"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5

L 8593-66

ACCESSION NR: AP5019896

ASSOCIATION: None

SUBMITTED: 08Apr65 ENCL: 01 SUB CODE: BS, EM

NR REF SOV: 004 OTHER: 004

Card 2/3

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5

L 8593-66
ACCESSION NR: AP5019896

ENCLOSURE: 01

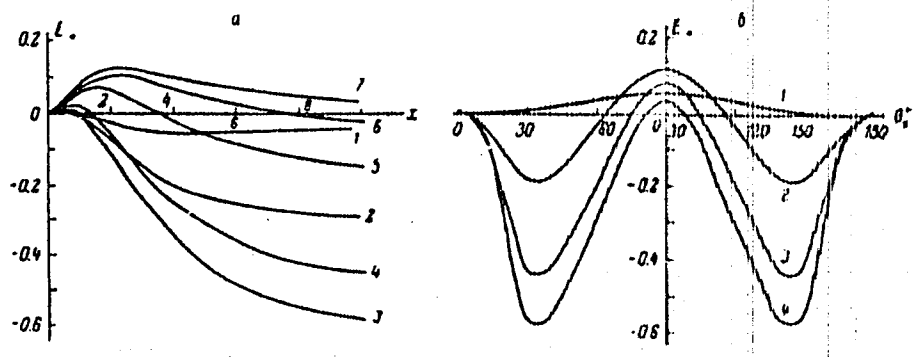

Fig. 1. Dependence of photomagnetic effect (arbitrary units) on x (left) and on the angle θ (right) for different values of the angle and of x.

jw
Card 3/3

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5

L 36385-66 EWT(1) IJP(c) SOURCE CODE: UR/0056/66/050/004/1107/1123

ACC NR: AP6014052

B

53

AUTHOR: Kagan, Yu.; Zhernov, A. P.

ORG: none

TITLE: Theory of the electric conductivity of metals with nonmagnetic impurities

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 50, no. 4, 1966, 1107-1123

TOPIC TAGS: electric conductivity, atom, electron scattering, phonon spectrum, temperature dependence, metal impurity, impurity scattering

ABSTRACT: A theory is developed for the electric conductivity of metals with impurities. It consistently takes into account the deformation of the phonon spectrum occurring with the introduction of impurity atoms and also the arbitrary variations in the electron scattering amplitude on a separate ion. The impurity part of the resistance for the complete temperature range was found. It was shown that in the low temperature range, the electron scattering on the oscillating impurity ion leads to the appearance of the term $\sim T^7$. Interference between scattering on an impurity ion and on a perturbed phonon spectrum leads to the term $\sim T^4$ and scattering on a deformed phonon spectrum leads to the term $\sim T^5$. At low impurity concentrations all these terms are proportional to the concentration. Greater temperatures of the impurity resistance produce a number of anomalies, especially in the case of heavy impurity atoms when a quasi-local level appears. At high temperatures, the impurity

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"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5

L 22130-66 EWT(1) IJP(c) WW/GG

ACC NR: AP6004945 SOURCE CODE: UR/0056/65/050/001/0271/0280

AUTHOR: Kagan, Yu.;

ORG: none

TITLE: Change in the resonance nuclear parameters during scattering by regular systems

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 50, no. 1, 1966, 271-280

TOPIC TAGS: nuclear resonance, nuclear scattering, compound nucleus, nuclear energy level, resonance line, line width, crystal lattice, elastic scattering, inelastic scattering

ABSTRACT: This is a sequel to an earlier investigation (ZhETF, Pis'ma v. 2, 130, 1965), dealing with the case of scattering by an isolated nucleus. Since the resonance parameters can be significantly altered in scattering from regular systems of identical nuclei, especially in the case when it is impossible to point to the individual nucleus responsible for the scattering, and the excitation of the resonance level or the formation of the compound nucleus have a collective character, the article is restricted to the case when the nuclei in the system are assumed

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L 22130-66

ACC NR: AP6004945

to have low lying resonance levels and to comprise a one-dimensional chain of identical nuclei. It is shown that if the nuclei form a regular one-dimensional chain or a two-dimensional array, then the elastic width and the position of the resonance level are noticeably changed. The change in the width is connected with the lifetime of the collective excitation of the state of the system of nuclei. The lifetime of such a state, and accordingly the width, can be either larger or smaller than the lifetime (width) of the isolated excited state. In the case of a three-dimensional crystal, the elastic width disappears completely and the energy dependence of the resonance interaction is determined only by the inelastic width. In the presence of spin in the ground state of the nucleus, and when an appreciable role is played by inelastic phonon scattering, the width takes an intermediate value between the inelastic width and the total width. The authors are grateful to A. I. Baz' for a valuable discussion. Orig. art. has: 2 figures and 36 formulas.

SUB CODE: 20/ SUBM DATE: 13Aug65/ ORIG REF: 004/ OTH REF: 002

Card 2/2 BK

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5

L 46925-66 EWT(1)/EWT(m)/T/EWP(t)/ETI IJP(c) JD
ACC NR: AP6015457 SOURCE CODE: UR/0181/66/008/005/1402/1416

39
B

AUTHOR: Brovman, Ye. G.; Kagan, Yu.

ORG: none

TITLE: Phonon spectrum of the white tin lattice

SOURCE: Fizika tverdogo tela, v. 8, no. 5, 1966, 1402-1416

TOPIC TAGS: tin, phonon spectrum, Mossbauer effect

ABSTRACT: A systematic study is made of the dynamic problem of lattice oscillations within the framework of the Born-Karman model. Use is made of all force constants in the complete dynamic oscillation matrix for the first three coordination spheres; it is assumed that the interaction with the 4th, 5th, and 6th coordination spheres can be approximated for each sphere by one central and one noncentral force constant. Dispersion curves along three symmetric directions, the function phonon spectrum frequency distribution, heat capacity and Debye temperature, and probability of the Mossbauer effect are in good agreement with experimental data. Values of heat capacity at $T >$ $> 100°K$ and of probability of Mossbauer effect at $T > 200°K$ higher than those calculated are explained by anharmonism. Theoretical curves of anisotropy of Mossbauer effect compares favorably with experimental data (errors are indicated); value of anisp-

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KAGAN, Yu. B.

10

Synthesis of olefinic and paraffinic hydrocarbons of iso structure, containing a quaternary carbon atom. II. Reaction between the hydrobromide of 1,1,3-trimethylbutadiene and alkylmagnesium halides. R. Ya. Levina and Yu. B. Kagan. *J. Gen. Chem.* (U. S. S. R.) 11, 523-6(1941).—On the basis of previous work (C. A. 35, 5862[8]) the authors conclude that the hydrobromide of 1,1,3-trimethylbutadiene (I) is 1,1,2,3-tetramethylallyl bromide (II), i.e., a tertiary bromide readily reactive with RMgX. In order to confirm this structure of I, its reaction with MeMgI was investigated. The reaction was carried out analogously to the previously reported reaction with cyclohexylmagnesium chloride. A 30% yield of a hydrocarbon (III) was isolated, b_{760} 102-4°, n_D^{20} 1.4130, d_4^{20} 0.7191; these consts. are close to the known values for 2,4,4-trimethyl-2-pentene (IV). Ozonization of III in $CHCl_3$ yielded acetone (isolated as the peroxide) and Me_2CCO_2H, thus further confirming the identity of III and IV. Catalytic hydrogenation of III yielded 2,4,4-trimethylpentane, which was identified by the phys. consts. and the Raman spectrum. The information thus collected proves the identity of I and II. The reaction between I and RMgX should be a convenient prepn. method for satd. and unsatd. hydrocarbons of iso structure and contg. a quaternary C atom, this is especially true for relatively little studied isoparaffins, $Me_2CHCH_2CMe_2R$. By this reaction between I and EtMgBr there was prepd. *2,4,4-trimethyl-2-hexene*, b_{760} 132°, n_D^{20} 1.4244, d_4^{20} 0.7437, its hydrogenation (platinized charcoal) gave *2,4,4-trimethylhexane*, b_{760} 129-30°, n_D^{20} 1.4081, d_4^{20} 0.7396. Reaction of I with PrMgBr gave *2,4,4-trimethyl-2-heptene*, b_{760} 152.5-53.5°, n_D^{20} 1.4307, d_4^{20} 0.7560, hydrogenation of the latter yielded *2,4,4-trimethylheptane*, b_{760} 151-2°, n_D^{20} 1.4143, d_4^{20} 0.7346.

G. M. Kosolapoff

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5

KAGAN, Yu. B.

27

*819. **Synthesis of α,β-Dichlorethyl-Alkyl Ethers and Their Transformations.** (In Russian.) M. F. Shostakovskii, Iu. B. Kagan, and F. P. Sidel'kovskaia. *Journal of General Chemistry* (U.S.S.R.), v. 17(79), May 1947, p. 957-966.

