Neyman, L. V.

AGEYEVA-MAYKOVA, O.G.; VOYACHEK, V.I.; YERMOLAYEV, V.G.; KULIKOVSKIY, G.G.; LIKHACHEV, A.G.; NEYMAN, L.V.; RASPOPOV, A.P.; SUPRUNOV, V.K.

Boris Sergeevich Preobrazhenskii; 60th anniversary of birth. Vest. otorinolar., Moskva 14 no. 3:97-100 May-June 1952. (CLML 22:4)

1. Preobrazhenskiy is editor of Vestnik oto-rino-laringologii and attached to the Therapeutic Sanitary Administration for the Kremlin. Is Active Member of the Academy of Medical Sciences USSR. Awarded Order of Lenin in 1943. Is Chairman of the Administration of the All-Union Society of Otolaryngologists.

NEYMAN, L. V.

ERMOLAYEV, V.G., redaktor; PREOBRAZHENSKIY, B.S., redaktor; RUTENBURG, D.M., redaktor; TEMKIN, Ya.S., redaktor; ALEKSANDROV, I.N., redaktor; NEYMAN, L.V., redaktor; GABERLAND, M.I., tekhnicheskiy redaktor

[Diseases of the pharynx, larynx, trachea, bronchi, and esophagus necessitating surgery; doctors' handbook] Khirurgicheskie bolezni glotki, gortani, trakhei, bronkhov i pishchevoda; rukovodstvo dlia vrachei. Pod red. V.G.Ermolaeva, B.S.Preobrazhenskogo, D.M.Rutenburga i IA.S.Temkina. Moskva, Gos. izd-vo med. lit-ry, 1954. 867 p. (MLRA 7:9)

(Throat--Surgery)
(Respiratory organs--Surgery)
(Esophagus--Surgery)

NEYMAN, L.V.

NEYMAN, L.V.; LUBOVSKIY, V.I.

Method of objective investigation of the function of the auditory analysor in children with hearing disorders. Vest. oto-rin. 16 no.3:40-46 My-Je '54. (MLRA 7:7)

1. Iz Nauchno-issledovatel'skogo instituta defektologii Akademii pedagogicheskikh nauk RSFSR.
(HEARING TESTS,
*technic)

NEYMAN, L.V., kandidat meditsinskikh nauk (Moscow)

"Sore throat." A.V.Korchagin. Reviewed by L.V.Neiman. Fel'd i akush. no.9:59-60 S '55. (MLRA 8:11)
(THROAT--DISEASES) (KORCHAGIN, A.V.)

EXCERPTA MEDICA Sec 11 Vol.11/6 O.R.L. June 58

NEYMAN, L.V.

1100. FUNDAMENTAL QUESTIONS ON THE DEVELOPMENT OF HEARING PERCEPTION AMONGST 'HARD-OF-HEARING' SCHOOLCHILDREN (Russian text)
Neyman L. V. Inst. of Defectol., Acad. of Pedagog. Scis, Moscow - In the book: Ostatochnyi slukh u tugoukhikh i glukhonemykh detei, Moscow 1957 (55-65) Ref. 3

A study was made of the development of the hearing perception for speech elements during a special training course amongst 27 'hard-of-hearing' schoolchildren with severe loss of hearing and greatly under-developed speech. In relation to the tone threshold the majority showed loss of hearing above 70 db., 6 children had hearing loss of 55-70 db., while one girl had a loss of under 50 db. The audiometric curve was of descending character in all cases. Considerable restriction of auditory frequency range was found in a number of children: in absence of sound perception for frequencies beyond 4,096 c. p. s.; in 6 children, of more than 2,048 c. p. s.; and in 2 as low as 1,024 c. p. s. Practically all children distinguished vowels A, O, U; 18 out of 27 distinguished the consonants below a level which ensures satisfactory comprehensibility of words and sentences. One schoolgirl distinguished all familiar words uttered with colloquial force near her helix; 5 pupils differentiated 8-9 words out of 10, and 14 less than half. The basic principles of the lessons, given twice weekly, consisted in: (1) registration of the state of the hearing function; (2) presentation of clear visual aids for the sound in use; (3) arrangement of playing spells. Control inspection at the end of the year revealed in all pupils an improvement in the differentiation of speech heard and of vowels and consonants, also in discerning of acoustic signs characteristic of certain groups (soft, hard, ringing, dull sounds, etc.). These elaborated differentiations remained constant. It is presumed that owing to lack of trial of listening to sounds of threshold or below-threshold intensity, 'hard-of-hearing' children react in audiometry to a particular sound which at times considerably exceeds the real threshold. Radina - Moscow (S)

NEYMAN, L.V., kandidat meditsinskikh nauk

Tonal audiometry in deaf-mute and preschool children with defective hearing [with summary in English]. Vest. oto-rin. 19 no.1:27-32 Ja-F '57 (MLRA 10:4)

1. Iz Nauchno-issledovatel'skogo instituta defektologii Akademii pedagogicheskikh nauk RSFSR.
(HEARING TESTS
audiometry, tonal, of deaf-mute & dull hearing preschool child) (Rus)

ALEKSANDROV, I.N., doktor med.nauk; MEYMAN, L.V., kand.med.nauk

Professor IAkov Solomonovich Temkin; 60th birthday. Vest.oto-rin. 19 no.4:112-114 Jl-Ag '57. (MIRA 10:11)
(BIOGRAPHIES
Temkin, IAkov S.)

D'YACHKOV, A.I.; MEYMAN, L.V.

Professor Fedor Andreevich Rau. Vest.oto-rin. 19 no.6:118 N-D '57
(RAY, FEDOR ANDREEVICH, 1868-1957) (MIRA 11:3)

NEYMAN, Lev Vladimirovich; NOVIKOV, Ya.A., red.; KOVALENKO, V.L., tekhn.red.

[Anatomy, physiology, and pathology of the organs of hearing and speech; manual for students of speech defect departments and teachers and physicians of special schools] Anatomiia, fiziologiia i patologiia organov slukha i rechi; posobie dlia studentov defektologicheskikh fakul'tetov, uchitelei i vrachei spetsial'nykh shkol. Moskva, Gos.uchebno-pedagog.izd-vo M-va prosv.RSFSR, 1959. 171 p. (MIRA 13:9)
(OTOLARYNGOLOGY)

MEYMAN, L. V., Doc Med Sci -- "The hearing function in hard-of-hearing and deaf-mute children, its study, use, and development." Mos, 1960 (Acad Med Sci USSR). (KL, 1-61, 205)

NEYMAN, Lev Vladimirovich

[Hearing function in hard hearing and deaf-mute children]
Slukhovaia funktsiia u tugoukhikh i glukhonemykh detei.
Moskva, Izd-vo AN Pedagog. nauk RSFSR, 1961. 359 p.
(MIRA 18:6)

UNDRITS, V F., prof.; TEMKIN, Ye.S., prof.; NEYMAN, L.V., prof.; VOLKOV, Yu.N., red.; KUZ'MINA, N.S., tekhn. red.

[Manual of clinical audiology] Rukovodstvo po klinicheskoi audiologii. Moskva, Medgiz, 1962. 323 p. (MIRA 16:1)
(EAR—DISEASES) (AUDIOMETRY)

VOZNESENSKIY, A.N., prof.; VOL'FKOVICH, M.I., prof.; GESHELIN, A.I., prof.[deceased]; GORDYSHEVSKIY, T.I., prof.; YERMOLAYEV, V.G., prof.; ZARITSKIY, L.A., prof.; KOTS, L.Ya., prof.; LIKHACHEV, A.G., zasl. deyatel' nauki prof.; PROSKURYAKOV, SHUL'GA, A.O., prof.; NEYMAN, L.V., prof., red.; SHCHERBATOV, I.I., prof., red. doma; TIKHOMIROVA, G.I., red.; PREOBRAZHENSKIY, Yu.B., red.; CHULKOV, I.F., tekhn.red.

[Multivolume manual on otorhinolaryngology] Mnogotomnoe rukovodstvo po otorinolaringologii. Otv. red. A.G.Likhachev. Moskva, Medgiz. Vol.4. [Diseases of the upper respiratory tract] Zabolevaniia verkhnikh dykhatel'nykh putei. Red. toma L.V.Neiman. i I.I.Shcherbatov. 1963. 518 p. (MIRA 17:3)

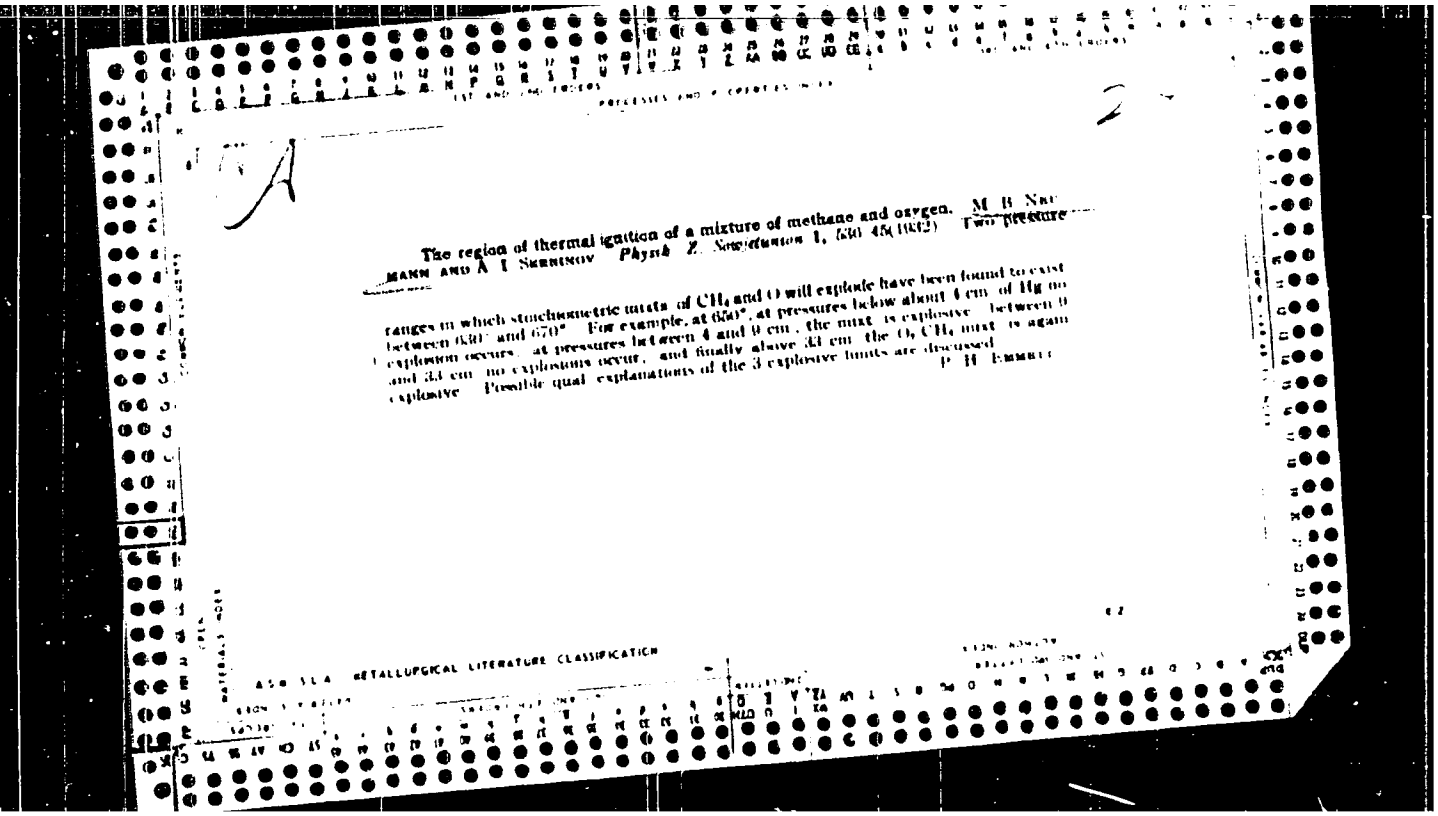
1. Chlen-korrespondent AMN SSSR (for Likhachev).

NEYMAN, Lev Vladimirovich, prof.; IL'INSKAYA, S.I., red.

[Anatomy, physiology and pathology of the organs of hearing and speech; manual for students of defectology faculties, and teachers and doctors of special schools] Anatomiia, fiziologiia i patologiia organov slukha i rechi; posobie dlia studentov defektologicheskikh fakul'tetov, uchitelei i vrachei spetsial'nykh shkol. Moskva, Prosveshchenie, 1965. 182 p. (MIRA 18:11)

NEYMAN, M. A.

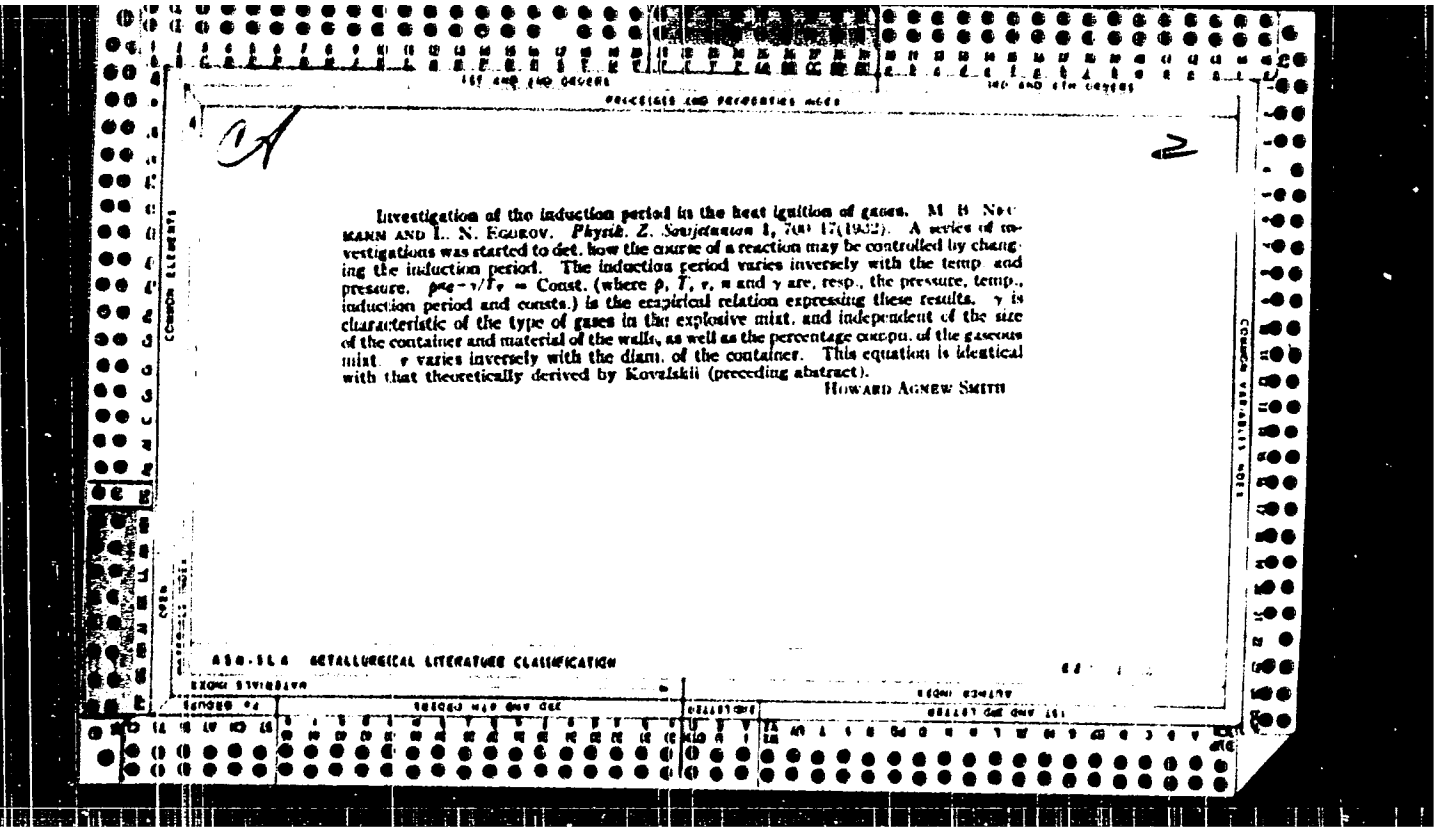
Mbr. (?), Cardiology Sect., Leningrad Branch im. S. P. Botkin, All-Union Soc. Therapists, -c1949-. "Achievements of the Cardiology Section of the Leningrad Branch imeni S. P. Botkin, All-Union Society of Therapists in 1948," Terap. Arkhiv, 21, No. 3, 1949.



