the possibility that a chain process may take place when concn of active particles fluctuates during the time that this concn increases.

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

VASIL'YEV, S. S.

USSR/Chemistry - Chain Reactions, Reaction Kinetics Sep 53

"Kinetic Analysis of Chain Reactions. IV. Distribution of Active Particles in Space and Calculation of Kinetic Constants of Diffusion," S. S. Vasil'yev, Technol Inst of Light Ind im L. M. Kaganovich, Moscow

Zhur Fiz Khim, Vol 27, No 9, pp 1410-1419

Calcd values of the integrals of an inhomogeneous system of kinetic differential eqs for an arbitrary distribn in space of the initial centers at which

269T27

chain reactions originate. Found that under certain conditions this distribn remains const in the vessel during the course of the chain reaction, so that calcn of the diffusion of active particles into the reaction zones becomes very simple. Calcd kinetic consts of diffusion of active particles for various shapes of the reaction vessel.

269T27

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

VASIL'YEV, S.S.

2000

The principal kinetic equations of chain reactions. S. S. Vasil'ev. *Voprosy Khim. Kinetiki, Kataliza i Reaktsionnoi Sposobnosti, Akad. Nauk S.S.S.R.* 1955, 137-40.—A rigorous integration of systems of differential equations of chain reaction kinetics, in cases where the concn. changes of the reacting materials can be disregarded, was previously presented (*C.A.* 47, 5771*i*; 49, 5935*i*; preceding abstr.). The deduction of kinetic equations of chain reactions permits progressive increase in the concn. of active intermediate particles from the time of their generation until the drop in the concn. of the reacting substances can be disregarded. The kinetic curves of chain reactions may have entirely different forms at the initial moments, and these forms cannot be represented by any approximations. Special cases of general kinetic curves are discussed, and these cases may lead to the chain reaction kinetic equations formerly used. Differences between chain reactions and induced and conjugated reactions are shown not to be differences in principle. W. M. Sternberg

Chem

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

VASILYEV, S. S.

USSR/ Nuclear Physics

Card 1/2 Pub. 147 - 9/22

Authors : Vasilyev, S. S.

Title : Kinetics of molecule excitation with electromagnetic and mechanical waves. Part 1. Importance of free energy cyclization during the excitation of molecules in structural units

Periodical : Zhur. fiz. khim. 29/11, 2018-2030, Nov 1955

Abstract : It is shown that the kinetics of molecule excitation processes with electromagnetic waves in statistical and structural ensembles (concentration of molecules or atoms forms a structural ensemble), can be expressed by means of kinetic equations of a chain processes. It was found that a concentration of excited molecules, in statistical and structural ensembles in a

Institution : Technological Institute of Light Industry im. L. M. Kaganovich, Moscow

Submitted : January 26, 1955

Card 2/2 APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

Periodical : Zhur. fiz. khim. 29/11, 2018-2030, Nov 1955

Abstract : stationary state, can be represented by means of a very simple formula which includes the coefficients which take into consideration the effect of side energetic conversions in the molecules and macroscopic structural formations which concentrate or diffuse free radiation energy. Twelve references: 8 USSR, 3 Germ. and 1 USA (1933-1953).

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

SHEYNIS, Ye.S., assistent; VASIL'YEV, S.S., prof.

Dielectric properties of dry and moist leather in the frequency range from 50 to 6,000 kc. Izv.vys.ucheb.zav.; tekh.leg.prom. no.5:67-73 '58. (MIRA 12:2)

1. Moskovskiy tekhnologicheskiy institut legkoy promyshlennosti.
(Leather--Electric properties)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

AUTHORS: Vasil'yev, S. S., Selivokhina, M. S. 76-32-6-17/46

TITLE: The Kinetics of Electric Nitrogen Oxidation in the Auto--oscillating Discharge (Kinetika elektricheskogo okisleniya azota v avtokolebatel'nom razryade)

PERIODICAL: Zhurnal fizicheskoy khimii, 1958, Vol. 32, Nr 6, pp 1299-1303 (USSR)

ABSTRACT: Electric autooscillations in the discharge zone of radiofrequency discharges with a frequency of one Mc were recently described by V. I. Granovskiy and L. N. Bykhovskiy (Refs 1-2). In the present paper high-frequency auto-oscillations were investigated occurring in the zone of electric low-frequency discharges in air at pressures ranging from a few mm of mercury column to atmospheric pressure. The experimental arrangement for the observation of the autooscillations, the discharge tube and the oscillographs obtained are described. In connection with the latter it is noted that at identical ignition conditions sometimes autooscillations may be seen on the oscillographs and sometimes not. Moreover changes in the color and the intensity