Conditions are described for the chlorination of vinyl ether in order to obtain dichlorethyl alkyl ethers. Methods are worked out for the preparation of chloroacetals, by chlorination of vinyl ether in the presence of water or in a mixture with butyl alcohol. 15 ref.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5

Use of the differential thermocouple for kinetic measurements. Yu. B. Kagan and A. N. Bashkirov (Inst. Combustible Minerals Acad. Sci. U.S.S.R., Moscow). *Izvest. Akad. Nauk S.S.S.R., Otdel. Tekh. Nauk* 1948, 349–58.—(1) On the assumption that the temp. difference between a catalyst on which a chem. reaction is taking place, and an inert substance placed in the same tube, is proportional to the rate of evolution (or absorption) of heat of reaction, hence proportional to the rate of the reaction, recording of the deflections φ of the galvanometer connected with the differential thermocouple (Balandin and Patrikeev, *C.A.* 39, 858[5]) supplies a method of detn. of the reaction velocity dx/dt, provided the proportionality factor η in $\varphi = \eta\,(dx/dt)$ is sufficiently independent of the temp. Fulfillment of the latter condition, involving practical temp. independence of the heat of reaction, of the sum of heat capacities, and of the heat conductance, was tested experimentally on the oxidation of Cu on a Kieselguhr carrier at 245° and at 80°; whereas at 245° oxidation is complete, its degree at 80°, calcd. on the assumption η = const. (between 80 and 245°), was 27.37% as against 26.79% by analytical detn., consequently, the assumption η = const. is permissible. The general procedure for kinetic measurements involving a solid consists in plotting φ against the time t; the area limited by the axis of abscissas, the curve and the ordinates φ_1 and φ_2 (at times t_1 and t_2) $= \eta\,(x_2 - x_1)$ where x = amt. of solid reacted. Integration from $t = 0$ to t gives the area ηx. The concn. of the gas in the reaction zone being const., the rate of reaction (unless limited by the penetration of O_2 through a surface oxide film) $dx/dt = k\,(a - x)$, or $\varphi = k\eta\,(a - x)$. In the case of a first-order reaction, the plot of φ against ηx is a straight line; its slope gives the rate const. k, the base of the triangle is $= \eta a$ (a = initial amt.). The error due to loss of heat is immaterial provided the temp. difference does not exceed that for which Newton's law of cooling is valid, and the total heat capacity, heat cond., and the heat of reaction are practically const. in the given temp. range. (2) Expts. were made on Cu prepd. by mixing 100 ml. kieselguhr with 2.5 g. Cu (as salt) in 75 ml. H_2O, pptn. with KOH at 100°, washing with hot H_2O, drying and granulating to cylinders 2–3 mm. long, and heating 1.5 hrs. at 700°; the thermocouple was disposed between 5 ml. of the catalyst and 5 ml. of glass cylinders, sepd. by mica, placed in the same tube of 2 cm. diam. The catalyst was reduced to Cu by H_2 at 6.5 l./hr. at 245°. Oxidation at 245° with a dry gas mixt. of 2.5% O_2 + 97.5% N_2, at 6 l./hr., was complete in 46 min.; further passage of air caused no deflection of the galvanometer. On successive oxidations of the same catalyst, following repeated reductions, the integrals corresponding to ηx increased regularly (e.g. 197, 210, 234 sq. cm.), indicating increasing activity of the Cu catalyst. At 80°, in an air stream at 6 l./hr., the reaction came to a halt after 11 min., further passage of air causing no change of φ. From the total area ηx, read on the φ (t) plot, as compared with the area corresponding to 100% oxidation (at 245°), the degree of oxidation at 80° was 27.37% of the Cu present (that oxidized at 245°). (3) By the linearity of the plot of φ against the ηx detd. by readings at various stages, the reaction at 80° is of the first order, with $k = 0.66$ (time in min.).

N. Thon

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"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5

KAGAN, YU. B.

USSR/Chemistry - Esthers, Polymerization of Aug 48
Chemistry - Polymerization

"Significance of the Purity of Vinylalkyl Ethers on the Polymerization Process: Polymerization of Vinylbutyl Ether in the Presence of Oxygen-Containing Organic Compounds," M. F. Shostakovskiy, F. P. Sidel'kovskaya, Yu. B. Kagan, Inst Org Chem, Acad Sci USSR, Lab of Vinyl Compounds, 6½ pp

"Zhur Obshch Khimii" Vol XVIII (LXXX), No 8

The degree of polymerization of vinylalkyl esters, and, other things equal, the process of polymerization, depends mainly on purity of original ether. Oxygen-containing compounds -- alcohols, aldehydes, ketones and acetals -- found in commercial vinylalkyl ethers give rise to peroxide effect and reduce degree of polymerization of polyvinylalkyl ether formed. Mechanism of breaking of polymerization chains by alcohols is combination with initial vinylalkyl ethers or their polymers and formation of corresponding acetals. Submitted 20 Dec 45.

PA 19/49T27

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5

KAGAN, Yu. B.

USSR/Chemistry - Synthesis
Chemistry - Bonds

Jan 49

"Synthesis of Aliphatic and Paraffin Hydrocarbons: VI, Diene Hydrocarbons in the Synthesis of Olefin Hydrocarbons with the Double Bond in the Center," R. Ya. Levina, V. R. Skvarchenko, Yu. B. Kagan, Ye. G. Treshchova, Lab of Org Chem imeni N. D. Zelinskiy, Moscow State Ord of Lenin U, 6 1/2 pp

"Zhur Obshch Khim" Vol XIX, No 1

In the reaction between allyl halides and organomagnesium compounds used for preparing 1-alkenes, the double bond causes an exchange of the halogen for a radical. In present study, 1,4-dichloro-2-butene and its bromine and analogue, prepared by halogenation of 1,3-butadiene, reacted with methylmagnesium bromide or iodide. Both halogens of these compounds were substituted by methyls theoretically forming 10% 3-hexane in the case of dibromide and up to 40% in the case of dichloride; 1,3-butadiene was formed as a by-product. The 1,2-dichloride of butadiene undergoes an allyl rearrangement to a 1,4-compound, and subsequently forms an alkene with the double bond in central position.
Submitted 29 Oct 47

58/49T42

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5

KAGAN, [illegible]

26933. BASHKIROV, A. N., [illegible], [illegible], KAGAN, [illegible]. - Kyoprosu i mekhanizme sinteza liglevodoro dov iz okisi ugleroda i vodoroda. Doklady akad nauk SSSR, [illegible] seriya, t. LXVII, No 6 194[illegible], S. 1029-31.

SO: Letopis' Zhurnal'nykh Statey, Vol. 36, 1949

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5

KAGAN, Yu. B.

The mechanism of the synthesis of hydrocarbons from carbon monoxide and hydrogen. A. M. Rubinshtein, Yu. B. Kryukov, Yu. B. Kagan, and I. V. Kalechits. Trans. Inst. N.-Kh. Akad. Nauk-G.S.S.R. 1, No. 2, 100-22(1950); [illegible] 45, 780 g. Further evidence is pre- [illegible]

were 27.9, 34.4, 72.4, and 65.0 [illegible] 5, resp. Since H_2O is not observed on a product on Fe catalysts the velocity ($V_{(1)}$) of reaction III is greater than or equal to the velocity ($V_{(2)}$) of reaction III. The velocities of these reactions were studied directly on Fe catalysts [illegible]

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(100:10:5:2:5.5:100). Contraction depressions (%) found [illegible]

C14

Mechanism of the synthesis of hydrocarbons from carbon monoxide and hydrogen. A. N. Bashkirov, Yu. B. Kryukov, and Yu. B. Kryukov. *Doklady Akad. Nauk S.S.S.R.* 78, 275-6(1951).—The assumption (cf. *C.A.* 45, 9415h) that the primary act in the Fischer-Tropsch synthesis is $CO + 2H_2 \rightarrow CH_2 + H_2O$, and not $2CO + H_2 \rightarrow CH_2 + CO_2$, and that CO_2 is formed only as a result of the secondary reaction $CO + H_2O \rightarrow CO_2 + H_2$, was confirmed directly by flow expts. in which a very short contact time prevented the secondary reaction from taking place to any appreciable extent in one single pass, and the H_2O formed in each pass was removed by condensation between passes in repeated recirculation. The expts. were conducted with a $CO:H_2$ = 1:2 mixt. at 300° under 20 atm., at a gas(sic) space velocity of 180,000 l./l. catalyst/hr.; practically complete conversion was ensured by repeated recycling, with the fresh gas admitted at the rate of 44 l./hr. Under these conditions, 200 l. gas gave, after several hrs., liquid hydrocarbons 22.6 g./cu. m., gaseous hydrocarbons ($C_3 + C_4$) 41.2, CH_4 100.0, H_2O 252.2 g./cu. m., and no CO_2. This result excludes the direct reaction $2CO + H_2 \rightarrow CH_2 + CO_2$ and demonstrates that on Co, Ni, and Fe catalysts alike, CO_2 is formed only through a secondary reaction between CO and H_2. N. Thon

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"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5

KAGAN, YU. B.