The region of thermal ignition of a mixture of methane and oxygen. M B Neu
MANN AND A I SKENNIKOV *Physik Z. Sowjetunion* 1, 550 45(1932) Two pressure

ranges in which stoichiometric mixts of CH_4 and O will explode have been found to exist between 630° and 670°. For example, at 650°, at pressures below about 4 cm of Hg no explosion occurs, at pressures between 4 and 9 cm, the mixt is explosive, between 9 and 33 cm no explosions occur, and finally above 33 cm the O_2-CH_4 mixt is again explosive. Possible qual explanations of the 3 explosive limits are discussed.
P H Emmett

A S & S L A METALLURGICAL LITERATURE CLASSIFICATION



Investigation of the induction period in the heat ignition of gases. M. B. Neumann and L. N. Egorov. *Physik. Z. Sowjetunion* 1, 703-17(1932). A series of investigations was started to det. how the course of a reaction may be controlled by changing the induction period. The induction period varies inversely with the temp. and pressure. $p^n\tau = \gamma/T = \text{Const.}$ (where p, T, τ, n and γ are, resp., the pressure, temp., induction period and consts.) is the empirical relation expressing these results. γ is characteristic of the type of gases in the explosive mixt. and independent of the size of the container and material of the walls, as well as the percentage compn. of the gaseous mixt. τ varies inversely with the diam. of the container. This equation is identical with that theoretically derived by Kovalskii (preceding abstract).

Howard Agnew Smith

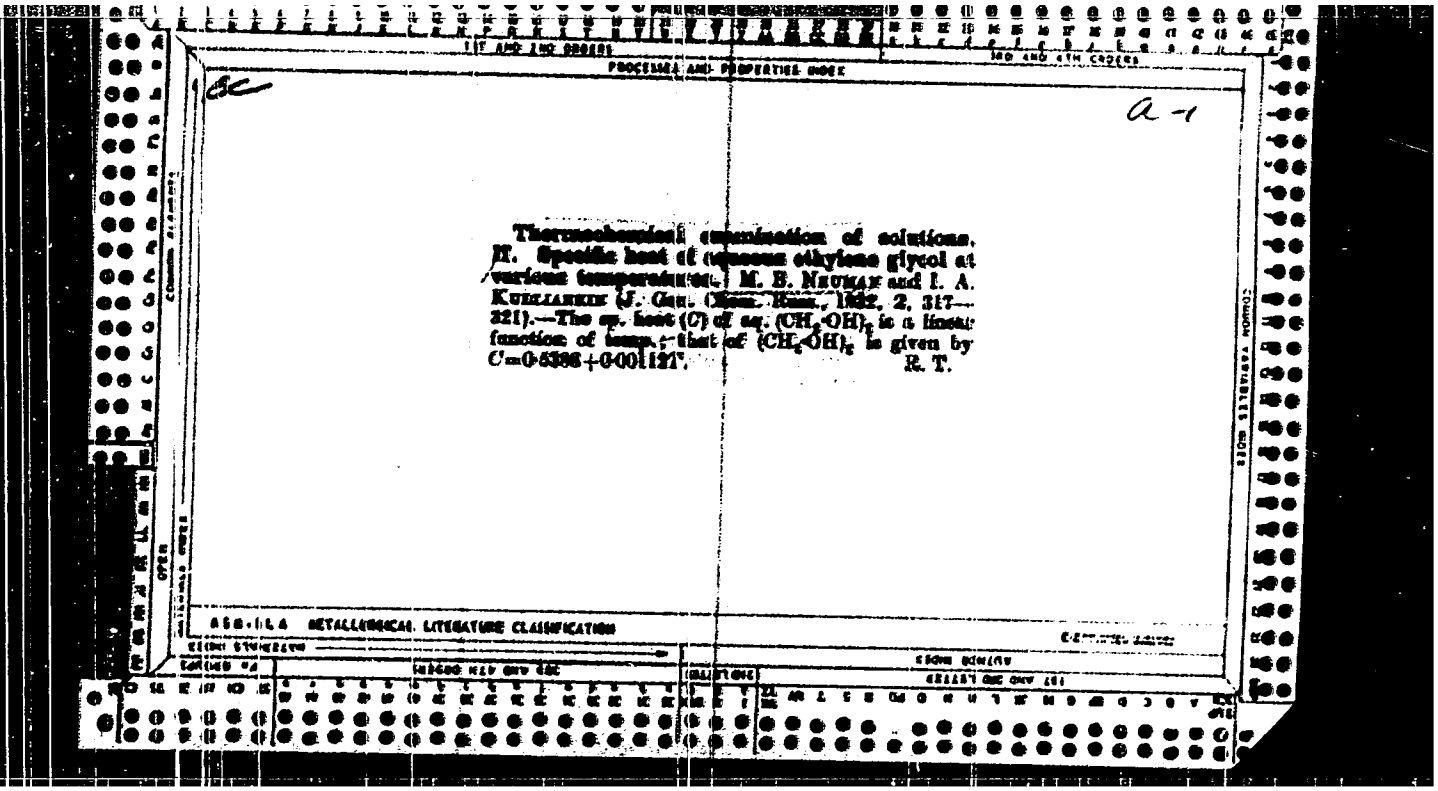
[redacted]

NEUMANN, M. B.

NEUMANN, M. G.
J. Gen. Chem. (USSR) 2, 1-8 (1932)
The thermochemistry of solutions. I. Heat capacities of binary system; acetic acid - water at various temperatures.

CA: 26-4748/1

[redacted]



PROCESSES AND PROPERTIES INDEX

a-1

Thermochemical examination of solutions. II. Specific heat of aqueous ethylene glycol at various temperatures. M. B. Neuman and I. A. Kuzlyankin (*J. Gen. Chem. Russ.*, 1932, 2, 317—321).—The sp. heat (C) of aq. $(CH_2OH)_2$ is a linear function of temp., t; that of $(CH_2OH)_2$ is given by $C=0{\cdot}5388+0{\cdot}001121t$. R. T.

ASB-ILA METALLURGICAL LITERATURE CLASSIFICATION

24

General methods of objective study of detonations propagated by heat. M. B. Neumann, G. A. Varshavskii and T. A. Kontorova. *J. Tech. Phys.* (U. S. S. R.) 2, 344-51(1932). P. H. Rathmann

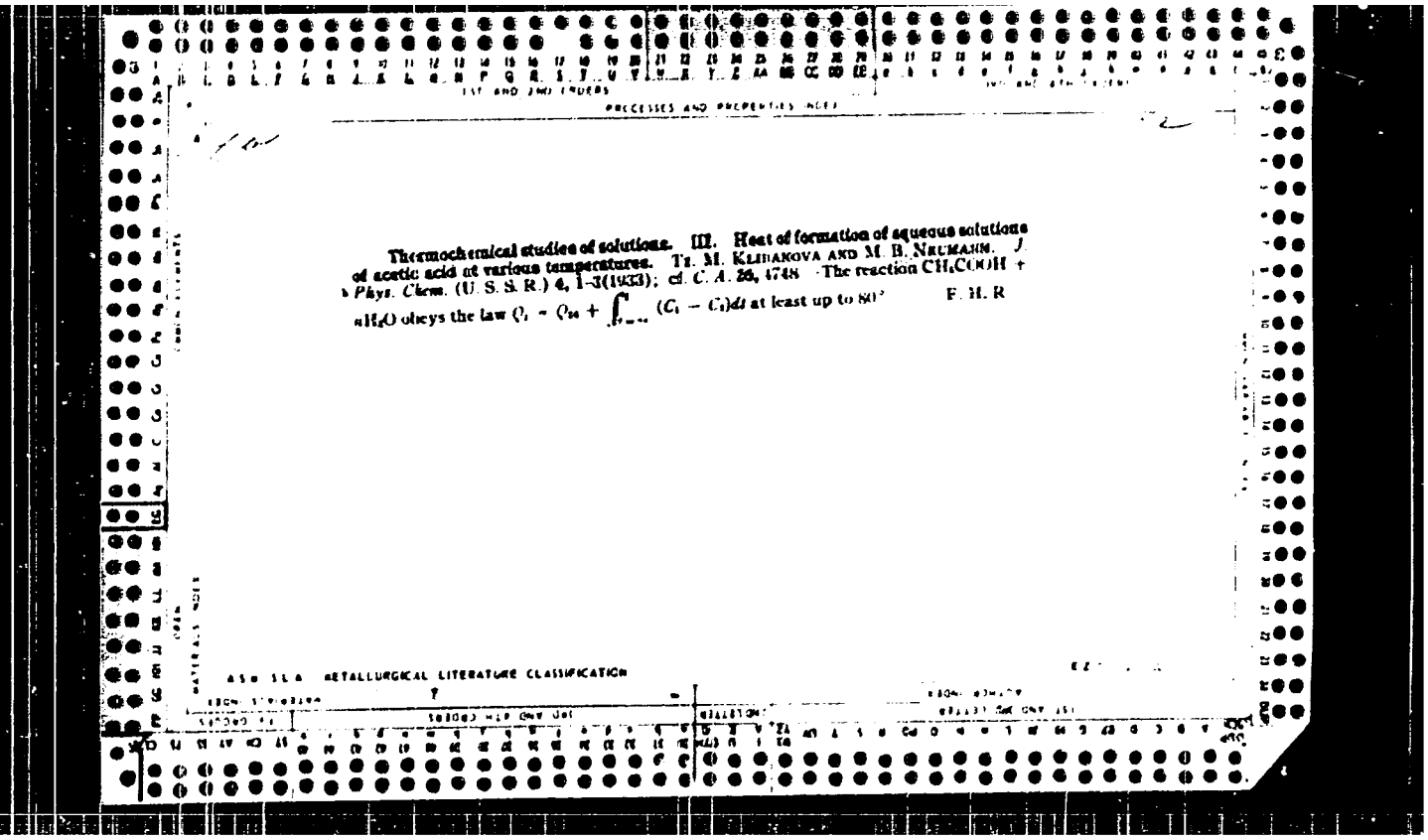
ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

CA

Investigation of the conditions of ignition of gaseous mixtures. I. Induction period of the thermo-ignition of methane-oxygen mixtures. M. B. Neumann and L. N. Rogrov. *J. Phys. Chem.* (U. S. S. R.) 3, 61-74(1932); cf. *C. A.* 23, 5304; 25, 1360, 5092; 26, 1445, 5481.—CH_4 and O mixts in the ratio 1:2 were exploded by admitting the gas into a quartz tube heated to 728-853°. The induction periods of explosion were measured in relation to the total pressure and to the temp. The induction period decreases with increase of temp. or increase of pressure. **II. The region of thermo-ignition with methane-oxygen mixtures.** M. B. Neumann and A. I. Serbinov. *Ibid* 75-82.—The CH_4-O mixt. 1:2 was found to explode on introduction into tubes heated to 645-679° only within 3 different pressure regions. Outside of these pressure limits no explosion takes place. A complete bibliography is given. The equation P^{γ} = const. was used.

F. H. Rathmann

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



Thermochemical studies of solutions. III. Heat of formation of aqueous solutions of acetic acid at various temperatures. Tr. M. Klimakova and M. B. Neumann. J. Phys. Chem. (U. S. S. R.) 4, 1-3(1933); cf. C. A. 26, 4748. The reaction $CH_3COOH + nH_2O$ obeys the law $Q_t = Q_{18} + \int_{18}^{t} (C_t - C_t)dt$ at least up to 80°. F. H. R

Investigation of the conditions of ignition of gaseous mixtures. III. The period of induction and the region of thermal ignition of mixtures of ethane with oxygen. F. A. Andreev and M. B. Neumann. *J. Phys. Chem.* (U. S. S. R.) **4**, 33-40(1933); cf. C. A. **26**, 6139.—The equation $p^n e^{-y/T} \tau = k$ (τ = induction period) holds for the mixt. $C_2H_6 + 3.5\,O_2$ for T values from 585 to 750° with $n = 3.5$ and $y = 51{,}000$. In presence of Au, Cu, Ni and Fe τ is increased 3-10 times, the explosion region is narrowed down and the phenomenon of 3 explosion limits disappears. **IV. Influence of change of composition on the region of ignition of mixtures of methane with oxygen.** M. B. Neumann and A. I. Serbinov. *Ibid.* 41-9.—Mixts. contg. from 2.9 to 60.3% CH_4, up to 12.9% A and up to 97% O were used in the temp. range 640-840°. Admixt. of A extends the explosion region at p_1 and p_2 limits but does not change p_3 or the induction period. In the pressure range 5-10 mm. at 640° for mixts. contg. 5-15% CH_4 the explosion region was given by two separate curves, one open and one closed.