Card 1/3

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

The Kinetics of Electric Nitrogen Oxidation in the Autooscillating Discharge 76-32-6-17/46

of the discharge spectrum can be observed at times. The evidence collected is assumed to give a proof for the earlier assumed theoretical conceptions that a possibility exists of the formation of actively bound oscillations of the electrons and optical mass elements. The results obtained and the experimental technique are described. It was observed among other things that a rise of the velocity and of the energy production of the process of electric oxidation of nitrogen corresponds to the formation of autooscillations. Detailed pertinent data are given. There are 9 figures, 1 table, and 7 references, 7 of which are Soviet.

ASSOCIATION: Tekhnologicheskiy institut legkoy promyshlennosti, Moskva (Moscow Technological Institute of Light Industry)

SUBMITTED: January 29, 1957

Card 2/3

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

The Kinetics of Electric Nitrogen Oxidation in the Autooscillating Discharge 76-32-6-17/46

1. Nitrogen--Oxidation 2. Electric discharges---Oscillation 3. Oscillations --Theory

Card 3/3

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

5 (4)

AUTHOR: Vasil'yev, S. S.

SOV/74-28-6-1/5

TITLE: Successes in the Investigation of Intermediate Reactions at the Photosynthetic Process of Carbohydrates (Uspekhi v issledovanii promezhutochnykh reaktsiy protsessa fotosinteza uglevodov)

PERIODICAL: Uspekhi khimii, 1959, Vol 28, Nr 6, pp 647 - 668 (USSR)

ABSTRACT: The present paper tries to compile the most important results of investigation of intermediate reactions which together constitute the process of photosynthesis. The problem of photosynthesis can be divided into several part problems: 1) Mechanism of the "primary action" during which the absorption of light takes place and the absorbed energy is stabilized; 2) mechanism of processes which take place during the "obscure stage" of photosynthesis; 3) the amount of efficiency of light for the photosynthesis; 4) the particularities of absorption of light quantums by chlorophyll molecules. At present, the "obscure stage" is the problem worked out in the best way. These investigations are also of great importance for the explanation of the primary action, as they show the molecules

Card 1/4

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

forming during the primary action and being most important for the conversion of carbonic acid into carbohydrates. The mechanism of reactions taking place during the dark stage of the photosynthesis was primarily investigated on the basis of papers by Calvin and his collaborators (Refs 10-12). But also many other authors have been concerned with this problem (Refs 13-21). The reactions of the obscure stage can be represented by a somewhat simplified scheme (Ref 15):

$$3C_5 + 3CO_2 \rightarrow 6FGK$$

$$6FGK \xrightarrow[12[H]]{6ATF} 6C_3$$

$$2C_3 \rightarrow C_6$$

$$C_6 + 2C_3 \rightarrow C_5 + C_7$$

$$C_7 + C_3 \rightarrow 2C_5$$

$$3CO_2 \xrightarrow[12[H]]{9ATF} C_3 + 3H_2O$$

Card 2/4

FGK - 3-phosphoglyceric acid, ATF - adenosintriphosphate.

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

Successes in the Investigation of Intermediate Reactions at the Photosynthetic Process of Carbohydrates SOV/74-28-6-1/5

Many papers are dedicated to processes such as reduction, oxidation, phosphorylation, and hydrating, which are connected with the primary action (Refs 16, 18-20, 22-37). In the present survey, only a few of the papers on the mechanism of photosynthesis published in special publications are named. But they are of great importance for the introduction into the theory of intermediate reactions of photosynthesis. The above-mentioned part problems of the efficiency of the photosynthetic apparatus of green plants, as well as the analysis of particularities of the absorption of light by chlorophyll, are not considered. The number of papers on intermediate reactions of photosynthesis is steadily growing. The data published in these papers (Refs 38-50) are most contradictory. This is due to the circumstance that the process of photosynthesis is presumably a reaction which is closely connected with other biochemical processes in the organism of plants, and which can proceed in different ways. This shows that much work will have to be done to clarify the still unsolved prob-

Card 3/4

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

Successes in the Investigation of Intermediate Reactions at the Photosynthetic Process of Carbohydrates SOV/74-28-6-1/5

lems of photosynthesis. There are 7 figures, 1 table, and 50 references, 25 of which are Soviet.