Chemical Abst.
Vol. 48 No. 9
May 10, 1954
Organic Chemistry

Role of oxygen-containing compounds in the synthesis of hydrocarbons from carbon monoxide and hydrogen. Yu. B. Kagan, Yu. B. Kryukov, E. V. Kuzmolkina, and A. N. Bashkirov. *Bull. Acad. Sci. U.S.S.R., Div. Chem. Sci.* 1952, 601-6(Engl. translation).—See *C.A.* 47, 3216g.
H. L. H.

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5

KAGAN, Yu. B.

USSR/Chemistry - Synthetic Liquid Fuels Jul/Aug 52

"The Role of Oxygen-Containing Compounds in the Synthesis of Hydrocarbons From Carbon Monoxide and Hydrogen," Yu. B. Kagan, Yu. B. Kryukov, Ye. V. Kamzolkina, A. N. Bashkirov, Petroleum Inst, Acad Sci USSR

"Iz Ak Nauk SSSR, Otdel Khim Nauk" No 4, pp 649-657

Article states that results of the expts described show that alcs cannot be regarded as intermediate products in the synthesis of hydrocarbons, and that iron catalysts, under the conditions of hydrocarbon

229T16

synthesis, accelerate the oxidation of alcs and aldehydes. Advances hypotheses explaining the formation of oxygen-contg compds (by-products of hydrocarbons).

229T16

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"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5

KAGAN, Yu. B.

Oxidation of iron catalysts by water vapor in hydrocarbon synthesis. A. N. Bashkirov, Yu. B. Kagan, Yu. B. Kryukov, R. M. Fedorovich, and [illegible]. *Trudy Inst. Nefti, Akad. Nauk S.S.S.R.* 4, 151-8(1954).—Fe catalysts gradually lose their activity by the action of water vapor formed during the synthesis of hydrocarbons from CO and H (ratio 1:1) at 280° and av. pressure. The rate of Fe oxidation depends on the oxidation and reduction reactions which take place during the synthesis. Inactivation of Fe catalysts is due to the formation of FeO.

M. Charmandarian

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Kagan, Yu. B.

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REGAN, Yu. B.

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"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5

BASHKIROV, A.N.; KAGAN, Yu.B.; LOKTEV, S.M.; MOROZOV, N.G.

Use of iron ore catalysts in the synthesis based on carbon monoxide and hydrogen. Trudy inst. nefti. 10:234-246 '57. (MIRA 11:4)

(Catalysts) (Hydrocarbons)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5

BASHKIROV, A.N.; KAGAN, Yu.B.; KOKTEV, S.M.; SHCHEKIN, V.V.; GOL'DIN, S.A.; MOROZOV, N.G.

Activating characteristics of molten iron catalysts used in the synthesis based on carbon monoxide and hydrogen, and reduced at high temperatures. Trudy inst. nefti. 10:247-261 '57. (MIRA 11:4)

(Catalysts) (Hydrocarbons)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5

KAGAN, Yu.B.; BASHKIROV, A.N.; ZVEZDKINA, L.I.; ORLOVA, N.A.; KLIGER, G.A.

Influence of reduction conditions on the properties of molten iron catalysts used in alcohol synthesis from carbon monoxide and hydrogen. Trudy inst. nefti. 10:262-268 '57. (MIRA 11:4)
(Alcohols) (Carbon monoxide) (Hydrogen)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5

KAGAN, Yu.B.; BASHKIROV, A.N.; KRYUKOV, Yu.B.; LOKTEV, S.M.

Formation of the active surface of fused iron catalysts for synthesis from CO and H_2. Khim i tekh. topl. i masel 3 no.3: 14-22 Mr '58. (MIRA 11:3)

1. Institut nefti AN SSSR.
(Catalysts) (Iron oxides) (Hydrocarbons)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5

KALAN, Yu. B.

AUTHORS: Bashkirov, A. N., Kagan, Yu. B., Kliger, G. A. 62-58-4-21/32

TITLE: **Composition of Products Obtained by the Synthesis of** Amines of Carbon-, Hydrogen- and Ammonia Monoxide (Sostav produktov sinteza aminov iz okisi ugleroda, vodoroda i ammiaka)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Otdelenie Khimicheskikh Nauk, 1958, Nr 4, pp. 504-506 (USSR)

ABSTRACT: Already earlier the authors realized the synthesis of the alkyl amines of CO and ammonia in the presence of molten iron catalysts. The synthetizing products obtained contained up to 25% aliphatic amines. Furthermore a perfection of the used catalysts was carried out. A stable, active and rather selective catalyst was found. In the presence of the catalyst the authors synthetized on most favorable conditions: from 1 m^3 12o,o grams of synthesis products (without water). Of these were 54,o% alkylamines (3o% of which in liquid and 21,o% in gas state). Tables 1-4 give information on the results of the elementary analysis of some

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"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5

The Composition of the Synthetization Products of the Amines of Carbon-, Hydrogen- and Ammonia Monoxide 62-58-4-21/32

fractions of the destillation and the physical constants of some fractions.
There are 4 tables and 12 references, 3 of which are Soviet.

ASSOCIATION: Institut nefti Akademii nauk SSSR (Petroleum Institute, AS USSR)

SUBMITTED: November 1o, 1957

AVAILABLE: Library of Congress

1. Catalysts--Synthesis--Study and teaching

Card 2/2

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5

AUTHORS: Kagan, Yu. B., Bashkirov, A. N., SOV/62-58-10-19/25
Kryukov, Yu. B., Loktev, S. M., Orlova, N. A.

TITLE: On the Mechanism of the Catalytic Efficiency of Fused Iron Catalysts in the Synthesis of CO and H_2 (O mekhanizme kataliticheskogo deystviya plavlenykh zheleznykh katalizatorov sintesa iz CO i H_2)

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1958, Nr 10, pp 1274 - 1275 (USSR)

ABSTRACT: In an earlier paper the authors showed that immediately after the reduction (by hydrogen at 1000°) fused iron catalysts in the hydrocarbon synthesis of CO and H_2 are not active any more. Only under the working conditions of the synthesis when the gas mixture $CO+H_2$ is passed through the catalyst gradually becomes active (for 10-20 hours). This phenomenon may be explained by a number of simultaneous reactions competing with each other. Due to the course of these reactions competing with each other the metallic iron regenerates often (under the conditions of the synthesis) from its

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"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5

On the Mechanism of the Catalytic Efficiency of Fused Iron Catalysts in the Synthesis of CO and H_2 SOV/62-58-10-19/25

compounds, and at the surface of the operating catalyst the dynamic equilibrium of the surface phases of different chemical structure is obtained. As a consequence of these processes the activation of the catalyst occurs. Neither the iron itself nor compounds that might be formed from it are the reason for the activation of the catalyst surface. The hypothesis formed for the chain mechanism of the catalytic efficiency of iron catalysts (according to which the synthesis of CO and H_2 is caused by the reactions of carbon and hydrogen monoxide with iron and its compounds on the surface of the operating catalyst) was described in detail by the authors. There are 1 table and 1 reference, which is Soviet.

ASSOCIATION: Institut nefti Akademii nauk SSSR (Petroleum Institute AS USSR)

SUBMITTED: April 8, 1958

Card 2/2

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5

KAGAN, Yu. B.

5(3); 11(4) PHASE I BOOK EXPLOITATION SOV/2021

Akademiya nauk SSSR. Institut nefti

Trudy, t. 12 (Transactions of the Petroleum Institute, USSR. Academy of Sciences, Vol 12) Moscow, Izd-vo AN SSSR, 1958. 395 p. Errata slip inserted. 1,700 copies printed.

Ed.: S. R. Sergiyenko, Professor; Ed. of Publishing House: K. G. Miyasserov; Tech. Ed.: V. V. Golubeva.

PURPOSE: The book is intended for scientists, engineers, and technicians in the petroleum industry.

COVERAGE: This collection of articles describes the results of studies on the chemistry and technology of petroleum and gas conducted in the laboratories of the Petroleum Institute, Academy of Sciences, USSR, in 1956 and 1957. A new section "Petrochemical Synthesis and Technology of Petroleum" has been included in the collection of articles. A list of investigations published by the associates of the Institute in 1956 and 1957 and a list of dissertations for the Doctor's and Candidate's degrees presented in 1956 and 1957 at open sessions of the Academic Council of the Petroleum Institute, Academy of Sciences, USSR, are given.

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APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5

5(2) SOV/156-59-1-42/54

AUTHORS: Bashkirov, A. N., Kamzolkina, Ye. V., Kagan, Yu. B.

TITLE: On Catalysts of the Reactions of the Decomposition of Carbon Monoxide (O katalizatorakh reaktsiy razlozheniya okisi ugleroda)

PERIODICAL: Nauchnyye doklady vysshey shkoly. Khimiya i khimicheskaya tekhnologiya, 1959, Nr 1, pp 162 - 165 (USSR)

ABSTRACT: For the systematic investigation of the influence of catalysts on the reactions: 1) $2\ Fe + 2\ CO \rightarrow Fe_2C + CO_2$, and 2) $2CO \rightarrow C + CO_2$, melted iron catalysts with activating additives (Al_2O_3, SiO_2, K_2O, Cr_2O_3, B_2O_3, MoO_3, V_2O_5 MgO, MnO, and combinations thereof), as employed in the synthesis Co+H, were investigated. The results are listed in a table. Carbide formation (reaction 1) and reaction 2 were accelerated by Al_2O_3 and V_2O_3. K_2O accelerates only reaction 1. MoO_3 is ineffective, Cr_2O_3, FeCr, and in particular SiO_2 and B_2O_3 exercise inhibitory effects. With several additives to the catalyst, the properties have, as a rule, a cumulative effect.