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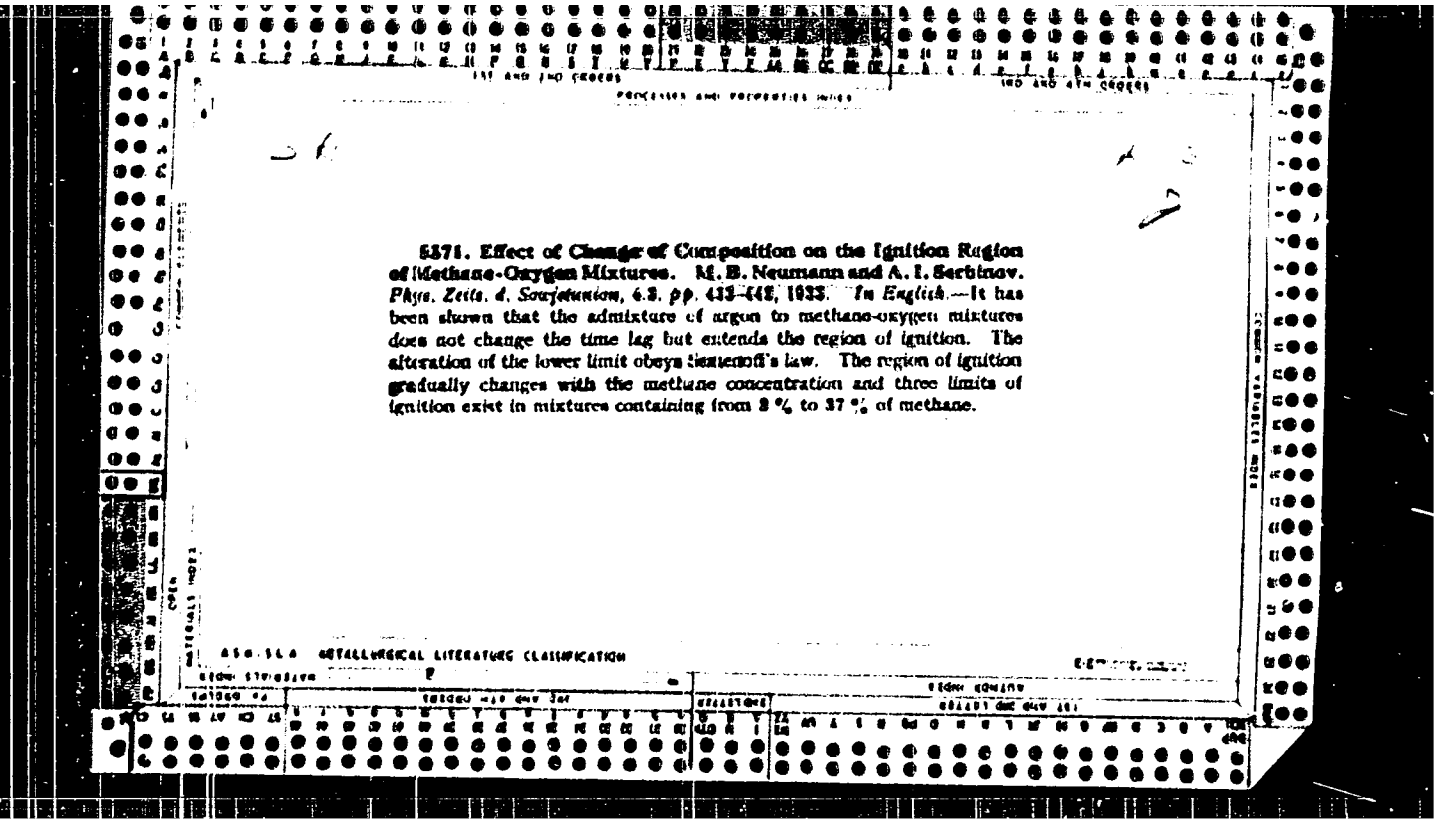
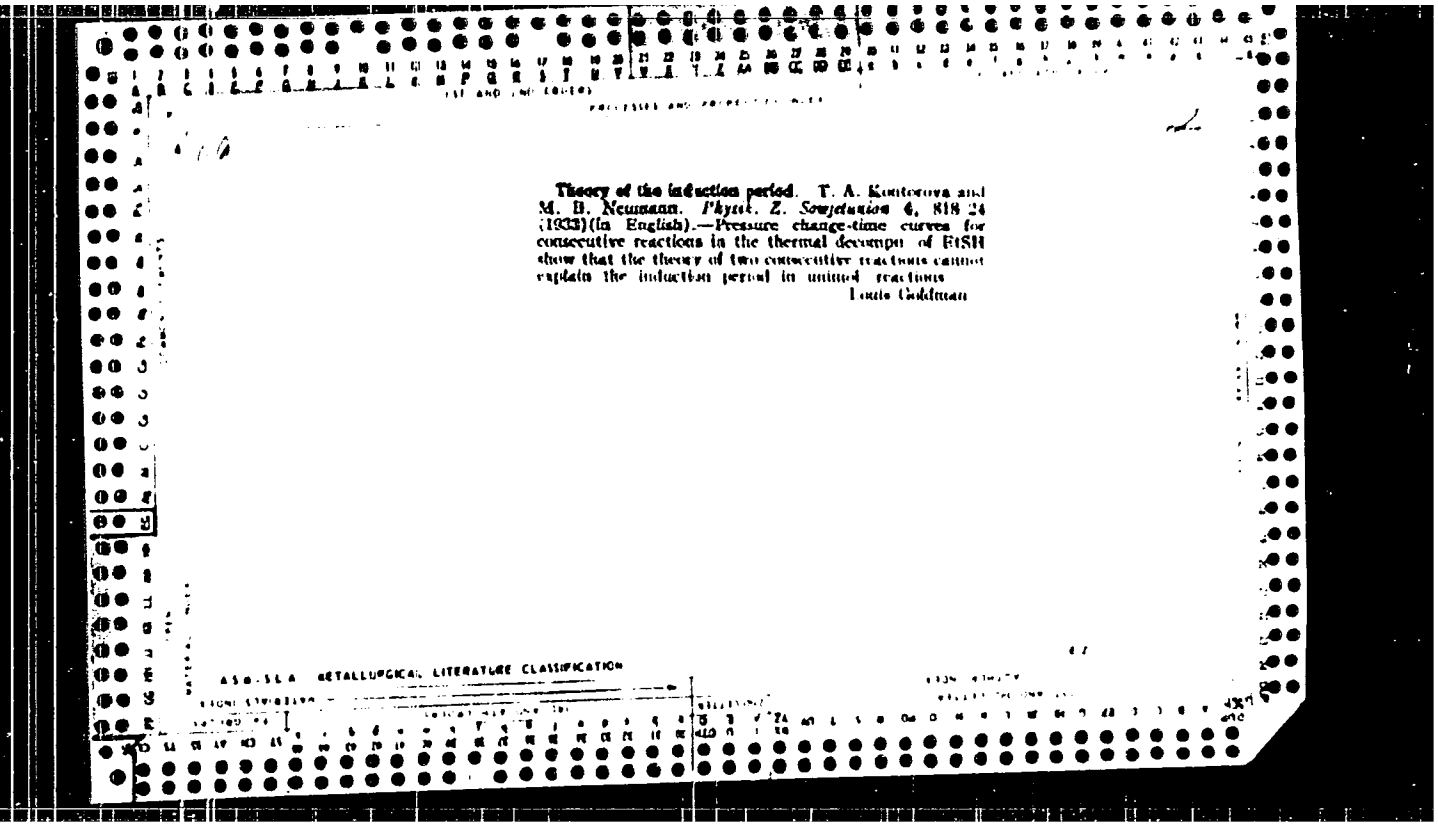


5371. **Effect of Change of Composition on the Ignition Region of Methane-Oxygen Mixtures.** M. B. Neumann and A. I. Serbinov. *Phys. Zeits. d. Sowjetunion*, 6.3. pp. 433–445, 1933. *In English.*—It has been shown that the admixture of argon to methane-oxygen mixtures does not change the time lag but extends the region of ignition. The alteration of the lower limit obeys Semenoff's law. The region of ignition gradually changes with the methane concentration and three limits of ignition exist in mixtures containing from 3 % to 37 % of methane.



Theory of the induction period. T. A. Kantorova and M. B. Neumann. *Physik. Z. Sowjetunion* 6, 818-24 (1933)(In English).—Pressure change-time curves for consecutive reactions in the thermal decompn of EtSH show that the theory of two consecutive reactions cannot explain the induction period in unimol reactions.

Louis Goldman

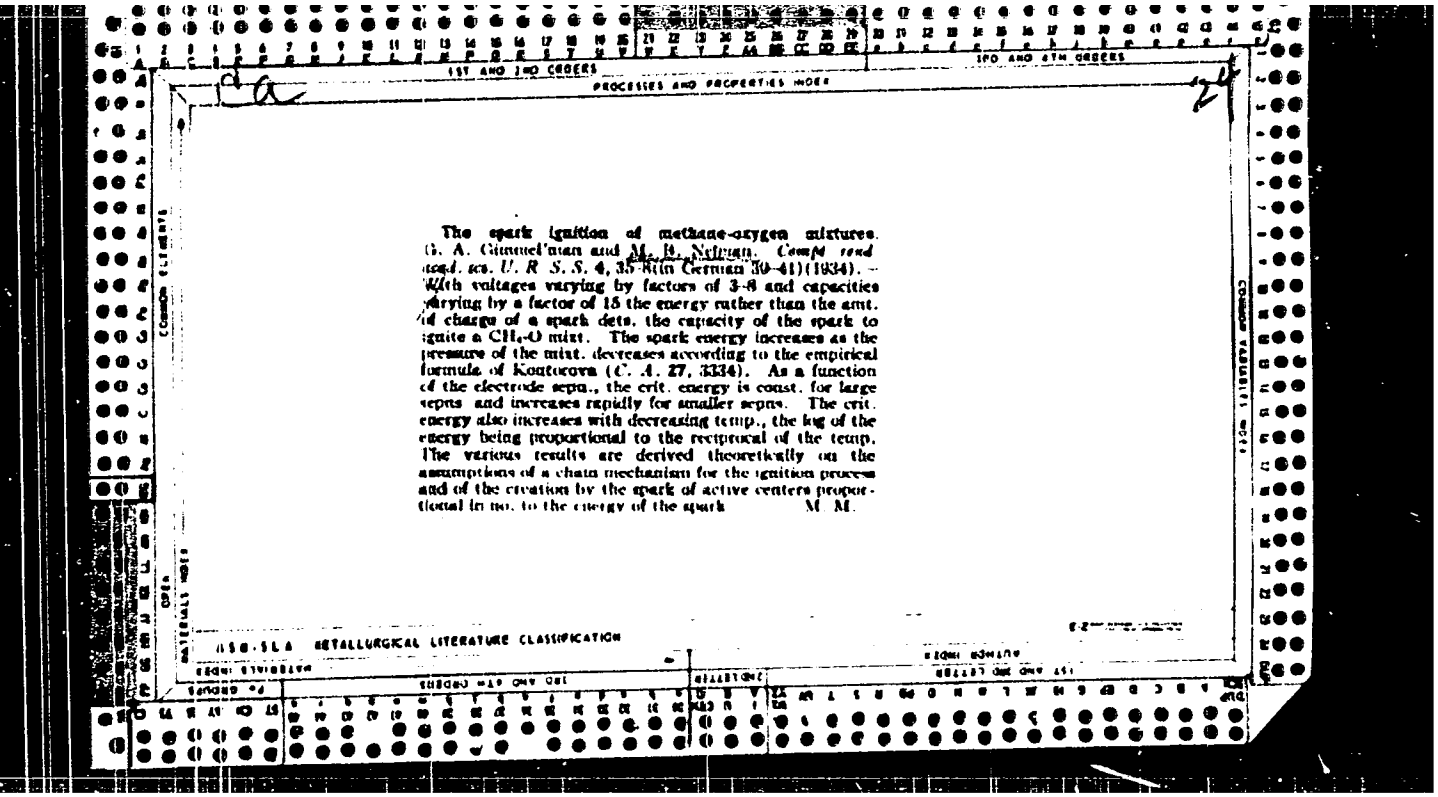
A.S.T.M.-S.L.A. METALLURGICAL LITERATURE CLASSIFICATION

PROCESSES AND PROPERTIES INDEX

Effect of nitrogen peroxide on the kinetics of ethane oxidation. A. I. Serbinov and M. B. Neiman. *Compt. rend. acad. sci.* (U. R. S. S.) **2**, 297-8 (in English 299-300) (1934). The oxidation of ethane by O_2 is accelerated several-fold by the addn. of small amts. of NO_2 and at the same time the autocatalytic character of the oxidation ceases. This is not due to a direct reaction between NO_2 and C_2H_6. A selective transfer of energy from NO_2 to O_2 is postulated and discussed. The empirical results are expressible by $w = d\Delta p/dt = [C_2H_6][O_2]/[NO_2](0.13[O_2] + 0.48[C_2H_6])$ (units mm. sec.). This equation is obtained theoretically, also. A chain length of 100 is possible for the reaction of activated O_2 with C_2H_6.

William E. Vaughan

ASA-SLA METALLURGICAL LITERATURE CLASSIFICATION



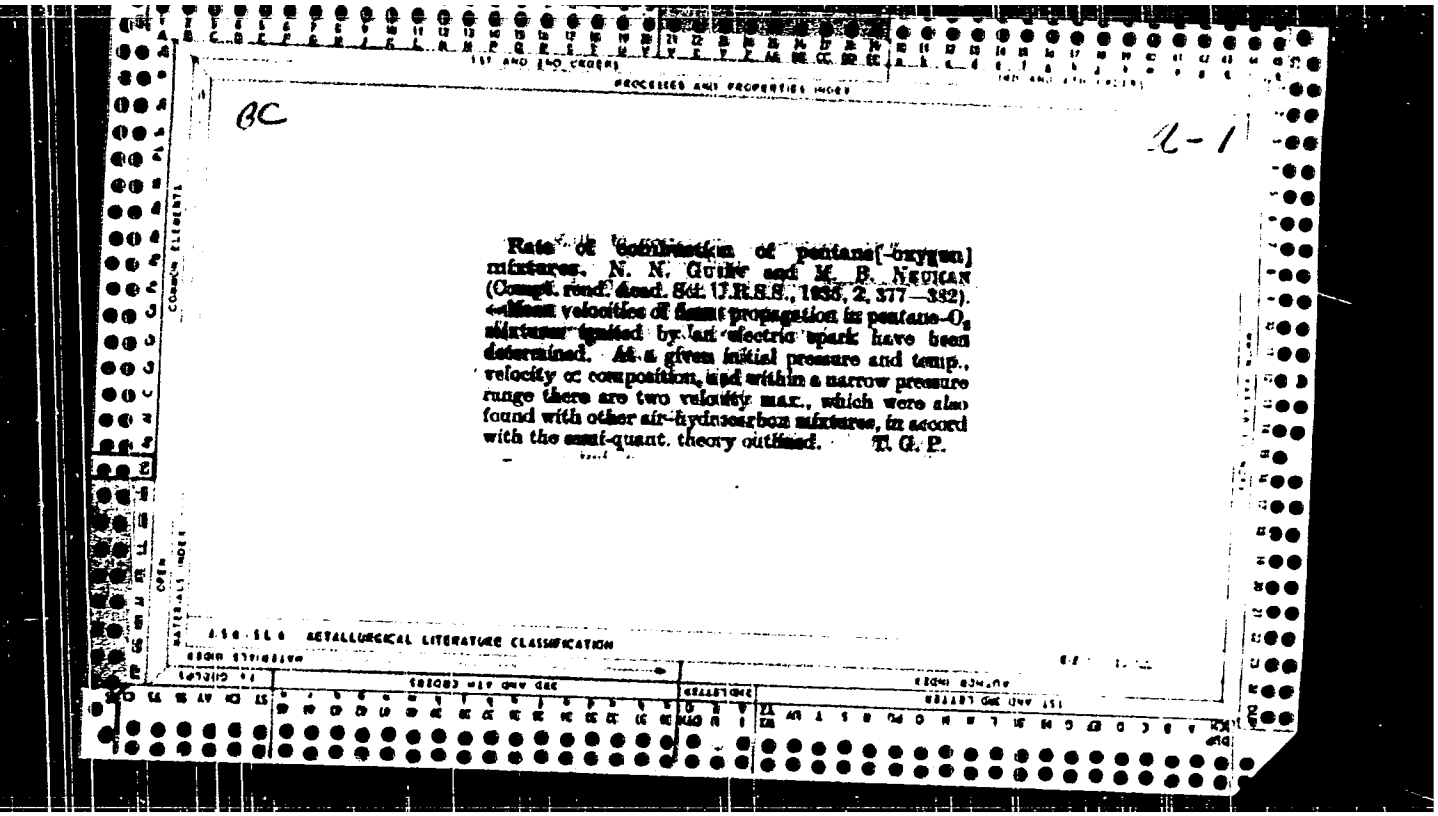
1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

The spark ignition of methane-oxygen mixtures. G. A. Gimmel'man and M. B. Neiman. *Compt. rend. acad. sci. U. R. S. S.* 4, 35-8(in German 39-41)(1934). — With voltages varying by factors of 3-8 and capacities varying by a factor of 15 the energy rather than the amt. of charge of a spark dets. the capacity of the spark to ignite a CH_4-O mixt. The spark energy increases as the pressure of the mixt. decreases according to the empirical formula of Kontorova (*C. A.* 27, 3334). As a function of the electrode sepn., the crit. energy is const. for large sepns and increases rapidly for smaller sepns. The crit. energy also increases with decreasing temp., the log of the energy being proportional to the reciprocal of the temp. The various results are derived theoretically on the assumptions of a chain mechanism for the ignition process and of the creation by the spark of active centers proportional in no. to the energy of the spark M. M.

USBM METALLURGICAL LITERATURE CLASSIFICATION



BC

A-1

Rate of combustion of pentane[-oxygen] mixtures. N. N. Gurin and M. B. Neuman (Compt. rend. Acad. Sci. U.R.S.S., 1936, 2, 377—382). Ordinary velocities of flame propagation in pentane-O_2 mixtures ignited by an electric spark have been determined. At a given initial pressure and temp., velocity of combustion, and within a narrow pressure range there are two velocity max., which were also found with other air-hydrocarbon mixtures, in accord with the semi-quant. theory outlined. T. G. P.