ASSOCIATION: Moskovskiy tekhnologicheskiy in-t legkoy promyshlennosti (Moscow Technological Institute of Light Industry)

Card 4/4

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

5 (4)

AUTHOR: Vasil'yev, S. S. (Moscow)

SOV/76-33-5-22/33

TITLE: Kinetic Analysis of Chain Reactions (Kineticheskiy analiz tsepnykh reaktsiy). 5. Transformation of the Form of Solutions of the Basic Equations for the Kinetics of Chain Reactions in the Case of Two Active Particles (5. Preobrazovaniye formy resheniy osnovnykh uravneniy kinetiki tsepnykh reaktsiy dlya sluchaya dvukh aktivnykh chastits)

PERIODICAL: Zhurnal fizicheskoy khimii, 1959, Vol 33, Nr 5, pp 1100-1110 (USSR)

ABSTRACT: In previous papers (Refs 1-4) a fundamental differential equation for the kinetics mentioned in the title was investigated. The development of the chain reaction from the moment of the start (t = 0) to a moment when the concentration decrease of the active particles may still be neglected is investigated in this paper. The coefficients s_1, s_2, r_{21}, r_{12} were used (s_1 and s_2 = the general monomolecular constants for the reaction of the particles 1 and 2 in any direction, r_{12} = = the general kinetic molecular constant for the origin of

Card 1/3

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

Kinetic Analysis of Chain Reactions. 5. Transformation SOV/76-33-5-22/33
of the Form of Solutions of the Basic Equations for the Kinetics of Chain
Reactions in the Case of Two Active Particles

particle 1 by reaction of particle 2, r_{21} = the constant for the inverse course of the reaction. The ratio of the constants r_{ij} to s_i, s_j $(i, j = 1,2)$ is expressed in dimensionless quantities as $\omega_{12} = \frac{r_{12}}{s_2}$; $\omega_{21} = \frac{r_{21}}{s_1}$. ω_{12} and ω_{21} represent the mathematical expectation of the occurrence of the respective reaction. Their product $\omega_{12}\omega_{21} = \omega$ is now introduced into the calculation. The kinetic equations obtained by determinant computation permit a direct determination of the effect of the formation rates, the initial concentration, and the reaction coefficients of the active particles on the temporal variation of their concentration. The cases $\omega < 1$, $\omega > 1$, and $\omega \longrightarrow 1$ are analyzed. With $\omega < 1$ the concentration of the active particles reaches stationary state (Formula 54), with $\omega > 1$ the linear concentration increase of the active particle is substituted by an exponential one

Card 2/3

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

Kinetic Analysis of Chain Reactions. SOV/76-33-5-22/33
5. Transformation of the Form of Solutions of the Basic Equations for the Kinetics of Chain Reactions in the Case of Two Active Particles

(Formula 56). With $\omega \longrightarrow 1$ the time of the occurrence of the states (54) and (56) becomes infinite. Thus $\omega \longrightarrow 1$ separates the range of the processes leading to stationary states from those proceeding with self-acceleration and may be considered the definition of the "lower limit" of chain reactions. With regard to separation of chain reactions into reactions with ramification and reactions without ramification it is stated that stationary states can also occur in the case of reactions with ramification if, e. g. $\omega_{12} > 1$, but $\omega_{21} \ll 1$, so that ω remains < 1. There are 8 references, 7 of which are Soviet.

ASSOCIATION: Tekhnologicheskiy institut legkoy promyshlennosti Moskva (Technological Institute of Light Industry, Moscow)

SUBMITTED: October 25, 1957

Card 3/3

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

VASIL'YEV, S.S.; KOMAROV, V.V.; POPOVA, A.M.

Decay reactions of carbon and oxygen nuclei induced by 15-29 Mev. protons. Zhur. eksp. i teor. fiz. 43 no.3:737-748 '62. (MIRA 15:10)

1. Institut yadernoy fiziki Moskovskogo gosudarstvennogo universiteta.
(Nuclear reactions) (Protons)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7

[illegible], V.M., Kand. [illegible], [illegible]: [illegible], [illegible], [illegible] Phisicheskikh nauk, [illegible].

Kinetics of the evaporation of [illegible] mixture [illegible] solution of nitrous [illegible]. Nauk. [illegible] '63. [illegible]

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001858910020-7"