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On Catalysts of the Reactions of the Decomposition of Carbon Monoxide SOV/156-59-1-42/54

Only FeCr, which, when added exclusively, inhibits the reaction, increases the reaction velocity in the presence of other additives. Thus an iron catalyst with kaolin (as an SiO_2 vehicle), K_2O and FeCr showed the highest reactivity. In this case, even B_2O_3 inhibits only reaction 2. A further test series concerned industrial iron catalysts, which were also given additives. The table of the results shows that also in this case the same rules apply. There are 2 tables and 1 Soviet reference.

ASSOCIATION: Kafedra neftekhimicheskogo sintesa i iskusstvennogo zhidkogo topliva Moskovskogo instituta tonkoy khimicheskoy tekhnologii im. M. V. Lomonosova (Chair of Petroleum-chemical Synthesis and Artificial Liquid Fuels of the Moscow Institute of Fine Chemical Technology imeni M. V. Lomonosov)

SUBMITTED: October 6, 1958

Card 2/2

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5

SOV/62-59-7-34/38

5(3)

AUTHORS: Kagan, Yu. B., Bashkirov, A. N., Kliger, G. A., Yermakov, Yu. I.

TITLE: Transformation of n-Butyl Amine Under Synthesis Conditions From Carbon Oxide and Hydrogen (Prevrashcheniye n.butilamina v usloviyakh sinteza iz okisi ugleroda i vodoroda)

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1959, Nr 7, pp 1345 - 1346 (USSR)

ABSTRACT: It had been found in previous investigations that when synthesizing n-butyl amine from CO, H_2 and NH_3 in the presence of iron catalysts, di- and trialkyls are formed in addition to monoalkyl amines. Moreover, the formation of the di- and trialkyls was found to be dependent in the course of reaction by the facilitated reacting possibility of primary amines with oxygen-containing products from the hydrogenation of the carbon oxide (alcohols, aldehydes, etc). The conclusion was drawn therefrom that the secondary and tertiary amines may be obtained from CO, H_2, and the primary amine, here n-butyl amine. This conclusion is submitted to examination in the

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Transformation of n-Butyl Amine Under Synthesis Conditions From Carbon Oxide and Hydrogen SOV/62-59-7-34/38

present paper. The synthesis conditions were the same as in references 1 and 2. A molten iron catalyst was also used in the investigation. The amines obtained were potentiometrically titrated. The following was investigated in the course of synthesis: the influence exerted by the amine addition rate upon the catalyst, by temperature, pressure, and the ratio CO/H in the initial mixture on the yield and the products of the synthesis. The data obtained are specified in the table. It may be observed from the latter that secondary and tertiary amines may be actually obtained in the manner described, and that, by changing the conditions, the reaction may be directed to the production of either secondary or tertiary amines. Increase in the concentration of n-butyl amine and temperature leads to the predominant formation of secondary amine, dilution of hydrogen, low temperature, and slow addition of n-butyl amine on the catalyst for the formation of tertiary amine. Rising pressure increases the formation of the two amines. At 80-150° the largest percentage yield of secondary and tertiary amines is obtained (45%). The additionally obtained primary amine (50%) is caused by disproportionation. There are 1

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Transformation of n-Butyl Amine Under Synthesis Conditions From Carbon Oxide and Hydrogen SOV/62-59-7-34/38

table and 10 references, 7 of which are Soviet.

ASSOCIATION: Institut nefti Akademii nauk SSSR (Institute of Petroleum of the Academy of Sciences, USSR)

SUBMITTED: January 19, 1959

Card 3/3

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5

KAGAN, Yu.B.; BASHKIROV, A.N.; MOROZOV, N.G.; KRYUKOV, Yu.B.; ROZOVSKIY, A.Ya.

Hydrogenating capacity of fused iron catalysts in the synthesis from CO and H_2. Trudy Inst.nefti 13:167-179 '59. (MIRA 13:12)
(Catalysts) (Hydrogenation)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5

BASHKIROV, A.N.; LOKTEV, S.M.; KAGAN, Yu.B.; SABIROVA, G.V.

Hydrogenation of compounds containing a carbonyl group (over fused iron catalysts). Trudy Inst.nefti 13:180-195 '59. (MIRA 13:12)
(Carbonyl compounds) (Hydrogenation)
(Catalysts)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5

KAGAN, Yu. B.

S/193/60/001/002/006/010
B004/B067

AUTHORS: Kryukov, Yu. B., Bashkirov, A. N., Liberov, L. G., Butyugin, V. K., Stepanova, N. B., Kagan, Yu. B.

TITLE: Conversions of Iron Carbide Under the Conditions of the Synthesis of Hydrocarbons From Carbon Monoxide and Hydrogen

PERIODICAL: Kinetika i kataliz, 1960, Vol. 1, No. 2, pp. 274 - 281

TEXT: The present paper was presented at the All-Union Conference on Organic Catalysis in November 1959. The authors attempted to explain the part played by carbides as intermediate compounds in the synthesis of hydrocarbons. They used a standard iron catalyst with chromium admixture, which was reduced at 1000°C and activated at 300°C and 20 atm with the initial gas mixture $CO + H_2$ (1 : 1), which contained $C^{14}O$. The catalyst, enriched with radioactive iron carbide, was then treated with pure $CO + H_2$. The radioactivity of the products formed was then measured. The authors found that mainly the following reactions took place in iron

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Conversions of Iron Carbide Under the Conditions of the Synthesis of Hydrocarbons From Carbon Monoxide and Hydrogen

S/193/60/001/002/006/010
B004/B067

carbide (90%): hydrogenation to methane, exchange of C isotopes between CO and carbide. The rate of these reactions is low as compared to that of the synthesis reaction. Of 3000 CO molecules, only one exchanges its carbon; of 3000 CH_4 molecules, only five are formed by carbide hydrogenation. Hence, only 0.05% of the hydrocarbons with C > 1 was formed under the action of carbide. These data rebut the hypothesis according to which carbide products are intermediates in hydrocarbon synthesis from CO and H_2. There are 2 figures, 2 tables, and 22 references: 13 Soviet, 5 US, 1 British, and 3 German.

ASSOCIATION: Institut neftekhimicheskogo sintaza AN SSSR (Institute of Petrochemical Synthesis of the AS USSR)

SUBMITTED: January 23, 1960

Card 2/2

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5

S/195/60/001/003/008/013
B013/B058

AUTHORS: Kagan, Yu. B. Bashkirov, A. N., Kamzolkina, Ye. V., Loktev, S. M.

TITLE: On the Activation Process of Molten Iron Catalysts for for CO and H_2 Synthesis Under the Effect of the Reaction Mixture

PERIODICAL: Kinetika i kataliz, 1960, Vol. 1, No. 3, pp. 393 - 400

TEXT: The activation of molten iron catalysts for the hydrocarbon synthesis from CO and H_2 under the effect of the reaction mixture was studied in this paper. The following catalysts were used:

1) $100Fe_3O_4 + 6Al_2O_3 + 4.2SiO_2 + 1.2K_2O + 0.3Cr$;
2) $100Fe_3O_4 + 6Al_2O_3 + 4.2SiO_2 + 1.2K_2O + 0.5V$;
3) $100Fe_3O_4 + 6Al_2O_3 + 4.2SiO_2 + 1.2K_2O + 1.0B_2O_3$. They were reduced

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"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5

On the Activation Process of Molten Iron Catalysts for CO and H_2 Synthesis Under the Effect of the Reaction Mixture

S/195/60/001/003/008/013
B013/B058

within 1.5 hrs in hydrogen current at 1000°C. The study was made in a highpressure apparatus (Ref. 4) in the laboratory. For each of the catalysts studied, the lowest temperatures and pressures were initially chosen, at which, over the freshly and reduced catalysts (in comparable time intervals), a high degree of transformation of the carbon monoxide (84 to 86%) entering at a volume rate of the initial gas (CO and H_2 1 : 1) of $\sim$1500 h^{-1} was obtained. The catalysts were gradually activated under these conditions. The duration of the tests varied. The tests of catalysts of equal composition were conducted under the same conditions and in the same reaction vessel. The indices of the synthesis were well reproducible. The results determined could therefore also be compared with each other. The samples were hydrogenated after termination of the synthesis test. Subsequently, the hydrogenated samples were treated with CO at atmospheric pressure, a volume rate of 800 h^{-1} and temperatures by 10° higher than at the end of the synthesis test, with carbide being formed. The studies

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"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5

On the Activation Process of Molten Iron Catalysts for CO and H_2 Synthesis Under the Effect of the Reaction Mixture

S/195/60/001/003/008/013
B013/B058

the activation of the catalyst for the synthesis, its treatment at the synthesis temperature is suited best. In this case the catalysts get specially active, but simultaneously show a lower activity with regard to CO decomposition. There are 3 figures, 4 tables, and 6 Soviet references.