METALLURGICAL LITERATURE CLASSIFICATION

CA

1ST AND 2ND ORDERS

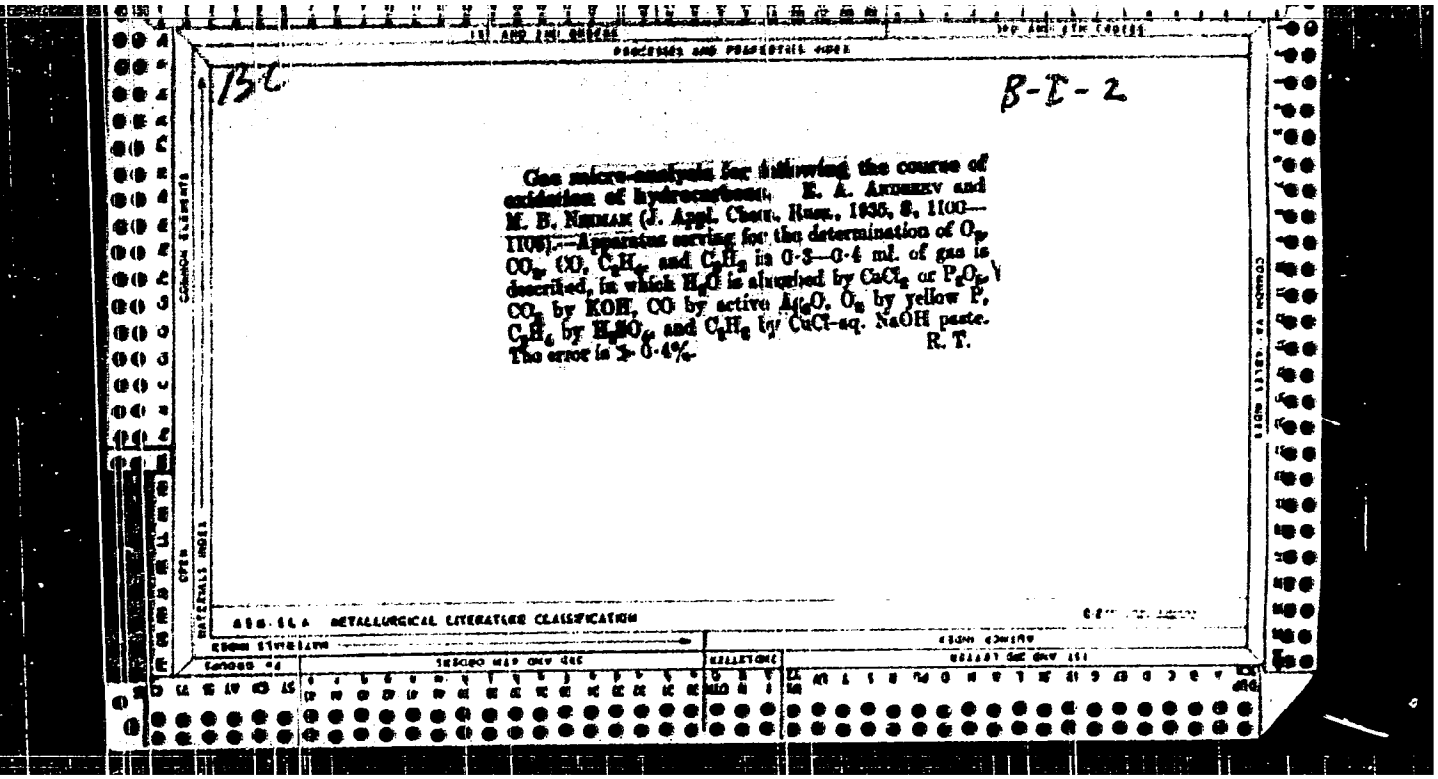
PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

A study of the conditions for the inflammation of gaseous mixtures. M. B. Neiman and V. O. Petrovich. *J. Phys. Chem.* (U. S. S. R.) **6**, 443-50(1935).—The spontaneous combustion of the mixt. $CH_4 + 2O_2$ from [illegible]° to [illegible]° in a bomb 30 mm. in diam. and 300 mm. in length was studied. With an increase in temp. the limit of inflammation drops. The inflammation of mixts. of pentane and O_2 were studied in the same bomb. The periods of induction were very small, ordinarily not exceeding 1/2 sec. At 500° the min. pressure of a quietly burning mixt. was [illegible] cm. Increasing the temp. to 850° decreased the pressure to 8 cm. The dependence of min. pressure upon temp. is well given by the formula $\log p = (A/T) + B$. The region of inflammation of pentane and O_2 mixts. in Fe vessels is considerably narrower than in quartz vessels. Introduction of an Al tube into the reaction vessel lowered the inflammation limit from [illegible]° to 135° at 17 cm.

F. Hamilton

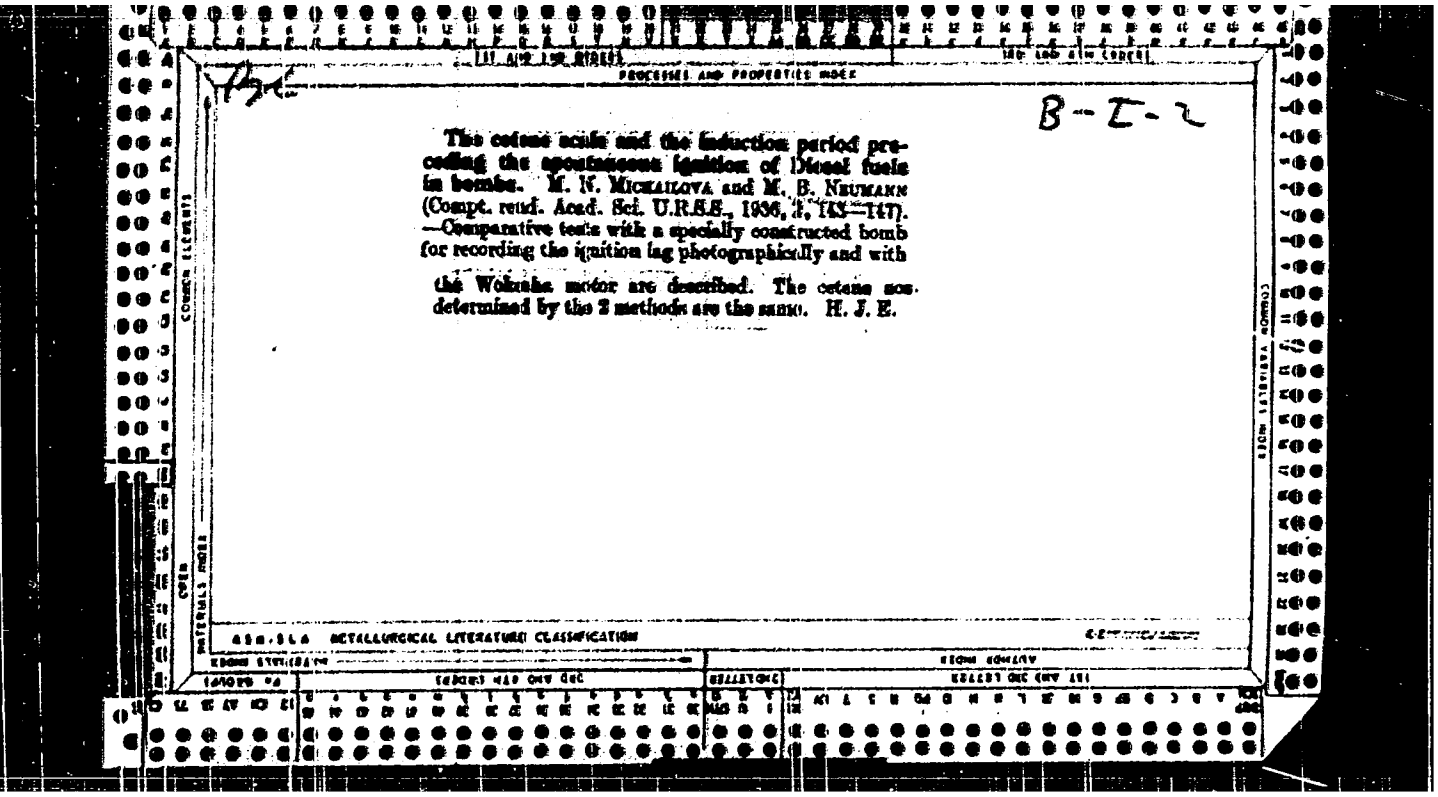
ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



15C

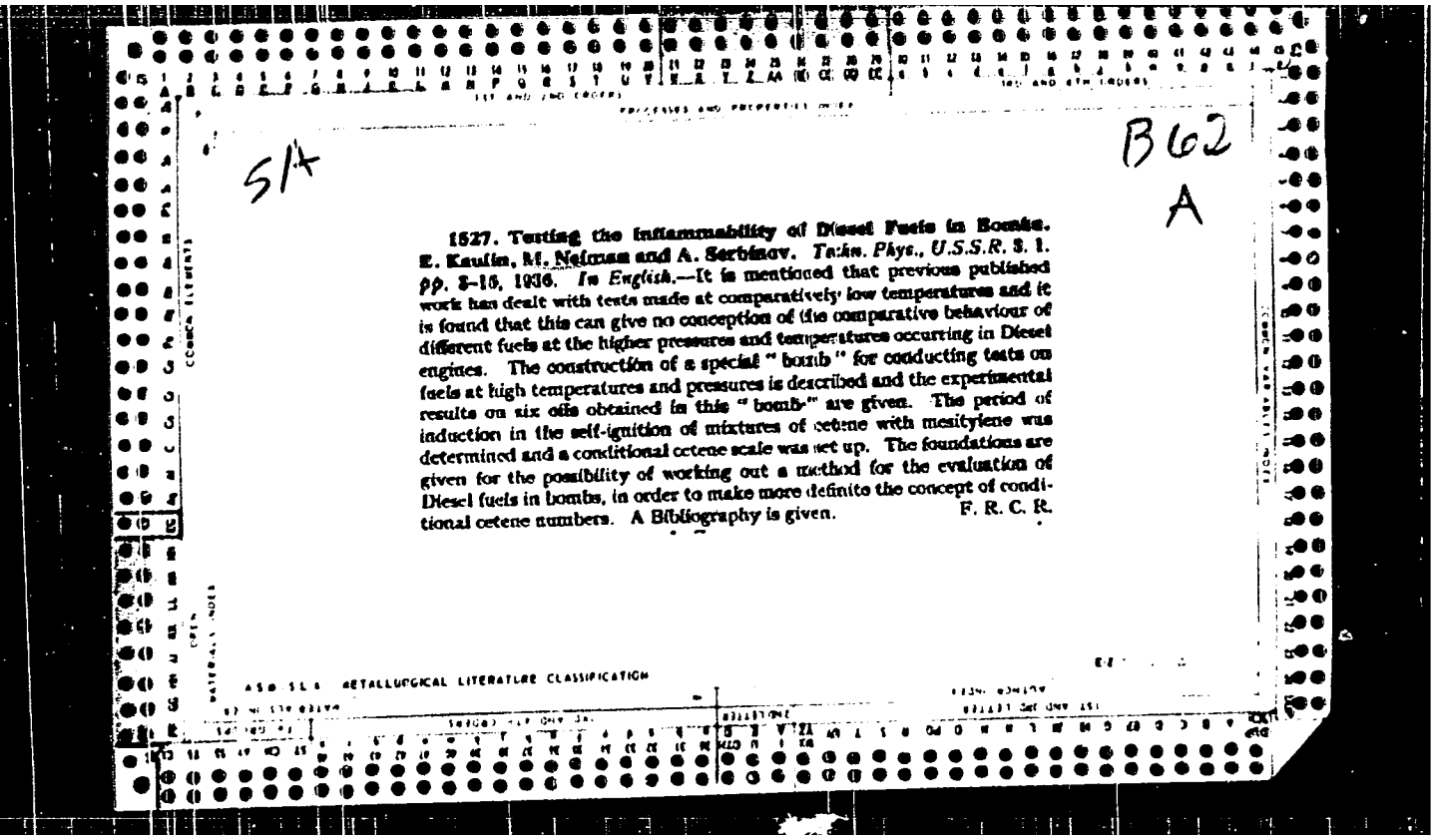
B-I-2

Gas micro-analysis for following the course of oxidation of hydrocarbons. E. A. Arnoldov and M. B. Neiman (J. Appl. Chem. Russ., 1935, 8, 1100–1106).—Apparatus serving for the determination of O_2, CO_2, CO, C_2H_4, and C_2H_2 in 0·3—0·4 ml. of gas is described, in which H_2O is absorbed by $CaCl_2$ or P_2O_5, CO_2 by KOH, CO by active Ag_2O, O_2 by yellow P, C_2H_4 by H_2SO_4, and C_2H_2 by CuCl–aq. NaOH paste. The error is ± 0·4%. R. T.



B-E-2

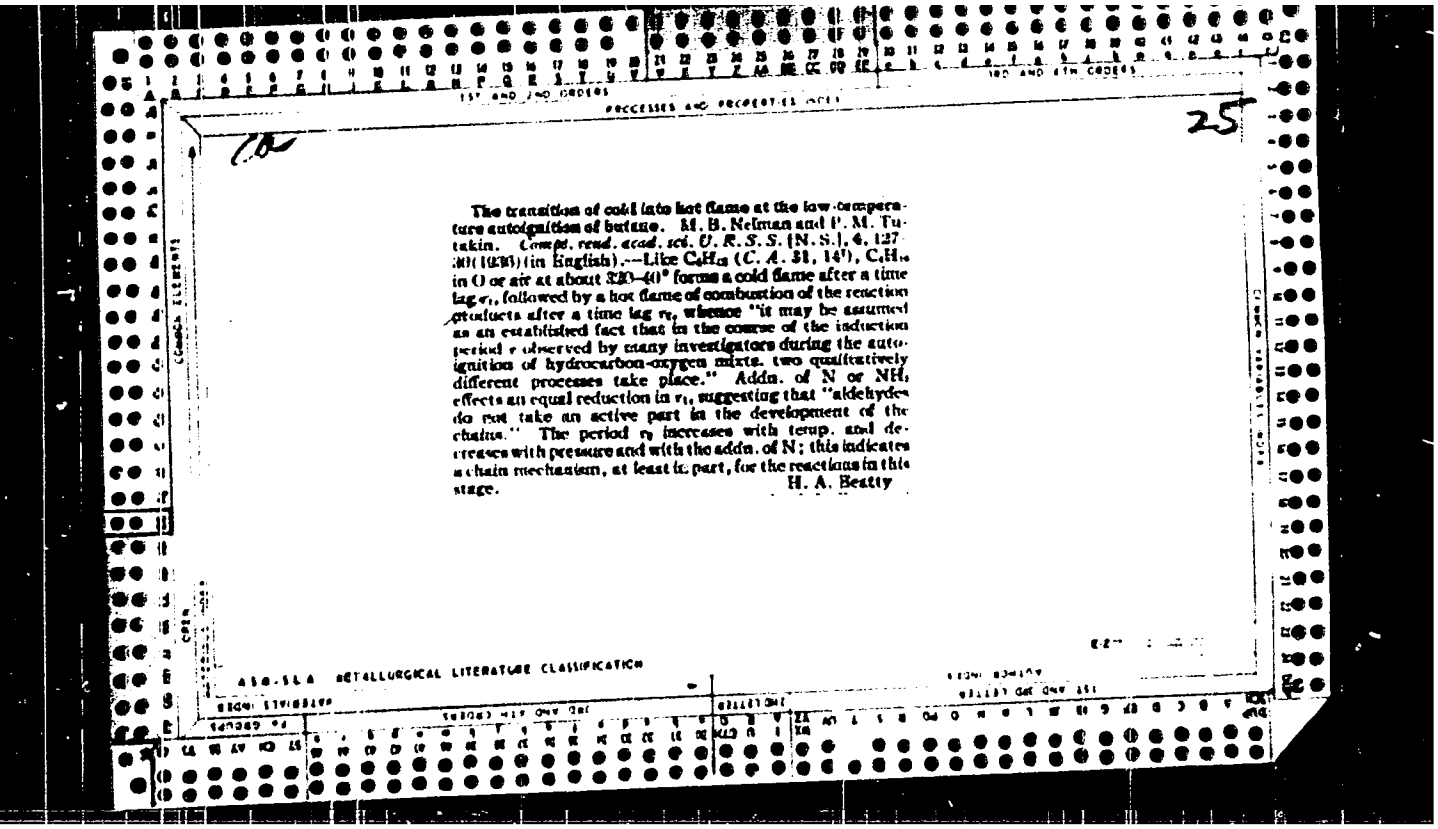
The cetene scale and the induction period preceding the spontaneous ignition of Diesel fuels in bombs. M. V. MICHAILOVA and M. B. NEUMANN (Compt. rend. Acad. Sci. U.R.S.S., 1936, 1, 143—147). —Comparative tests with a specially constructed bomb for recording the ignition lag photographically and with the Wokesha motor are described. The cetene numbers determined by the 2 methods are the same. H. J. E.