ASSOCIATION: Institut neftekhimicheskogo sinteza AN SSSR (Institute of Petrochemical Synthesis AS USSR)

SUBMITTED: January 19, 1960

Card 4/4

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5

KAGAN, Yu.B.; BASHKIROV, A.N.; KLIGER, G.A.

Amination of n-butanol over iron catalysts under hydrogen pressure.
Izv.AN SSSR Otd.khim.nauk no.3:468-473 Mr '61. (MIRA 14:4)

1. Institut neftekhimicheskogo sinteza AN SSSR.
(Butyl alcohol) (Amination)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5

KAGAN, Yu.B.; BASHKIROV, A.N.; KLIGER, G.A.; CHZHOU CHZHAO-DI [Chou Chao-ti]; MAK, N.Ye.

Reaction between octyl alcohols and ammonia under the hydrogen pressure on a fused iron catalyst. Neftekhimia 1 no.3: 403-410 My-Je '61. (MIRA 16:11)

1. Institut neftekhimicheskogo sinteza AN SSSR i Institut tonkoy khimicheskoy tekhnologii imeni Lomonosova.

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5

KAGAN, Yu.B.; BASHKIROV, A.N.; KLIGGER, G.A.; CHZHOU CHZHAO-DI [Chou Chao-ti]; MAK, N.Ye.

Effect of the molecular weight of alcohol on the process of its amination. Neftekhimiia 1 no.4:555-563 Jl-Ag '61. (MIRA 16:11)

1. Institut neftekhimicheskogo sinteza AN SSSR i Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni Lomonosova.

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5

KAGAN, Yu.B.; ROZOVSKIY A. Ya.; KRYUKOV, Yu.B.

Mechanism of the action of fused iron catalysts in the synthesis of organic compounds from CO and H_2. Kin. i kat. 2 no.1:55-60 Ja-F '61. (MIRA 14:3)

1. Institut neftekhimicheskogo sinteza AN SSSR.
(Carbon monoxide) (Hydrogen) (Catalysis) (Iron)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5

ROZOVSKIY, A.Ya.; BASHKIROV, A.N.; KAGAN, Yu.B.; POKROVSKAYA, Ye.G.

Water and water vapor oxidation of the iron catalysts for synthesis from CO and H_2. Kin.i kat. 2 no.6:830-837 N-D '61. (MIRA 14:12)

1. Institut neftekhimicheskogo sinteza AN SSSR.
(Carbon monoxide)
(Hydrogen) (Catalysts, Iron)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5

KAGAN, Yu.B.; BASHKIROV, A.N.; KLIGER, G.A.; ROZOVSKIY, A.Ia.

Certain problems involved in the microkinetics of amination of alcohols on fused iron catalysts. Neftekhimiia 2 no.2:253-256 Mr-Ap '62. (MIRA 15:6)

1. Institut neftekhimicheskogo sinteza AN SSSR.
(Alcohols) (Amination)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5

KLIGER, G.A.; BASHKIROV, A.N. LYUY GUAN-YUY [LÜ Kuang-yü]; LESIK, O.A.; BEZINGER, N.N.; KAGAN, Yu.B.

Method of analyzing products of reaction between aliphatic alcohols and alkyl amines. Neftekhimia 2 no.1:121-126 Ja-F '62. (MIRA 15:5)

1. Institut neftekhimicheskogo sintesa AN SSSR.
(Alcohols) (Amines)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5

KLIGER, G.A.; BASHKIROV, A.N.; LYUY GUAN-YUY [Lü Kuang-yü]; KAGAN, Yu.B.

Effect of the structure and molecular weight of initial compounds on the interaction of aliphatic alcohols with primary alkyl amines. Neftekhimiia 2 no.3:384-390 My-Je '62. (MIRA 15:8)

1. Institut neftekhimicheskogo sinteza AN SSSR.
(Alcohols) (Amines)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5

KAGAN, Yu.B.; BASHKIROV, A.N.; KLIGER, G.A.; LYUY GUAN-YUY [Lü Kuang-yü]

Synthesis of secondary alkyl amines from aliphatic alcohols and primary amines. Neftekhimiia 2 no.3:391-397 My-Je '62. (MIRA 15:8)

1. Institut neftekhimicheskogo sinteza AN SSSR.
(Amines) (Alcohols)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5

ROZOVSKIY, A.Ya.; BIRYUKOVICH, M.M.; IVANOV, A.A.; LIBEROV, L.G.; BUTYUGIN, V.K.; ~~KAGAN, Yu.B.;~~ KRYUKOV, Yu.B.; BASHKIROV, A.N.

Mechanism of the carbide-forming reaction of fused iron catalysts for synthesis from CO and H_2. Neftekhimiia 3 no.1:97-103 Ja-F '63. (MIRA 16:2)
(Iron catalysts) (Iron carbides)
(Chemistry, Organic—Synthesis)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5

ROZOVSKIY, A.Ya.; IVANOV, A.A.; KAGAN, Yu.B.; BASHKIROV, A.N.

Kinetics of reactions involving the solid phase. Part 2: Hydrogenation of iron carbides. Kin.i kat. 4 no.1:97-108 Ja-F '63. (MIRA 16:3)

1. Institut neftekhimicheskogo sinteza AN SSSR i Institut tonkoy khimicheskoy tekhnologii imeni M.V.Lomonosova.
(Iron carbides) (Hydrogenation)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5

ROZOVSKIY, A.Ya.; BIRYUKOVICH, M.M.; IVANOV, A.A.; KAGAN, Yu.B.; BASHKIROV, A.N.

Kinetics of reactions involving the solid phase. Part 3: Carbide formation in fused iron catalysts induced by carbon monoxide. Kin. i kat. 4 no.3:373-381 My-Je '63. (MIRA 16:7)

1. Institut neftekhimicheskogo sinteza AN SSSR.
(Carbides) (Iron catalysts)
(Chemical reaction, Rate of)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5

KLIGER, G.A.; BASHKIROV, A.N.; BEZINGER, N.N.; KAGAN, Yu.B.

Method for analyzing products obtained by the interaction of aliphatic alcohols with ammonia in the presence of hydrogen. Neftekhimia 1 no.3:397-402 My-Je '61. (MIRA 16:11)

1. Institut neftekhimicheskogo sinteza AN SSSR.

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5

LOKTEV, A.M.; KAGAN, Yu.B.

Selective catalytic hydrogenation of aliphatic oxygen-containing compounds under high pressures. Neftekhimiia 3 no.6:892-899 N-D '63. (MIRA 17:3)

1. Institut neftekhimicheskogo sinteza AN SSSR im. A.V.Topchiyeva i Novomoskovskiy khimicheskiy kombinat.

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5

PONOMARENKO, A.T.; KAGAN, Yu.B.; KAMZOLKIN, V.V.

Device for measuring gas consumption under high pressure. Khim. i tekh.topl. i masel 9 no.2:48-50 F '64. (MIRA 17:4)

1. Institut neftekhimicheskogo sinteza AN SSSR.

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5

ACCESSION NR: AP4024408 S/0204/64/004/001/0106/0110

AUTHOR: Kagan, Yu. B.; Bashkirov, A. N.; Kliger, G. A.; Lu, Kuang-yu

TITLE: Synthesis of secondary alkylamines from carbon monoxide, hydrogen and methylamine.

SOURCE: Neftekhimiya, v. 4, no. 1, 1964, 106-110

TOPIC TAGS: secondary alkylamine, synthesis, amination, process condition, reaction mechanism, methylalkylamine

ABSTRACT: Continuing earlier work (Yu. B. Kagan, A. N. Baskirov, G. A. Kliger, Yu. I. Yermakov. Izv. AN SSSR, Otd. khim. n. (1959), 1345), the interaction of CO, H_2 and methylamine to form secondary alkylamines was studied. Using a fused iron catalyst, the optimum synthesis conditions are 100-140 atmospheres pressure, 1250 hours^{-1}, volume flow of the initial gas mixture, a temperature of 168-175 C, and an H_2:CO:CH_3NH_2 ratio of 4:1:1.25. The yield of secondary amines was 77-78.5 mol.%. The product also contained small amounts of alcohols and carbonyl compounds, indicating the synthesis probably proceeded in two stages; (1) the formation of the oxygen-containing compounds from CO and H_2, (2) followed by

Card 1/2

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ROZOVSKIY, A. Ya.; BIRYUKOVICH, M.M.; IVANOV, A.A.; KAGAN, Yu.B.; BASHKIROV, A.N.

Kinetics and mechanism of the carbidizing treatment of iron catalysts for synthesis from CO and H_2. Neftekhimiia 4 no.2: 269-274 Mr-Ap'64 (MIRA 17:8)

1. Institut neftekhimicheskogo sinteza AN SSSR imeni Topchiyeva.

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5

VULAKH, Ye.L.; LOKTEV, S.M.; KAGAN, Yu.B.

Esterification of aliphatic alcohols with sulfamic acid. Neftekhimiia 4 no.5:780-788 S-O '64. (MIRA 18:1)

1. Institut neftekhimicheskogo sintesa imeni A.V.Topchiyeva AN SSSR i Novomoskovskiy khimicheskiy kombinat.

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"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5

KAGAN, Yu.B.; ROZOVSKIY, A.Ya.; SLIN'KO, M.G.; PONOMARENKO, A.T.

Kinetics of heterogeneous catalytic reactions as a function of ignition conditions. Part 2: Reaction of an arbitrary order. Kin.i kat. 5 no.6:1111-1114 N-D '64.

(MIRA 18:3)

1. Institut neftekhimicheskogo sintesa imeni Topchiyeva AN SSSR i Institut kataliza Sibirskogo otdeleniya AN SSSR.

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"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5

KAGAN, Yu.B.; ROZOVSKIY, A.Ya.; SLIN'KO, M.G.; PONOMARENKO, A.T.

Study of the kinetics of catalytic reactions based on the conditions of ignition. Part 1: Zero-order reactions. Kin. i kat. 5 no.5:920-926 S-O '64. (MIRA 17:12)

1. Institut neftekhimicheskogo sinteza imeni Topchiyeva AN SSSR i Institut kataliza Sibirskogo otdeleniya AN SSSR.

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5

KAMZOLKIN, V.V.; KRYUKOV, Yu.B.; KAGAN, Yu.B.

Prospective trend of the petroleum chemistry. Vest. AN SSSR 34 no.11:60-65 N '64. (MIRA 17:12)

1. Institut neftekhimicheskogo sinteza im. A.V. Topchiyeva AN SSSR.

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ASSOCIATION: Institut neftekhimicheskogo sinteza im. A. V. Topchiyeva AN SSSR

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"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5

KAGAN, S.Z.; KOVALEV, Yu.N.; KAGAN, Yu.B.; SPIROVA, N.A.

Studying the extraction of higher alcohols from their mixtures with hydrocarbons. Trudy MKHTI no.40:128-133 '62.
(MIRA 18:12)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5

KUTEPOVA, A.I.; GRISHKO, N.I.; KAGAN, Yu.B.; LOKTEV, S.M.; MAL'TSEVA, R.P.; SHTEKKER, O.A.

Preparation of phthalate plasticizers on the base of the wide fractions of C_5-C_{12} alcohols. Plast. massy.no.10:22-24 '65. (MIRA 18:10)

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5

KAGAN, Yu.L. (Moskva, B-108, Staromonetnyy per., d.22, kv.3); BAKULEVA, L.P., kand.med.nauk

Possibility of studying the contractile activity of the uterus and Fallopian tubes by roentgenokymography. Vest.rent.i rad. 34 no.5: 52-55 S-O '59. (MIRA 13:3)

1. Iz kafedry rentgenologii i radiologii (zav. - prof. V.A. D'yachenko) i kafedry akusherstva i ginekologii (zav. - prof. I.F. Zhordania) II Moskovskogo meditsinskogo instituta imeni N.I. Pirogova.
(UTERUS radiography)
(FALLOPIAN TUBES radiography)

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"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5

KHOMYAKOV, Yu.S. (Moskva, V-95, 2-y Kazachiy pereulik, d.3, kv.2);
KAGAN, Yu.L.

X-ray diagnosis of gastric burns. Vest.rent.i rad. 35 no.1: 3-6 Ja-F '60. (MIRA 13:6)

1. Iz kafedry rentgenologii i radiologii (zav. - prof. V.A. D'yachenko) II Moskovskogo meditsinskogo instituta imeni N.I. Pirogova.
(CAUSTICS)
(STOMACH wds. & inj.)

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"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5

SADOVSKAYA, I.A.; KAGAN, Yu.L.

Cleidocranial dysostosis diagnosed in a newborn infant. Pediatriia 38 no.10:75-77 O '60. (MIRA 13:11)

1. Iz rodil'nogo doma No.7 imeni Grauermana (glavnyy vrach Ye.I. Bulanova).
(DYSOSTOSIS)

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"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5

DEMIDKIN, P.N.; KAGAN, Yu.L.

First experience in using the new Soviet intensifying screens for roentgenography in obstetrical practice. Vop. okh. mat. i det. 7 no.3: 62-63 Mr '62. (MIRA 15:5)

1. Iz rentgenovskogo otdeleniya (zav. - kand.med.nauk P.N.Demidkin) Moskovskogo oblastnogo nauchno-issledovatel'skogo instituta akusherstva i ginekologii (dir. - zasluzhennyy vrach RSFSR O.D.Matspanova, nauchnyy rukovoditel' - prof. A.V.Lankovits).

(RADIOGRAPHY--EQUIPMENT AND SUPPLIES)
(OBSTETRICS)

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"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5

PROCESSES AND PROPERTIES INDEX

CA

3

Luminescence of ions in the positive column of a glow discharge. Yu. M. Kagan and S. R. Frish. *J. Exptl. Theoret. Phys.* (U.S.S.R.) 11, 286-9(1941).—The luminescence of A in a silent discharge current densities up to 55 amp./sq. cm. is illustrated for 7 lines of A I and 20 of A II by 4 figs. The intensity of the A II lines from 4000-5600 A. is proportional to the square of the d. of the discharge current. The discharge is considered as at the nonequilibrium limit relative to the excitation of ions. The intensity of the A I lines rapidly reaches satn. at around 20-25 amp./sq. cm. F. H. Rathmann

Physics Inst., Leningrad State U.

A.S.M.E. METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5

KAGAN, Yu. M.

"Spectroscopic Investigation of Ions in the Positive Column of a Glow Discharge," Zhur. eksper. i teoret. fiz., 12, No.9, 1942

Leningrad State U.

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5

CA

Spectroscopical investigation of ions in the positive column of a glow discharge. S. E. Frish and Ya. M. Kagan. *J. Phys.* (U. S. S. R.) 7, 208-14(1943)(in English).—Observations on the luminescence of a positive column of a glow discharge in A and Ne at large c. d. disclosed the appearance of spark lines along with the arc lines. A quadratic dependence was found for the intensity of the A II and Ne II lines on the strength of the discharge current. The dependence of the intensity of the A II lines on the pressure at a const. c. d. was also studied. By a study of the shape of the A I and A II lines it was established that the energy of the random motion of the ions in the discharge is of the order of 0.3 e. v., which is larger than the thermal energy of neutral atoms. With increase of the strength of the discharge current the difference between the energy of the atoms and that of the ions is diminished. The velocity distribution of the ions is markedly asymmetrical, the direction of the elec. field being the axis of symmetry. The drift velocity of the ions is comparable with the velocity of their random motion.

F. H. Rathmann

Physics Inst., Leningrad State U.

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"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5

66702

24.2120 SOV/103-4-8-22/35

AUTHORS: Granovskiy, V.L., Luk'yanov, S.Yu., Spivak, G.V. and Sirotenko, I.G.

TITLE: Report on the Second All-Union Conference on Gas Electronics

PERIODICAL: Radiotekhnika i elektronika, 1959, Vol 4, Nr 8, pp 1339 - 1358 (USSR)