S1A

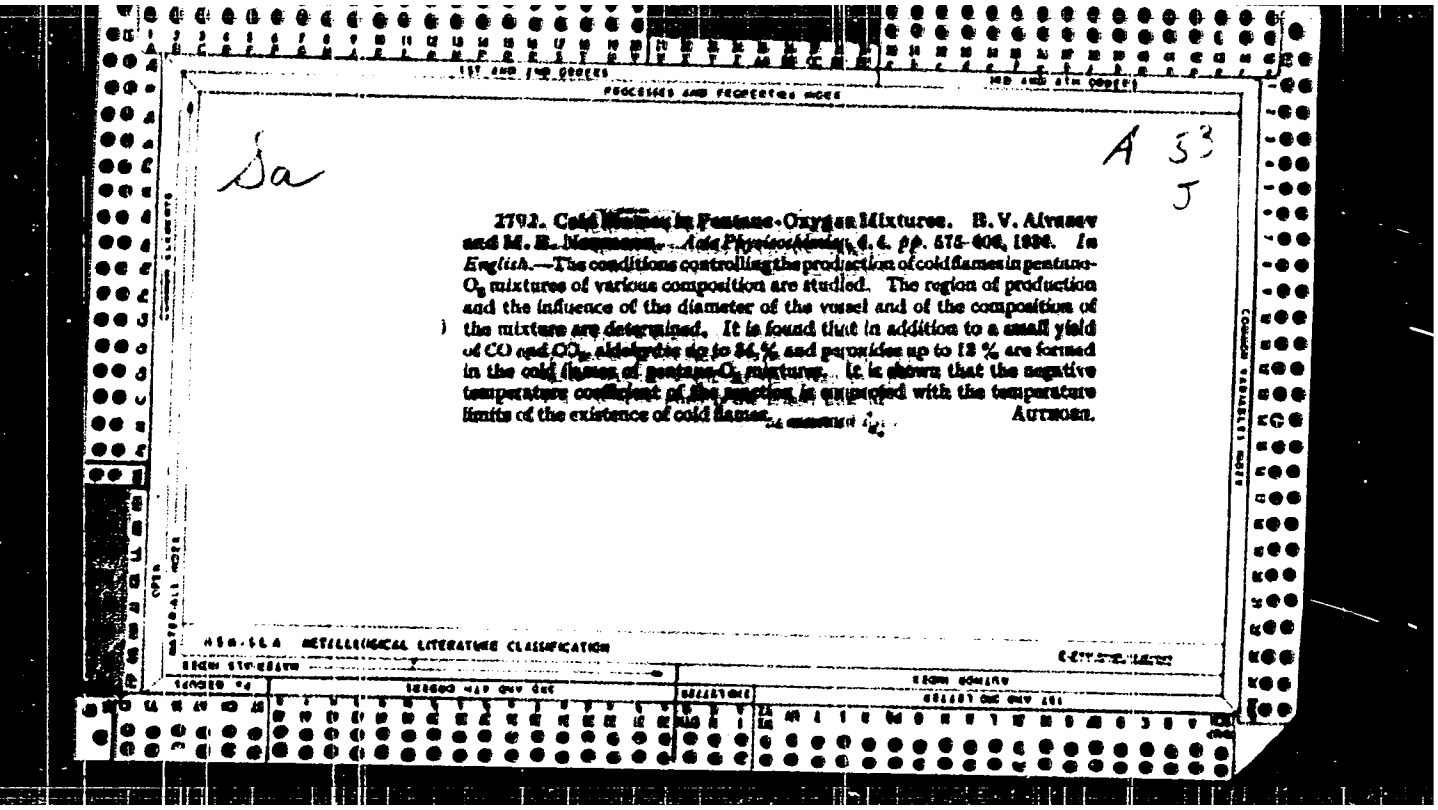
B62
A

1527. Testing the Inflammability of Diesel Fuels in Bombs. E. Kaulin, M. Neiman and A. Serbinov. *Techn. Phys., U.S.S.R.* 3. 1. pp. 3–15. 1936. *In English.*—It is mentioned that previous published work has dealt with tests made at comparatively low temperatures and it is found that this can give no conception of the comparative behaviour of different fuels at the higher pressures and temperatures occurring in Diesel engines. The construction of a special "bomb" for conducting tests on fuels at high temperatures and pressures is described and the experimental results on six oils obtained in this "bomb" are given. The period of induction in the self-ignition of mixtures of cetene with mesitylene was determined and a conditional cetene scale was set up. The foundations are given for the possibility of working out a method for the evaluation of Diesel fuels in bombs, in order to make more definite the concept of conditional cetene numbers. A Bibliography is given. F. R. C. R.



The transition of cold into hot flame at the low-temperature autoignition of butane. M. B. Neiman and P. M. Tutakin. *Compt. rend. acad. sci. U. R. S. S.* [N. S.], 4, 127-30 (1935) (in English).—Like C_6H_{14} (*C. A.* 31, 14[1]), C_4H_{10} in O or air at about 320–40° forms a cold flame after a time lag τ_1, followed by a hot flame of combustion of the reaction products after a time lag τ_2, whence "it may be assumed as an established fact that in the course of the induction period τ observed by many investigators during the autoignition of hydrocarbon-oxygen mixts. two qualitatively different processes take place." Addn. of N or NH_3 effects an equal reduction in τ_1, suggesting that "aldehydes do not take an active part in the development of the chains." The period τ_2 increases with temp. and decreases with pressure and with the addn. of N; this indicates a chain mechanism, at least in part, for the reactions in this stage.

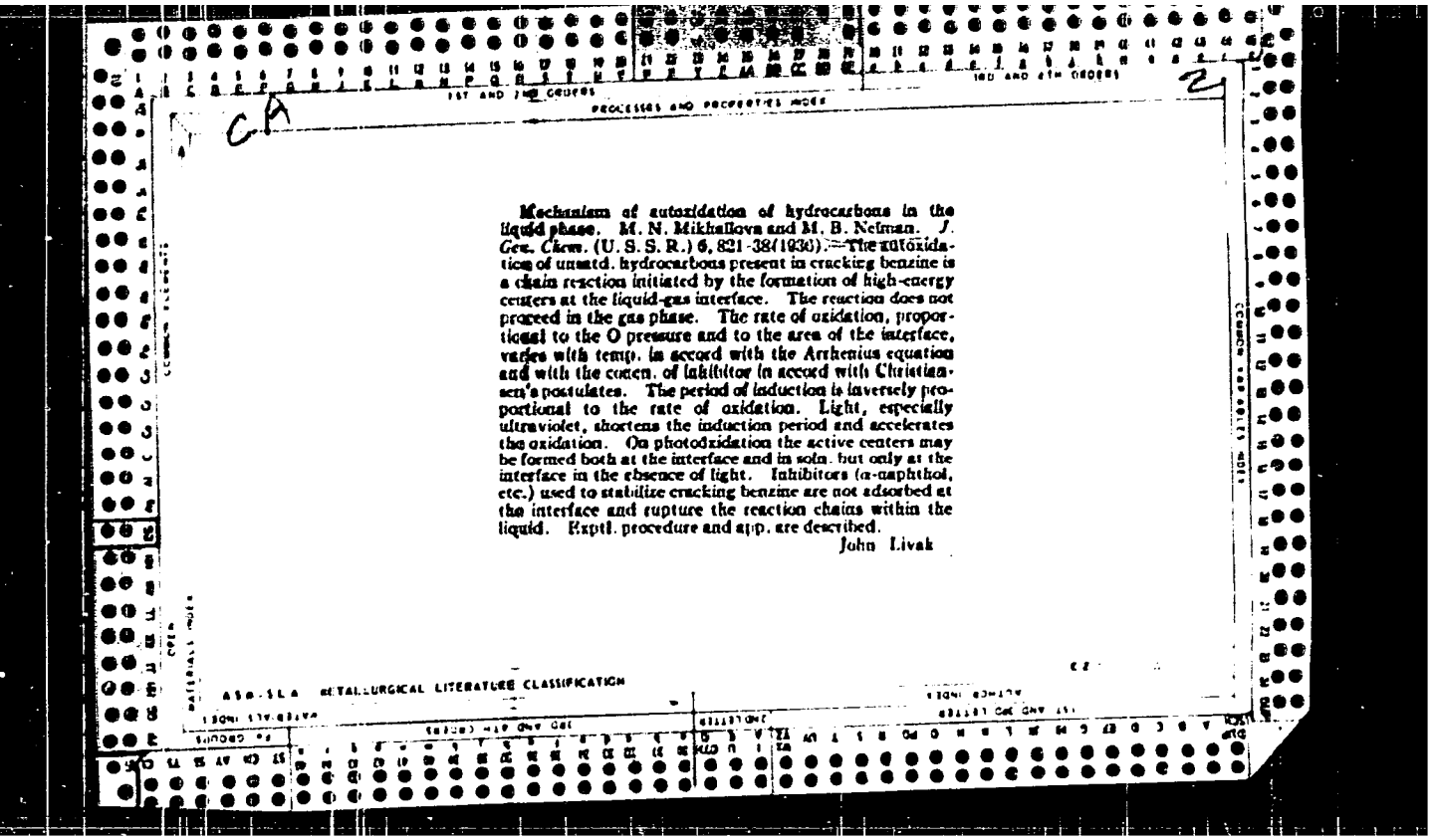
H. A. Beatty



Sa

A 53
J

2792. Cold Flames in Pentane-Oxygen Mixtures. B. V. Alvaev and M. E. Neumann. *Acta Physicochimica*, 4, 4, pp. 575-606, 1936. *In English.*—The conditions controlling the production of cold flames in pentane-O_2 mixtures of various composition are studied. The region of production and the influence of the diameter of the vessel and of the composition of the mixture are determined. It is found that in addition to a small yield of CO and CO_2, aldehydes up to 56 % and peroxides up to 13 % are formed in the cold flames of pentane-O_2 mixtures. It is shown that the negative temperature coefficient of the reaction is connected with the temperature limits of the existence of cold flames. AUTHOR.

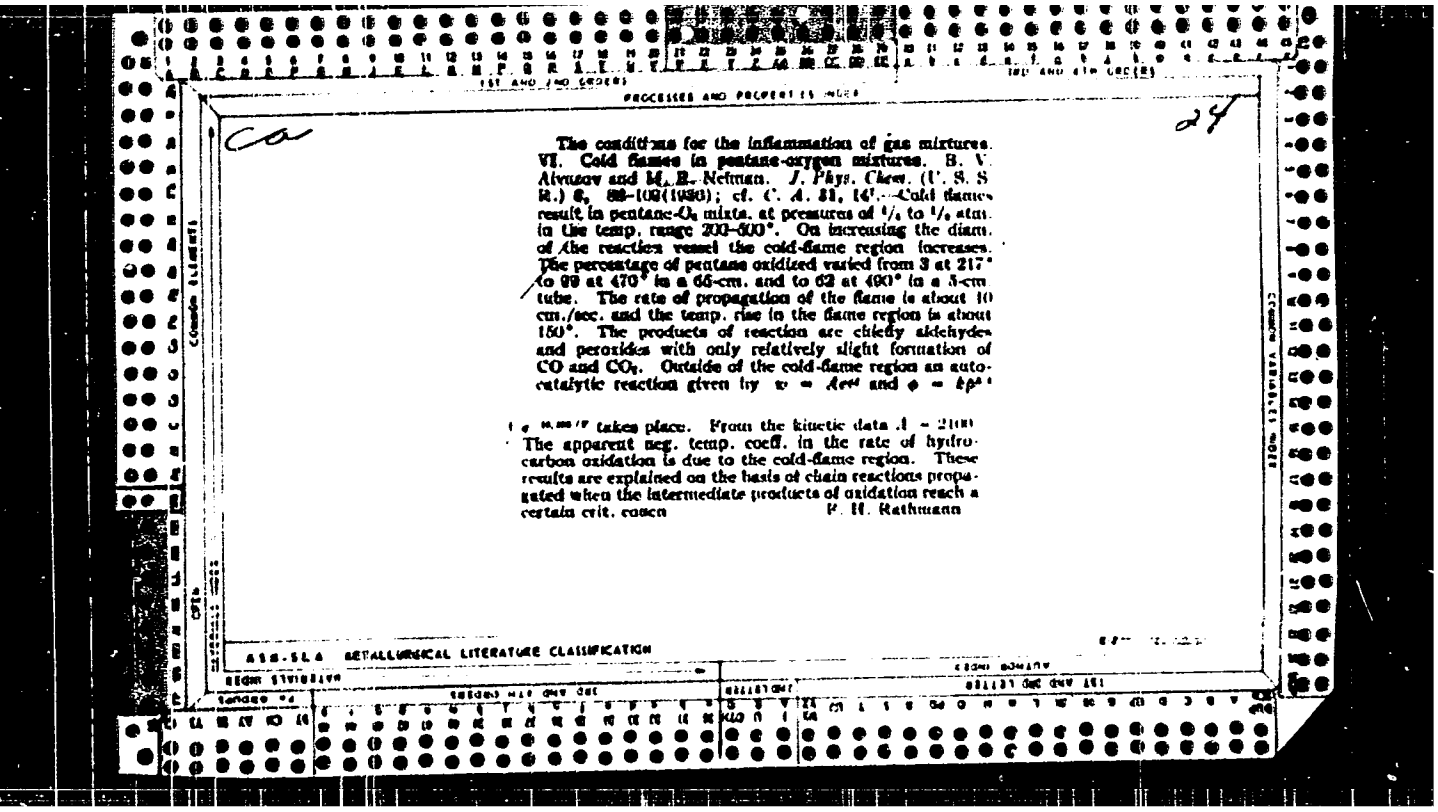


PROCESSES AND PROPERTIES INDEX

Mechanism of autoxidation of hydrocarbons in the liquid phase. M. N. Mikhailova and M. B. Neiman. *J. Gen. Chem.* (U. S. S. R.) 6, 821-38 (1936).—The autoxidation of unsatd. hydrocarbons present in cracking benzine is a chain reaction initiated by the formation of high-energy centers at the liquid-gas interface. The reaction does not proceed in the gas phase. The rate of oxidation, proportional to the O pressure and to the area of the interface, varies with temp. in accord with the Arrhenius equation and with the concn. of inhibitor in accord with Christiansen's postulates. The period of induction is inversely proportional to the rate of oxidation. Light, especially ultraviolet, shortens the induction period and accelerates the oxidation. On photooxidation the active centers may be formed both at the interface and in soln. but only at the interface in the absence of light. Inhibitors (α-naphthol, etc.) used to stabilize cracking benzine are not adsorbed at the interface and rupture the reaction chains within the liquid. Exptl. procedure and app. are described.

John Livak

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



PROCESSES AND PROPERTIES INDEX

Ca

24

The conditions for the inflammation of gas mixtures. VI. Cold flames in pentane-oxygen mixtures. B. V. Alyuzov and M. B. Neiman. *J. Phys. Chem.* (U. S. S. R.) 6, 88-103(1935); cf. *C. A.* 31, 147.—Cold flames result in pentane-O_2 mixts. at pressures of $^1/_4$ to $^1/_2$ atm. in the temp. range 200–500°. On increasing the diam. of the reaction vessel the cold-flame region increases. The percentage of pentane oxidized varied from 3 at 217° to 99 at 470° in a 66-cm. and to 62 at 490° in a 5-cm tube. The rate of propagation of the flame is about 10 cm./sec. and the temp. rise in the flame region is about 150°. The products of reaction are chiefly aldehydes and peroxides with only relatively slight formation of CO and CO_2. Outside of the cold-flame region an autocatalytic reaction given by $w = Ae^{\alpha}$ and $\phi = kp^{n}$ [illegible] takes place. From the kinetic data $A = 2(10)$ The apparent neg. temp. coeff. in the rate of hydrocarbon oxidation is due to the cold-flame region. These results are explained on the basis of chain reactions propagated when the intermediate products of oxidation reach a certain crit. concn

P. H. Rathmann

ASS-SLA METALLURGICAL LITERATURE CLASSIFICATION

NEIMAN, M. B.

The inflammation of gaseous mixtures. IX. Effect of nitrogen dioxide and methyl nitrite on the region of self inflammation of ethane-oxygen mixtures. G. A. Gimmel'man, M. B. Neiman and P. V. Sokov. *J. Phys. Chem.* (U. S. S. R.) 8, 485-97(1936).—At 350° to 500° at pressures of 5–20 cm. Hg both NO_2 and CH_3NO_2 are pos. catalysts, the nitrite being twice as effective because the aldehyde formed by decompn. also acts catalytically. The most effective admixt. is about 1.5% of either substance. The sensitizing catalytic effect is due to interaction of various chain reactions, and the explosion is due to resulting thermal effects. The energy of activation is about 26,500 cal. in the presence of 3% NO_2; i. e., the same as without the catalyst. P. H. Rathmann

PROCESSES AND PROPERTIES INDEX

-24

Conditions for the inflammation of gaseous mixtures

VII. Period of induction of cold flames in mixtures of pentane with oxygen. B. V. Aivazov and M. B. Neiman. *J. Phys. Chem.* (U. S. S. R.) **8**, 543-58(1936); cf. C. A. **31**, 2[illegible].—The period of induction τ is given by the equation $\tau = Ae^{-\gamma/T}[(a + b/d^2)/(p - p_0)(1 + [N_2]/p)]^2$ where T = temp., d = diam. of vessel, p = pressure, p_0 = min. pressure for cold flame formation, $[N_2]$ = partial pressure of nitrogen, and A, γ, a and b are consts. Exptl. data are given over the range 300-400° at 150 to 300 mm. Addn. of N_2 or CH_3CHO reduces the value of τ to about $^1/_2$ for 4% N_2 and $^1/_3$ for 5% $CH_3C\begin{smallmatrix}H\\O\end{smallmatrix}$ addn., resp. From 0.004 to 0.2% NO_2 greatly broadens the region of inflammation. The results are explained on the basis of the chain theory, the addn. of N_2, CH_3CHO and NO_2 increasing the no. of initial centers of reaction.