ABSTRACT: The conference was organised by the Ac.Sc.USSR, the Ministry of Higher Education and Moscow State University. It was opened by the chairman of the organising committee, M.A. Leontovich, Academician. During the plenary sessions of the conference, a number of survey papers were delivered. L.A. Artsimovich read a paper on "Production of Ultra-high Temperatures in Plasma".
A survey of the optical method of measurements was given in the papers by V.A. Fabrikant and S.E. Frish.
S. Brown of the Massachusetts Institute of Technology gave a survey of the high-frequency methods of the investigation of stationary and non-stationary plasma (see p 1244 in this issue of the journal).
N.V. Fedorenko read a paper entitled "Ionisation and Inelastic Scattering During Atomic Collisions".
L.A. Sena and Yu.M. Kagan dealt with "Elementary Processes of Determining the Motion of Ions in Gas".
A paper by Ye. Bederau (Rumania) dealt with "The Role of Resonance--recharging in the Kinetics of Ions".
I.S. Stekol'nikov considered the initial stages of the development of sparks (corona-leader, main channel and the final channel).
B.N. Klyarfel'd gave a survey of the ignition processes of the discharges in highly rarified gases.
The mechanism of the breakdown of a high-vacuum gap was elucidated in a paper by V.L. Granovskiy.
L. Tonks (USA) expounded a theory of the motion of electrons in a magnetic trap (see p 1316 of this journal).
Academician R. Rompe (Eastern Germany) described a number of experiments on non-stationary plasma conducted by himself.
M. Steenbeck (Eastern Germany) gave a generalised theory of plasma. The conference was divided into six sections.
The first section was presided over by L.A. Sena and was concerned with the elementary processes in gas discharges. The following papers were read in this section:
Ye.M. Fogel'- "Transformation of Positive Ions Into Negative Ones in Rarified Gases".
Ye. M. Fogel' with V.A. Ankudinov and D.V. Pilipenko - "Capture and Loss of Electrons During the Collision of Fast Atoms of Carbon and Hydrogen with the Molecules of Gases".
M.V. Fedorenko et al. - "Dissociation of Molecular Ions of Hydrogen During Collisions in Gas".
I.P. Flaks and Yu.S. Solov'yev - "Capture Cross-sections of Electrons in Multicharge Ions in Inert Gases".
E.M. Kushnir et al. - "Experimental Investigation of the Resonance Recharging in Certain Single-atom Gases and Metal Vapours".
O.B. Firsov - "Qualitative Investigation of Inelastic Collisions of Atoms".
L.M. Volkova - "Effective Excitation Cross-sections of the Spectral Lines of Potassium and Argon".
I.P. Zapesochnyy and S.M. Kishko "Some Results of the Investigation of the Optical Functions of the Excitation Bands of a Negative System".
A.A. Vorob'yev and A.G. Vlasov - "Investigation of the Scattering of the Electrons in a Betatron Chamber".
The second section was presided over by B.N. Klyarfel'd and was devoted to the problems of the electrical breakdown in rarified gases and in high vacuum. The following papers were read in this section:
G.Ye. Makar-Limanov and Yu.A. Mytlitskiy - "Electrostatic Control of the Ignition of Glow-discharge Tubes"(see p 1274 of the journal).
S.V. Fritsyn et al. were concerned with the breakdown in a high-voltage mercury rectifier (see p 1278 of the journal).
L.G. Guseva "Ignition of the Discharge in Non-uniform Fields at low Gas Pressures" (see p 1260 of the journal).
A.S. Sobolewa and B.N. Klyarfel'd - "The Discharge Phenomena Between a Point and a Plane at Gas Pressures of 10^{-3} - 1 mm Hg".

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F

2011. SPECTROSCOPIC STUDY OF ELECTRIC CRACKING OF METHANE. Frish, S. E. and Kagan, Y. M. (Bull. Acad. Sci. U.S.S.R., Ser. Phys., 1945, 9, 238). The emission spectrum of CH_4 in an elec. discharge, at 35 mm. pressure, shows mol. bands C_2, CH, and CN (impurities). In the visible part one finds a continuous spectrum and the lines H_β and H_γ. Stopping the flow of methane resulted in enhanced hydrogen spectrum; the CH bands remained unchanged, CN weakened. With both the gas flowing and at rest, the CH bands show many rotation lines, indicating high rotational energies of the CH mol. From the continuous spectrum, the temp. was detd. to be 1200° K. It can be concluded that CH mols. are present as intermediate products and that the process deviates from equilibrium with respect to temperature.

C. A.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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CA

3

Spectroscopic study of the motion of ions in the plasma — Physics Inst, Leningrad. U.

S. E. Frish and Yu. M. Kagan (Leningrad Univ.). *Zhur. Exptl. Teoret. Fiz.* 17, 577-84(1947).—Interferometric measurements made on spectral lines of A II along a quartz capillary in which the discharge takes place, show a displacement absent on lines of A I. This displacement of the magnitude of 0.004 ± 0.001 A. is attributed to the Doppler effect caused by the translatory movement of ions along the capillary with the velocity of $1 \times 10^6 - 2.3 \times 10^6$ cm./sec. This is confirmed by: (*a*) the ratio of displacements of lines 5002 and 4230 is equal to the ratio of wave lengths as predicted by the theory; (*b*) the displacement is proportional to the cosine of the viewing angle with the axis of the capillary; (*c*) the velocities calcd. from the displacements at different pressures (0.2-3.5 mm.) and discharge currents (100-400 ma) have been compared with a theoretically derived formula (for A) $v = 7 \times 10^3 (T/273)^2 [E/p[1 + (E_r/E)^2]^{1/2}]$ (E measured tube gradient, E_r calcd. radial gradient) and found to be in satisfactory agreement.

S. Pakswer

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"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5

KAGAN, YU. M. Doc Phys-Math Sci -- (diss) "On the motion of ions in plasma." Len, 1957. 15 pp 20 cm. (Min of Higher Education USSR. Moscow Order of Lenin and Labor Red Banner State Univ im M.V. Lomonosov), 100 copies

(KL, 21-57, 97)

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Jan 48

USSR/Physics
Discharges, Electric
Spectrum Analysis

"Spectroscopy of Gas Discharge," S. Z. Frish, Corr Mem, Acad Sci USSR, Docent Yu. M. Kagan, 29 pp

"Vest Leningrad U" No 1

Theoretical survey of subject: (1) phenomena occurring in a gas discharge; (2) step-by-step activation of ions on positive pole of a gas discharge; (3) spectroscopic study of movement of ions in plasma at positive pole; (4) effect of cascade migrations on form of activation functions; (5) role of second order impacts on luminescence of the lines during gas discharge; (6) application of gas discharge to spectrum analysis of gas mixtures.

4/49T69

KAGAN, YU. M., DOCENT

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"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5

Jul/Aug 48

USSR/Physics
Ions
Gas

"Movement and Form of Lines of Ions at the Positive Pole During Gas Discharge," S. E. Frish, Yu. M. Kagan, Sci Res Phys Inst, Leningrad State U, 4 pp

"Iz Ak Nauk SSSR, Ser Fiz" Vol XII, No 4 pp 358-61

Introduces curves showing translational speeds of positive Ar, Kr, and Xe ions versus gas pressure for a single current strength of 400 ma. Al three curves have approximately the same path: When pressure drops, speed initially increases and then reaches a maximum

53/49T88

Jul/Aug 48

USSR/Physics (Contd)

and drops for lower pressures. Theoretical explanation of this phenomenon.

53/49T88

KAGAN, YU. M.

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PROCESSES AND PROPERTIES INDEX

The influence of cascade transitions on the form of the excitation function of mercury lines. Yu. M. Kagan and V. M. Zakharova (Leningrad State Univ.) *Zhur. Eksptl. i Teoret. Fiz.* (J. Exptl. Theoret. Phys.) 18, 52-7 (1948).—Two explanations have been proposed for the existence of two max. in the excitation functions of the $6^3P_1 - n^1S_0$ series of Hg lines. K. and Z. disprove Schaffernicht's suggestion (C.A. 24, 5021) that the hyperfine structure sublevels of $^1S_0$ may have different excitation functions by showing experimentally that the relative intensities of the hyperfine structure components of Hg 4046 and Hg 4077 are not a function of the temp. of the Hg vapor. If the shape of the excitation function is due to the existence of a cascade transition from a higher level, it is necessary to explain why such transitions do not occur to other term levels. K. and Z. believe that this is due to the unusually low cross section of the $^1S_0$ level. Their exptl. detns. of $Q_{el}(V_m)$, the effective cross section of the $^1S_0$ level indicated at the first max. in the excitation curve, gave the following values: 7^1S_0: 0.015-0.020; 8^1S_0: 0.036-0.064; 9^1S_0: 0.010-0.013. C. F.

Physics Inst.

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KAGAN, YU. M.

(3)

Spectroscopic study of the movement of ions in a plasma. II. S. E. Frish and Yu. M. Kagan [Leningrad State Univ.]. *Zhur. Eksper. i Teoret. Fiz.* 18, 519-24(1948); cf. *C.A.* 44, 5206d.—By using the calibrating interferometer device of Fabry and Perot, F. and K. studied the contours of the spectral lines of ions and of neutral atoms of argon as a function of the strength of the discharge current and the pressure of the gas. Lines which are due to ions are much wider than are lines due to neutral atoms. Lines of ions are wider when viewed across the capillary than when viewed along the capillary. Using the half-widths of the lines, F. and K. calcd. the ionic temps., and compared these with the temp. of the at. gas. During observations along the capillary, the course of the ionic temp. as a function of the pressure is analogous to that already previously established for the excited lines of ions. The results obtained are interpreted from the point of view of transfer-motion of ions in an elec. field in a plasma. Frans H. Ruthmann

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KAGAN, YU. M.

USSR/Physics - Gaseous Discharge Nov/Dec 50

"Concentration of Excited Atoms in a Mercury Discharge," Yu. M. Kagan, N. P. Penkin, Sci Res Phys Inst, Leningrad State U imeni Zhdanov

"Iz Ak Nauk SSSR, Ser Fiz" Vol XIV, No 6, pp 721-6

Studies following dependences: electron temperature vs pressure; electron concentration vs pressure, discharge current strength; population of various electron levels vs pressure and electron concentration. Authors thank S. E. Frish and Ye. I. Pokrovskiy for their assistance.

170T91

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5

KAGAN, YU.