H. H. Rathmann

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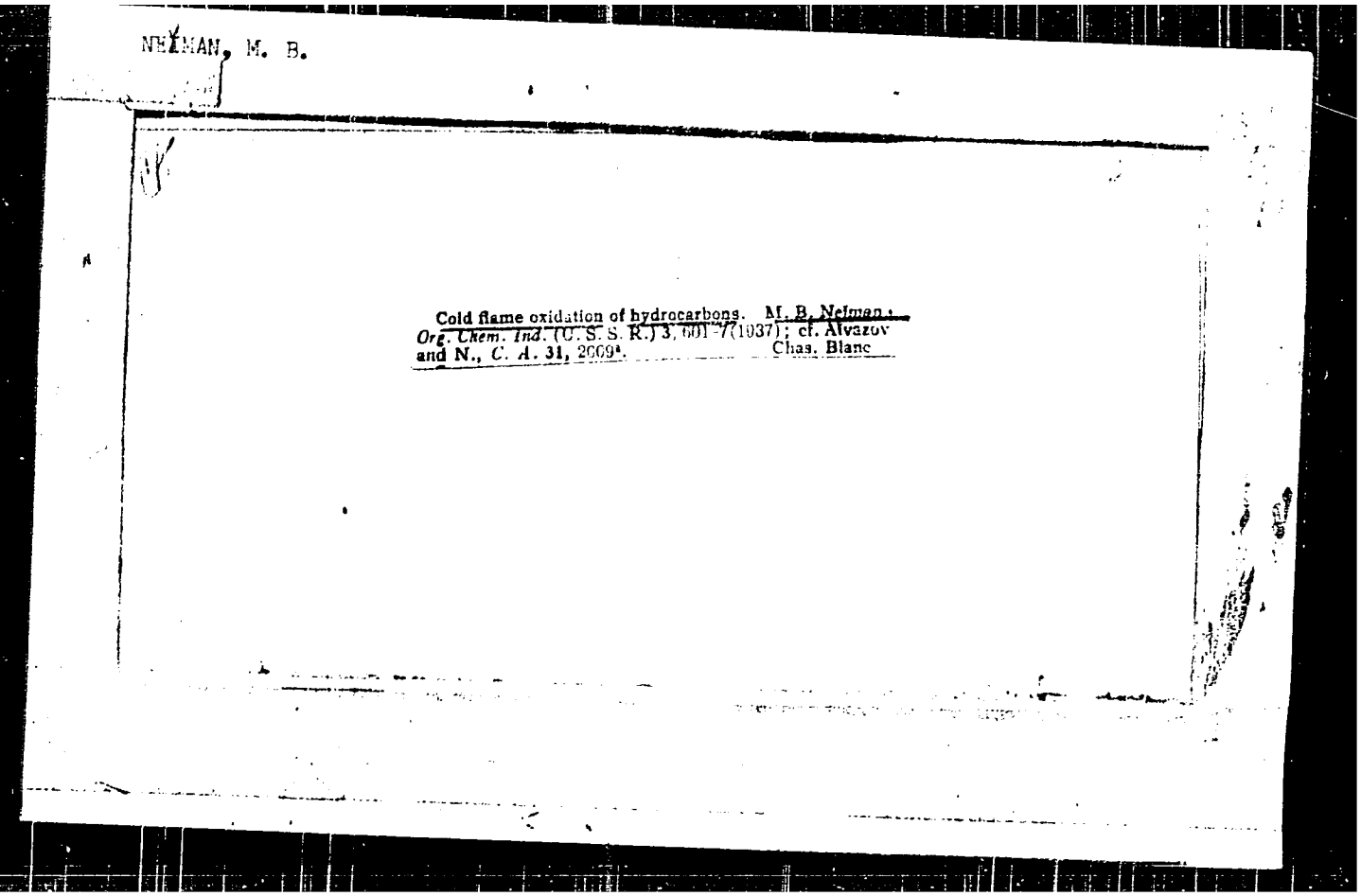
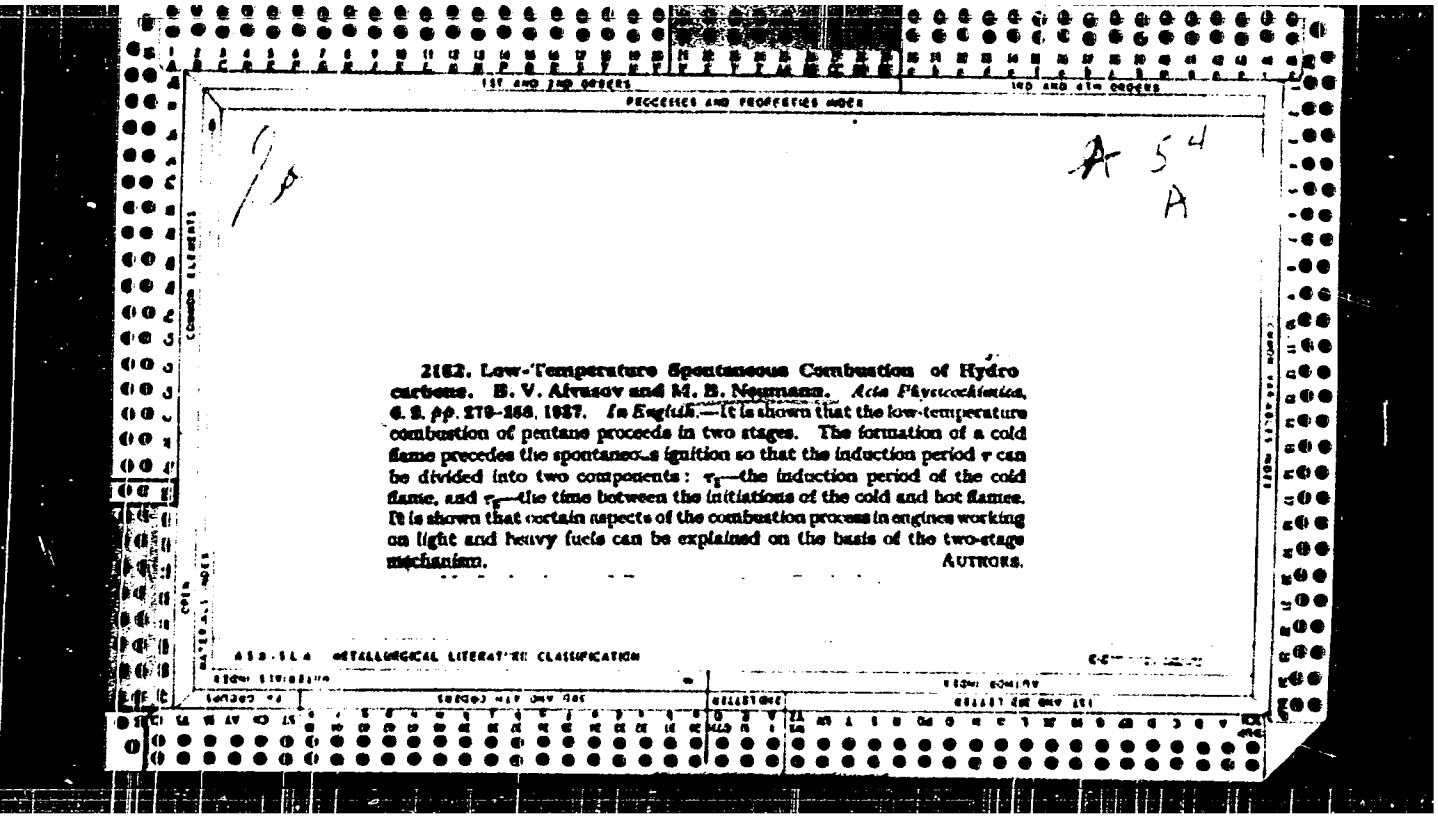
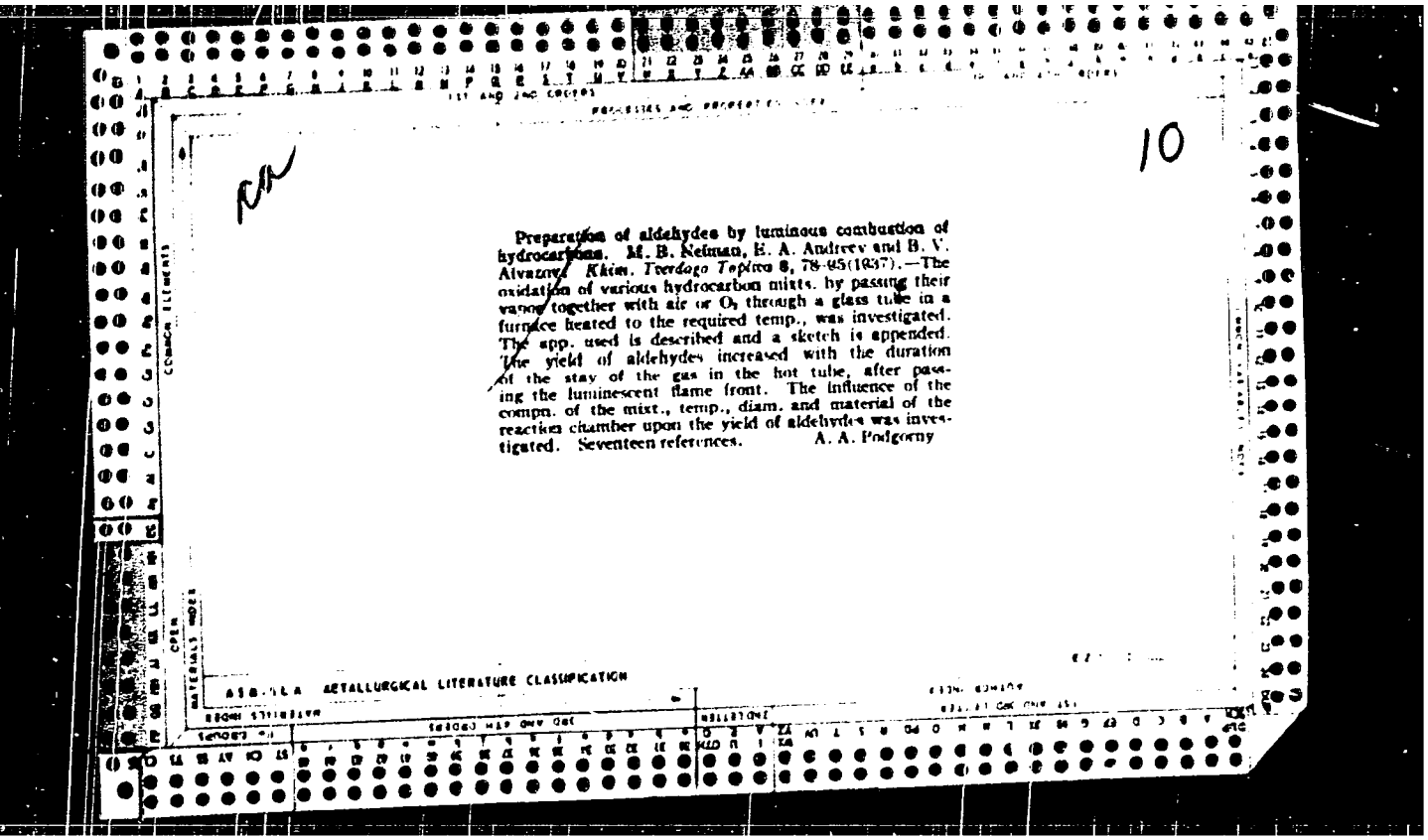


NEIMAN, M. B.

Cold flame oxidation of hydrocarbons. M. B. Neiman. *Org. Chem. Ind.* (U. S. S. R.) 3, 601–7(1937); cf. Alvazov and N., *C. A.* 31, 2609⁴. Chas. Blanc



2162. **Low-Temperature Spontaneous Combustion of Hydrocarbons.** B. V. Alvusov and M. B. Neumann. *Acta Physicochimica*, 6. 2. pp. 279–288. 1937. *In English.*—It is shown that the low-temperature combustion of pentane proceeds in two stages. The formation of a cold flame precedes the spontaneous ignition so that the induction period τ can be divided into two components: τ_1—the induction period of the cold flame, and τ_2—the time between the initiations of the cold and hot flames. It is shown that certain aspects of the combustion process in engines working on light and heavy fuels can be explained on the basis of the two-stage mechanism. AUTHORS.



10

Preparation of aldehydes by luminous combustion of hydrocarbons. M. B. Neiman, E. A. Andreev and B. V. Alvazov. *Khim. Tverdogo Topliva* 8, 78-85(1937).—The oxidation of various hydrocarbon mixts. by passing their vapors together with air or O_2 through a glass tube in a furnace heated to the required temp., was investigated. The app. used is described and a sketch is appended. The yield of aldehydes increased with the duration of the stay of the gas in the hot tube, after passing the luminescent flame front. The influence of the compn. of the mixt., temp., diam. and material of the reaction chamber upon the yield of aldehydes was investigated. Seventeen references. A. A. Podgorny

ASB-MLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

73C

A-1

Inflammation of gaseous mixtures. VIII. Two-stage mechanism of low-temperature self-inflammation of pentane. B. V. Aivazov and M. B. Neumann (J. Phys. Chem. Russ., 1937, 9, 231—238).—The self-inflammation of C_5H_{12} at 300—400° is a two-stage process. A cold flame (propagation velocity ~7—10 cm. per sec.) is formed after an induction period of a few sec. At $p > p_{min}$ it is followed, in <1 sec., by a hot flame (velocity 500—1000 m. per sec.). For $C_5H_{12} + 4O_2$ at 318°, p_{min} is 330 mm. The two-stage mechanism is assumed to be responsible for the low-temp. self-inflammation of other hydrocarbons as well, and is applied to the explanation of combustion processes in Diesel motors. E. R.

ASA-SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

Conditions of inflammation of gas mixtures. X. Influence of methyl nitrite on the oxidation of methane and ethane. O. A. Gimmelman and M. B. Neiman. *J. Phys. Chem.* (U. S. S. R.) 9, 710-30(1937); cf. C. A. 31, 1290[5].—Addn. of $MeNO_2$ to MeH and EtH mixts. with air or 3[1]/[2] O_2 speeds up the oxidation reaction, and the hydrocarbons are oxidized without an induction period. With rising temp. and pressure the velocity of reaction increases, but the apparent energy of activation for an EtH mixt. sensitized with 2% $MeNO_2$ falls from 72,000 at 35 mm. to 37,000 at 50 mm. Above certain crit. limits of p_0 and T_0 spontaneous explosion occurs. Up to 50% of reaction the speed of reaction is const. and is proportional roughly to the concn. of $MeNO_2$. The reaction is a typical chain reaction with branching chains. F. H. R.

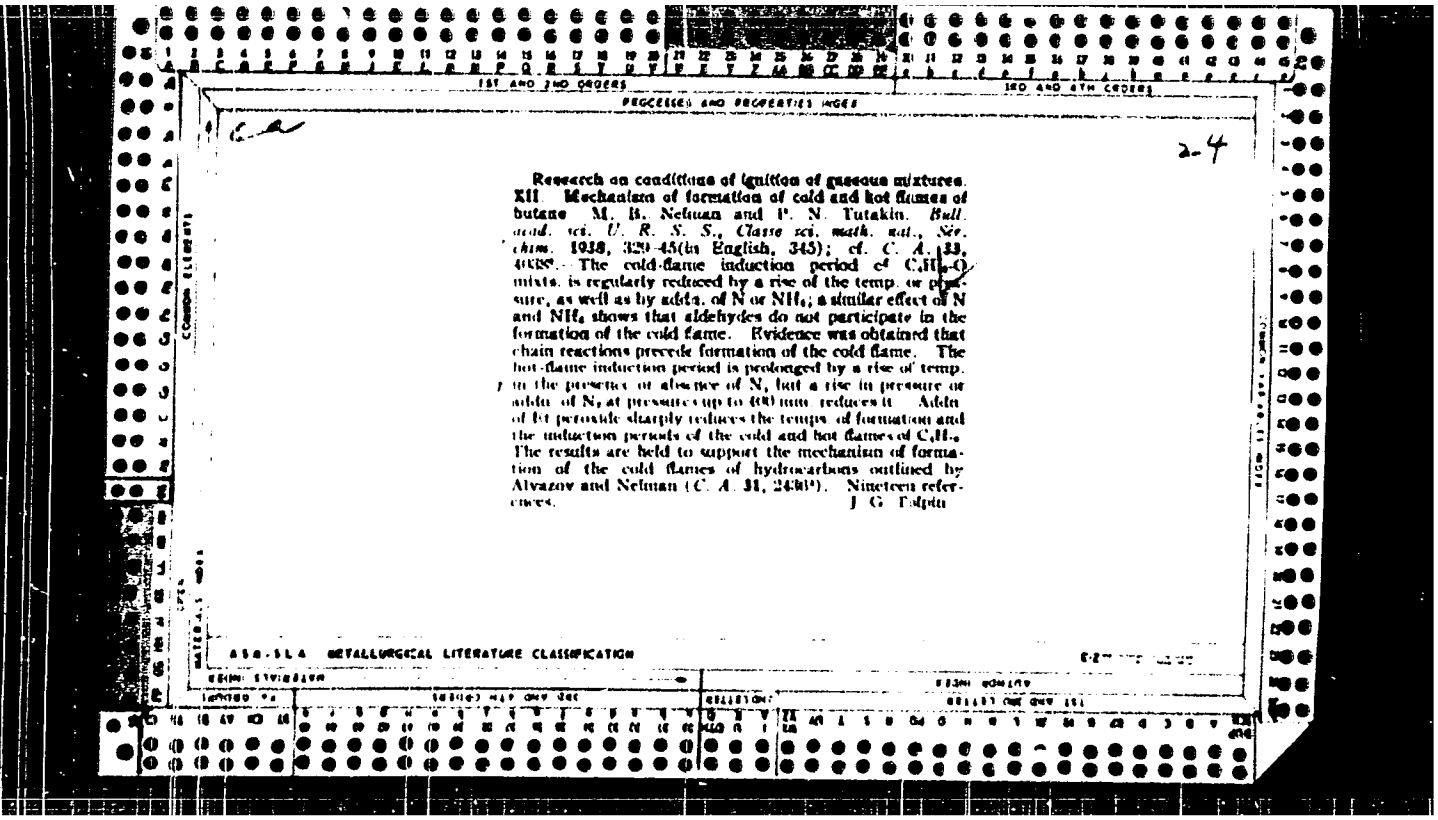
ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

PROCESSES AND PROPERTIES INDEX

Conditions of ignition of gaseous mixtures. XI. Effect of admixtures on the induction period of the cold and hot flame of butane. B. V. Aivazov, M. B. Neiman and I. I. Khanova. *Bull. acad. sci. U. R. S. S., Classe sci. math. nat., Ser. chim.* **1938**, 307-26 (in English, 326-7); cf. C. A. **32**, 2355[a], 4860[a].—From a study of the effect of admixts. of H, CO_2, iso-Pr_2O and Et_2O on the period of induction of the cold and hot flames in equimol. mixts. of C_4H_{10} with O, a formula was derived for the change of the cold flame induction period for the general case of the rupture of the hydrocarbon chains. Of the substances tested the effect of the first 3 on the induction period and the region of cold flame of C_4H_{10} is similar to that of inert admixts., while Et_2O behaves as a pos. catalyst of oxidation of hydrocarbons; it sharply reduces the induction periods and promotes ignition at low temps. It is assumed that the accelerating effect of (iso-Pr)$_2$O upon the reaction is compensated by its retarding effect so that its total effect is similar to that of an inert gas. In two-stage spontaneous ignition the induction period of the hot flame, as a function of the temp., possesses a clearly defined max. at about 320°; this is shifted to about 290° in the presence of Et_2O. The hot-flame induction period is prolonged by admixt. of inert gases at all temps. under a pressure of 470 mm. The effect of the admixts. is explained on the basis of the chain theory. Twenty-seven references.

J. G. Tolpin

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

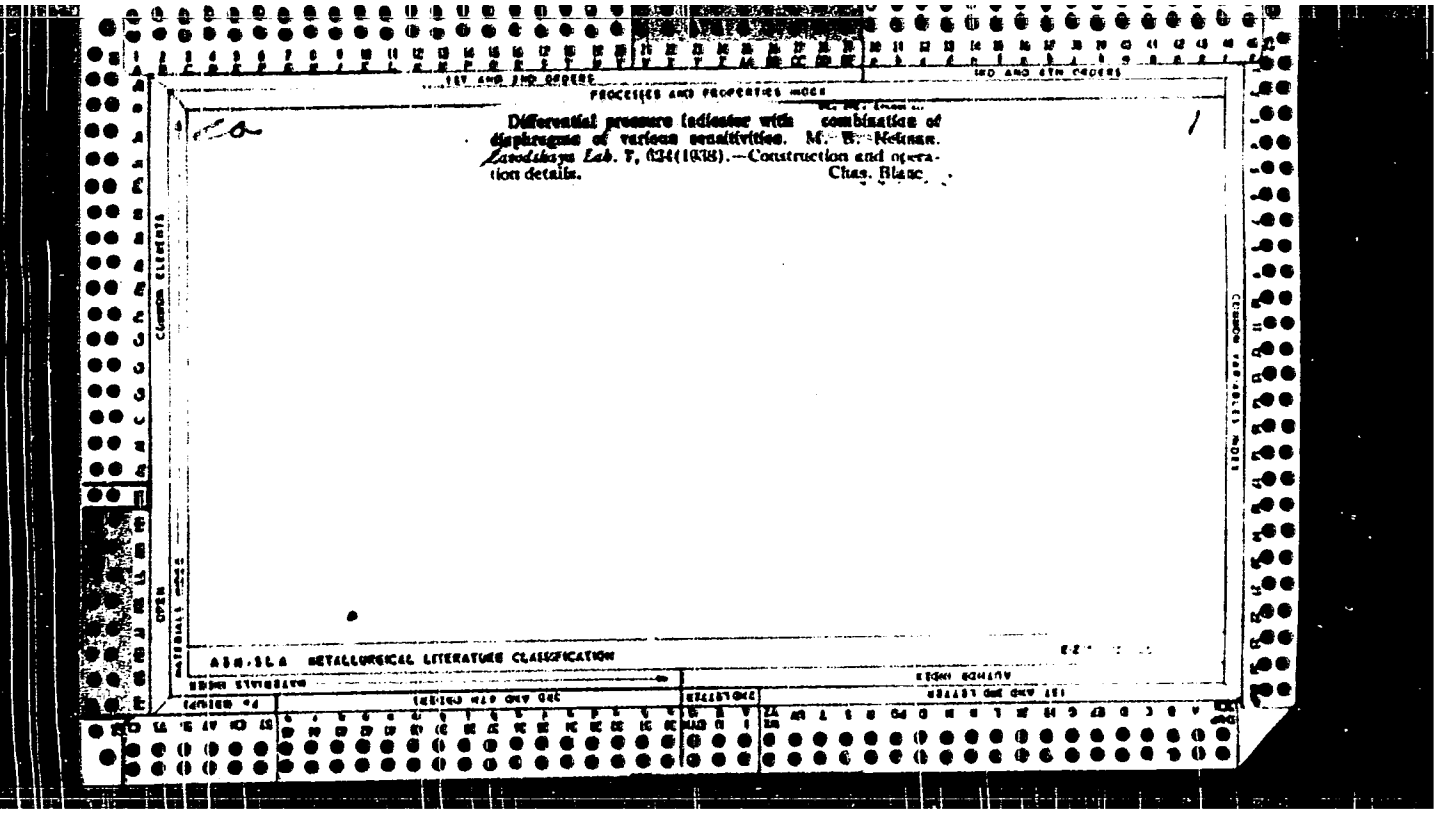
2-4

Research on conditions of ignition of gaseous mixtures. XII. Mechanism of formation of cold and hot flames of butane. M. B. Neiman and P. N. Tutakin. *Bull. acad. sci. U. R. S. S., Classe sci. math. nat., Sér. chim.* 1938, 329-45(in English, 345); cf. *C. A.* **33**, 4088. The cold-flame induction period of C_4H_{10}-O_2 mixts. is regularly reduced by a rise of the temp. or pressure, as well as by addn. of N or NH_4; a similar effect of N and NH_4 shows that aldehydes do not participate in the formation of the cold flame. Evidence was obtained that chain reactions precede formation of the cold flame. The hot-flame induction period is prolonged by a rise of temp. in the presence or absence of N, but a rise in pressure or addn. of N, at pressures up to 600 mm. reduces it. Addn. of Et peroxide sharply reduces the temps. of formation and the induction periods of the cold and hot flames of C_4H_{10}. The results are held to support the mechanism of formation of the cold flames of hydrocarbons outlined by Alvazov and Neiman (*C. A.* **31**, 2480[9]). Nineteen references. J. G. Dalpin

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

Role of peroxides in the formation of cold and of hot hydrocarbon flames. M. B. Neiman. *Uspekhi Khim.* 7, 341-84(1938).—A review to a large extent of the work of N. and his coworkers. The origin of cold and of hot flames at reduced and increased pressures is discussed from the standpoint of the Semenov theory of chain initiation and chain branching, of the induction period, the two-stage regions of self-inflammation, mechanism of hydrocarbon oxidation, the role of the decompn. of peroxides in hydrocarbon flames, their slow combustion and explosions, the kinetics of Me and Et peroxide decompn. and the effect of antiknocks. The combustions of butane, pentane and isopropyl ether are discussed as examples. N. then considers the possibility of the use of cold-flame reactions as a possible means for the *prepn. of certain types of org. substances, especially of aldehydes,* and cites figures to prove its feasibility. F. H. Rathmann

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



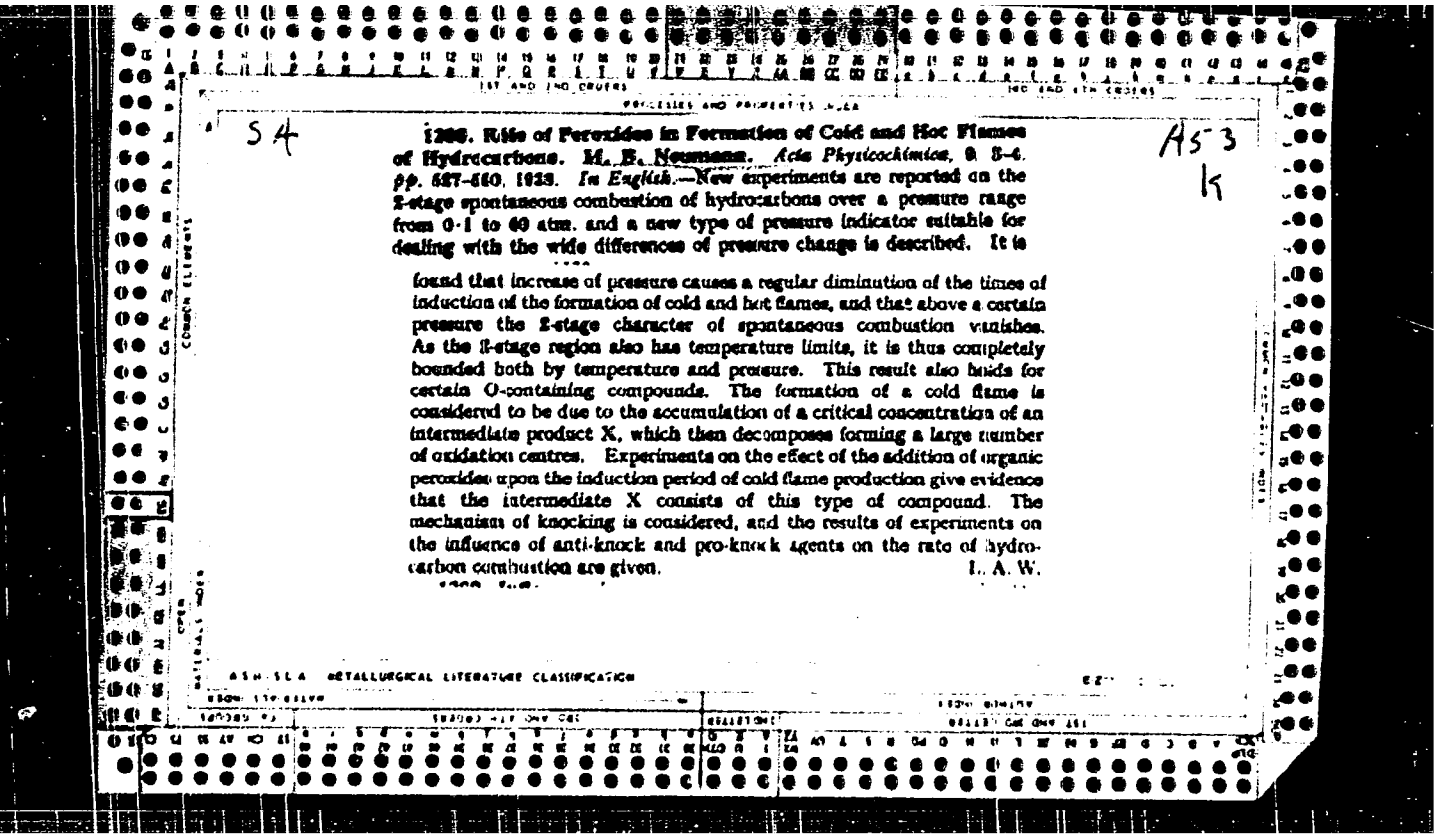
Differential pressure indicator with combination of diaphragms of various sensitivities. M. B. Neiman. *Zavodskaya Lab.* 7, 624(1938).—Construction and operation details. Chas. Blanc.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

30

Preparation of aldehydes by the cold flame oxidation of waste in the synthetic rubber industry. V. I. Gusynkin and M. B. Neiman. *Khim. Pererabot. Topliva* 9, 151 9' 1948). cf. Neiman, Andreev and Anvarov, C. A. 31, 6613[?]. A modified *app.* and its use are described. The yield of aldehydes decreased when the linear velocity of gas was over 10 cm. per sec. The condensate contained 14.3-15.9% aldehydes and 0.62-1.37% acids. After storage for 6 months the aldehyde and acid contents were 9.27 10.62 and 1.03-1.30%, resp. A method for industrial application and stabilization of the condensate was studied. A. A. Podgorny

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



S4

1288. Rôle of Peroxides in Formation of Cold and Hot Flames of Hydrocarbons. M. B. Neumann. *Acta Physicochimica*, 9, 3–6, pp. 627–660, 1938. *In English.*—New experiments are reported on the 2-stage spontaneous combustion of hydrocarbons over a pressure range from 0·1 to 60 atm. and a new type of pressure indicator suitable for dealing with the wide differences of pressure change is described. It is found that increase of pressure causes a regular diminution of the times of induction of the formation of cold and hot flames, and that above a certain pressure the 2-stage character of spontaneous combustion vanishes. As the 2-stage region also has temperature limits, it is thus completely bounded both by temperature and pressure. This result also holds for certain O-containing compounds. The formation of a cold flame is considered to be due to the accumulation of a critical concentration of an intermediate product X, which then decomposes forming a large number of oxidation centres. Experiments on the effect of the addition of organic peroxides upon the induction period of cold flame production give evidence that the intermediate X consists of this type of compound. The mechanism of knocking is considered, and the results of experiments on the influence of anti-knock and pro-knock agents on the rate of hydrocarbon combustion are given. L. A. W.

A5-3
K

Influence of admixtures on the induction period of cold and hot flames in butane. B. V. Aivazov, M. B. Neumann, and I. I. Chanova (Acta Physicochim. U.R.S.S., 1938, 9, 767—794).—The induction period of a cold flame, t_1, in C_4H_{10}-O_2 mixtures depends on temp. and pressure according to $t_1(p - p_c)^{1 \cdot 8}e^{-E/RT}$ = const., p_c denoting the min. pressure at which the cold flame appears. t_1 is reduced by addition of H_2, CO_2, Et_2O, and $Pr^{\beta}{}_2O$. H_2, CO_2, and $Pr^{\beta}{}_2O$ also increase the induction period of the hot flame, t_2, but Et_2O reduces t_2. At low temp. H_2 and $Pr^{\beta}{}_2O$ retard and at high temp. accelerate the appearance of the hot and cold flames. CO_2 reduces the region of the hot flame at all temp., but the region of the cold flame is widened at low and narrowed at high temp. Et_2O displaces the regions of hot and cold flames in the directions of low temp. and pressures. A method of calculating the influence of inert gases on t_1 has been developed. For H_2 and CO_2 $t_1 \sim 0{\cdot}9t_c$ where t_c is the induction period in absence of inert gas. The data are discussed.