PA 197T102

USSR/Nuclear Physics - Atoms, Excitation of Oct 51

"Excitation of Atoms in Mercury Discharge," Yu. Kagan, N. Perkin

"Zhur Eksper i Teoret Fiz" Vol XXI, No 10, pp 1182, 1183

Authors answer criticism of their article ("Iz Ak Nauk SSSR, Ser Fiz" 14, 1950) by Fabrikant and Yavorskiy (ibid. pp 1180, 1181) and emphasize that their theoretical curve of atomic concn is correct, despite objections by critics. They also deny having based their research on data by Fabrikant and Yavorskiy. Submitted 30 Jun 51.

LC

197T102

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5

PA 175T14

USSR/Electronics, Discharge in Gases 11 Jan 51

"Method of Investigation of Function of Distribution of Electrons Depending on Velocities in a Gas Discharge," Yu. M. Kagan, V. L. Fedorov, G. M. Malyshev, L. A. Gavallas

"Dok Ak Nauk SSSR" Vol LXXVI, No 2, pp 215-217

Describes method where curve of 2d deriv, necessary for computation, is obtained directly on oscillograph. Curves proved that the distribution function deviates from Maxwell's function near the cathode.

175T14

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5

USSR/Electricity - Discharge Tube Apr 52

"Excitation of Ions in Mercury Discharge at Low Pressure," Yu. M. Kagan, V. M. Zakharova, Leningrad State U

"Zhur Eksper i Teoret Fiz" Vol XXII, No 4, pp 400-405

Excitation of ions and atoms of mercury in the pos column of discharge at low pressure is studied. Spectroscopic observations confirm the assumption of Maxwell distribution of fast electrons according to velocities. The excitation of ions occurs as result of direct impact of atom and electron.

215T22

Expts with shift of spectral lines lead to the conclusion that from the point of their origin the ions fall freely on the tube walls. Indebted to Prof S. E. Frish. Received 18 Jul 51.

215T22

KAGAN, YU. M.

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5

USSR.

Distribution of electrons according to speeds in the electrical discharge of mercury vapors. Yu. M. Kagan and G. M. Malyshev. *Zhur. Tekh. Fiz.* 23, 956-63(1953).—A report of studies of the form of the distribution function for electron speeds in the mercury vapor discharge at different currents and pressures, at different distances from the cathode.

Gladys S. Macy

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KAGAN, Yu. M.

21 Aug 53

USSR/Physics - Ion Current

"Theory of Ion Flow into a Probe at Low Voltages," Yu. M. Kagan and V. I. Perel', Karelo-Finnish State Univ

DAN SSSR, Vol 91, No 6, pp 1321-1324

State that Langmuir's theory of probe characteristics (which proceeds from the assumption that a space-charge layer surrounds the probe and from the assumption that the plasma outside this layer is quasineutral and that the electrical field

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equals zero and the motion of the particles is without order) leads to considerable divergences from experience when the theory is applied to the ion saturation flow toward a negatively charged probe. Acknowledge assistance of P. Ripatti and V. Slyasskiy in the measurements. Presented by Acad A. A. Lebedev 26 Jun 53.

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"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5

USSR/ Physics - Electron distribution

Card 1/1 Pub. 43 - 16/97

Authors : Zakharovz, V. M., and Kagan, Yu. M.

Title : Spectroscopic investigation of electron distribution according to the speeds in a positive gas discharge column

Periodical : Izv. AN SSSR, Ser. fiz. 18/2, page 254, Mar-Apr 1954

Abstract : The electron distribution was investigated in a positive discharge column in the presence of sodium - helium vapors at a discharge current intensity of 10 - 90 ma. It is assumed that the spectroscopic method will make it possible to obtain more accurate data on the speed distribution of fast electrons provided the discharge conditions are such that the secondary processes can be disregarded. The difference between the speed of normal electron distribution and the Maxwell distribution is briefly explained. One USSR reference (1941).

Institution : The A. A. Zhdanov State University, Physics Institute, Leningrad

Submitted : .....

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"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5

KAGAN, Yu.M.; PERMIL', V.I.

Theory of the Langmuir ball-probe in the plasma. Dokl.AN SSSR 95 no.4:765-768 Ap '54. (MLRA 7:3)

1. Karelo-finskiy gosudarstvennyy universitet. 2. Karelo-finskiy pedagogicheskiy institut. (Nuclear physics)

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KAGAN, YU. M.

USSR/Physics

Card 1/1 : Pub. 22 - 17/49

Authors : Kagan, Yu. M., and Perel', V. I.

Title : On the movement of positive ions in their own gas

Periodical : Dok. AN SSSR 98/4, 575-578, Oct. 1, 1954

Abstract : Computations of the velocities of positive ions moving in their gas in a strong and a weak-field are presented. Nine references (1946-1953). Graphs.

Institution : Karelo-Finnish State University, Karelo-Finnish Pedagogical Institute

Presented by : Academician A. A. Lebedev, February 25, 1954

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"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5

KAGAN, Yu. M.

USSR/ Physics

Card 1/1 Pub. 177 - 7/13

Authors : Zakharova, V. M., and Kagan, Yu. M.

Title : Line intensity distribution in secondary series in a positive sodium discharge column

Periodical : Vest. Len. un. Ser. mat. fiz. khim. 10/2, 115-130, Feb 1955

Abstract : The radiation of sodium diffusion series was investigated with respect to the change in discharge parameters to determine the deviations from the Maxwell electron distribution. The dependence of the electron temperature and electron concentration upon pressure and discharge current intensity is explained. The results obtained by measuring the line intensity distribution within secondary series at various pressures and current intensities are tabulated. The harmful effect of the electrophoresis phenomenon, which exists during the discharge in a vapor-inert gas mixture, is discussed. Twenty references: 12 USSR, 3 German, 4 English and 1 Dutch (1930-1954). Graphs.

Institution : .....

Submitted : June 21, 1954

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"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5

FD-2838

USSR/Physics - Probe theory

Card 1/1 Pub. 146 - 25/26

Author : Kagan, Yu. M.; Perel', V. I.

Title : Langmuir theory of probes (sondes)

Periodical : Zhur. eksp. i teor. fiz., 29, August 1955, 261-263

Abstract : Certain assumptions of the Langmuir theory of probes have been criticized earlier by the writers (DAN SSSR, 91, 1321, 1953) and others (R. Boyd, Proc. Roy. Soc., A 201, 329, 1950; F. Wenzl, Zs. angew. Phys., 2, 59, 1950). The task of the writers in the present note is to clarify the interrelationship between the Langmuir theory and the strict theory of the spherical probe proposed by the writers (DAN SSSR, 95, 765, 1954) for low pressures and for the case of negative probe potentials. They restate the principal assumptions under these conditions as given by V. L. Granovskiy (Elektricheskiy tok v gaze [Electrical current in a gas], GITTL, 1952). Five references: e.g. Mott-Smith and Langmuir, Phys. Rev., 28, 1926.

Institution : Karelo-Finn State University

Submitted : April 9, 1955

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5

FD-3271

USSR/Physics - Recharging of slow ions

Card 1/1 Pub. 146 - 30/44

Author : Kagan, Yu. M.; Perel', V. I.

Title : Cross section of overcharging of slow ions in its own gas

Periodical : Zhur. eksp. i teor. fiz., 29, No 6(12), Dec 1955, 884-886

Abstract : The authors compare the various values of overcharge of He, Ne, A, Kr, and Xe ions as obtained by different investigators, Western and USSR. They discuss the derivation of the formula for overcharge q cross-section by others. Fifteen references: e.g. Yu. N. Demkov, Uch, zap. LGU, No 146, ser. fiz. nauk, 8, 74, 1952; the authors, DAN SSSR, 98, 575, 1954; etc. (mostly Western references).

Institution: Karelo-Finnish State University

Submitted : May 30, 1955

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5"

"APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000619910019-5

Yu. M. KAGAN

USSR/Physical Chemistry - Atom. B-3

Abs Jour : Referat Zhur - Khimiya, No 1, 1958, 46

Author : V.M. Zakharova, Yu.M. Kagan.
Inst : -
Title : Study of Discharge Parameters and Character of Excitation of Ion Lines at Great Current Densities.

Orig Pub : Optika i Spektroskopiya, 1956, 1, No 5, 627-635

Abstract : Sounding and optical measurements were carried out in discharges in Hg vapor (at pressures of $1.2 \cdot 10^{-3}$ to $1.2 \cdot 10^{-1}$ mm of mercury column) and in Ar, Kr and Xe (in the pressure range from 0.2 to 2.0 mm of mercury column) at current densities from 2 to 20 a per sq.cm. The ion part and the beginning of the electron part of the volt-ampere characteristic was used fro the measurement of the ion concentration. The electron concentration n_e, the temperature of the electron gas T_e in inert gases does not change

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Card 1/2

USSR/Physical Chemistry - Atom. B-3

Abs Jour : Ref Zhur - Khimiya, No 1, 1958, 46

pressures of 1.0 and 1.75 mm of mercury column, while the same dependences obtained for Hg do not show any anomalies. The comparison of intensity curves of ion lines of Ar with curves of T_e and n_e under the same discharge conditions shows that the course of the intensity curves has a maximum under the same conditions as the course of the concentration curves. It is postulated that the mechanism of ion excitation is stepwise.

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