C. R. H.

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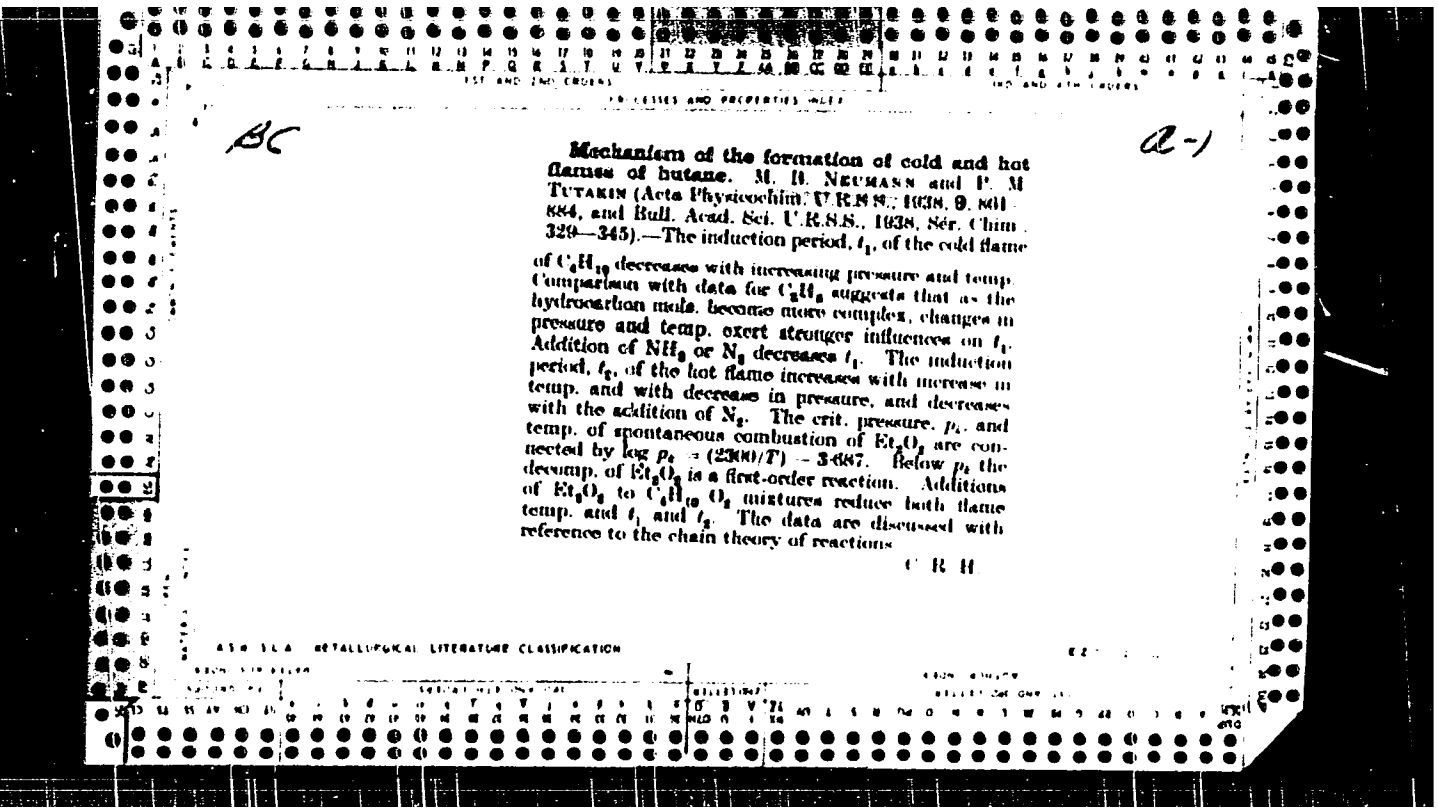
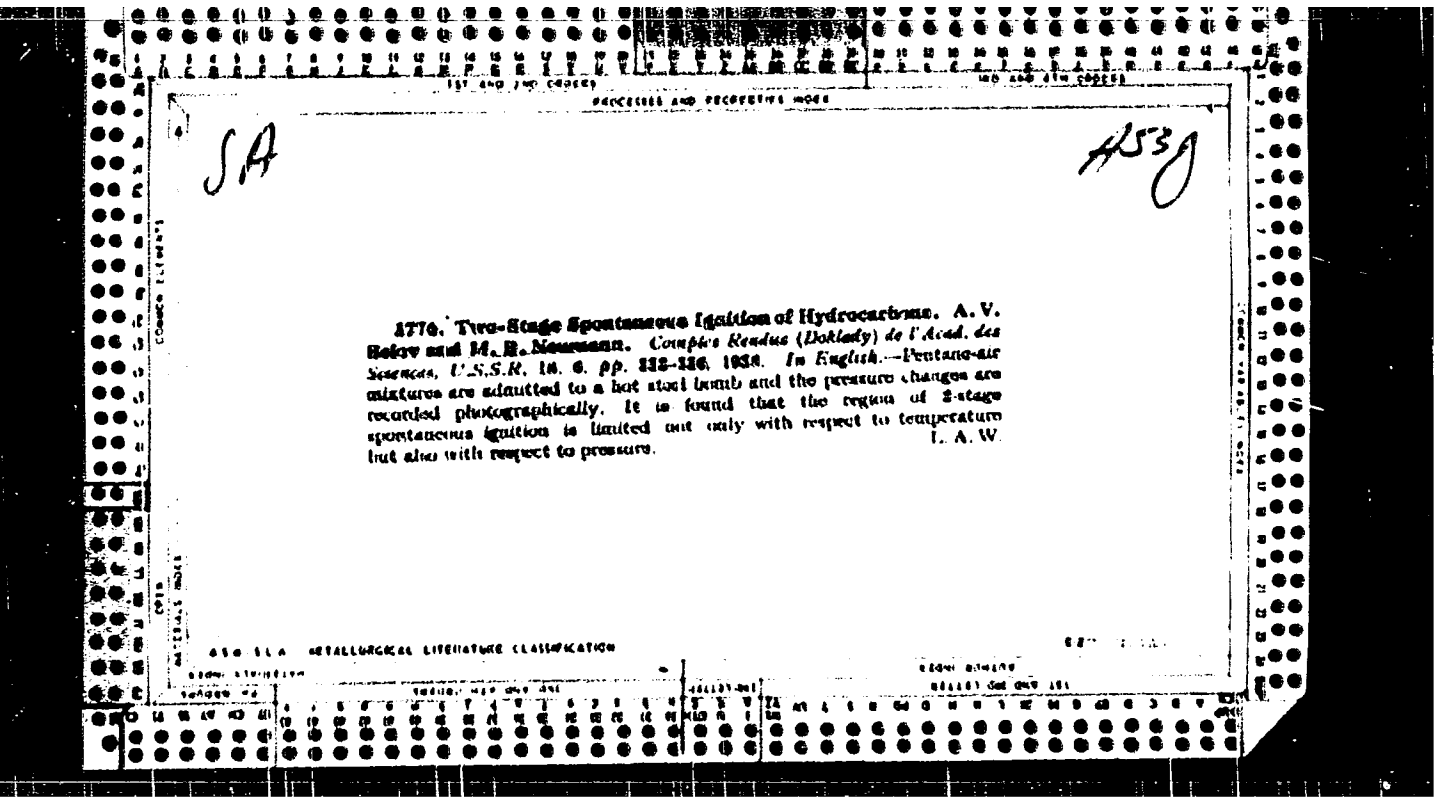


BC

a-1

Mechanism of the formation of cold and hot flames of butane. M. B. NEUMANN and P. M. TUTAKIN (Acta Physicochim. U.R.S.S., 1938, 9, 861–884, and Bull. Acad. Sci. U.R.S.S., 1938, Sér. Chim., 329—345).—The induction period, t_1, of the cold flame of C_4H_{10} decreases with increasing pressure and temp. Comparison with data for C_2H_6 suggests that as the hydrocarbon mols. become more complex, changes in pressure and temp. exert stronger influences on t_1. Addition of NH_3 or N_2 decreases t_1. The induction period, t_2, of the hot flame increases with increase in temp. and with decrease in pressure, and decreases with the addition of N_2. The crit. pressure, p_k, and temp. of spontaneous combustion of Et_2O_2 are connected by $\log p_k = (2300/T) - 3{\cdot}687$. Below p_k the decomp. of Et_2O_2 is a first-order reaction. Additions of Et_2O_2 to C_4H_{10}–O_2 mixtures reduce both flame temp. and t_1 and t_2. The data are discussed with reference to the chain theory of reactions.

C. R. H.



SA

453

1776. **Two-Stage Spontaneous Ignition of Hydrocarbons.** A. V. **Belov and M. B. Neumann.** *Comptes Rendus (Doklady) de l'Acad. des Sciences, U.S.S.R.*, 18. 6. pp. 322-326. 1938. *In English.*—Pentane-air mixtures are admitted to a hot steel bomb and the pressure changes are recorded photographically. It is found that the region of 2-stage spontaneous ignition is limited not only with respect to temperature but also with respect to pressure. L. A. W.

PROCESSES AND PROPERTIES INDEX

Artificial resins M. B. Neiman and Sh. M. Itenberg. Russ. 50,088, May 31, 1930. Phenols and amines are condensed with a mixt. of liquid products obtained in the oxidation of org. substances described in Russ. 51,180 (C. A. 33, 4708).

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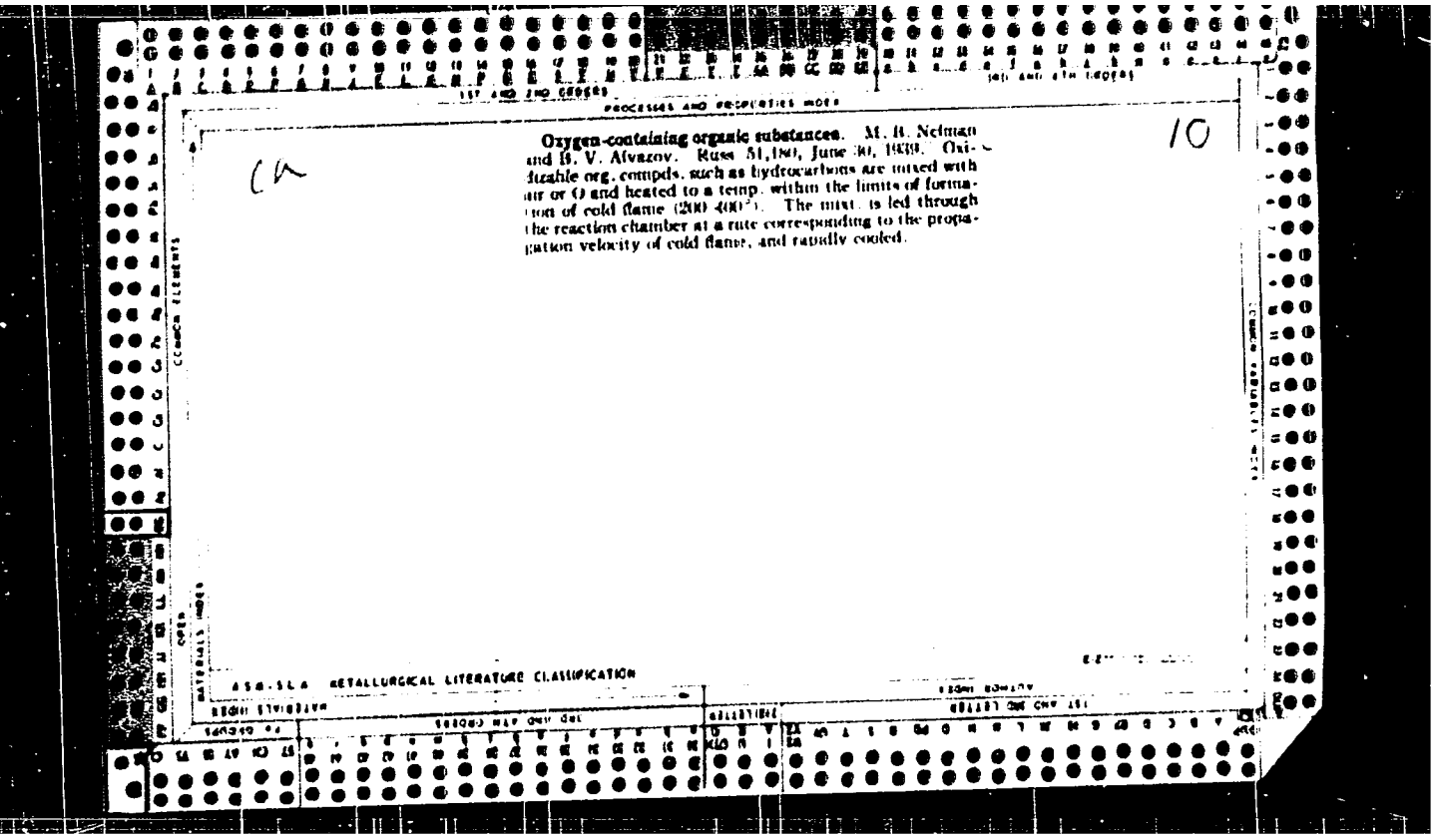
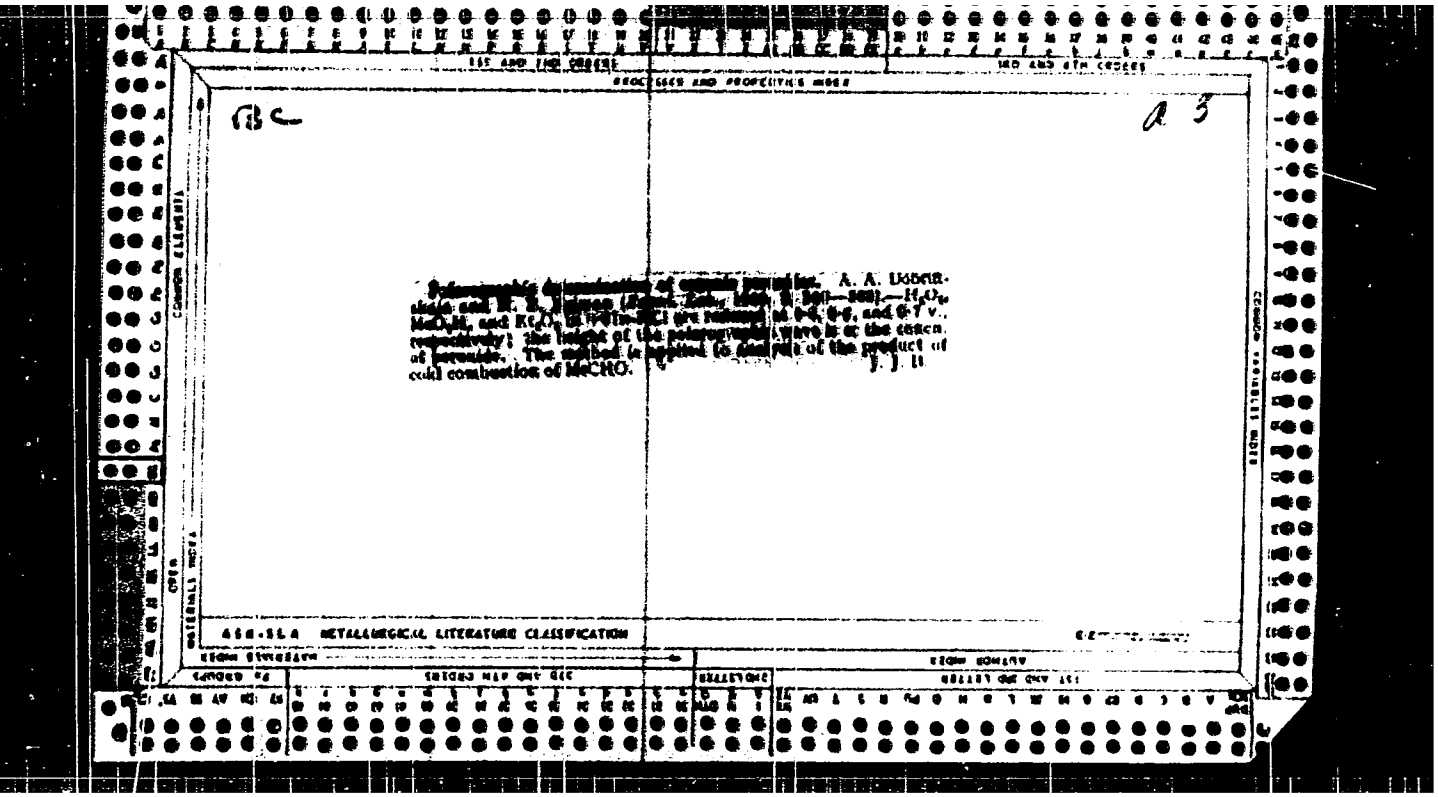


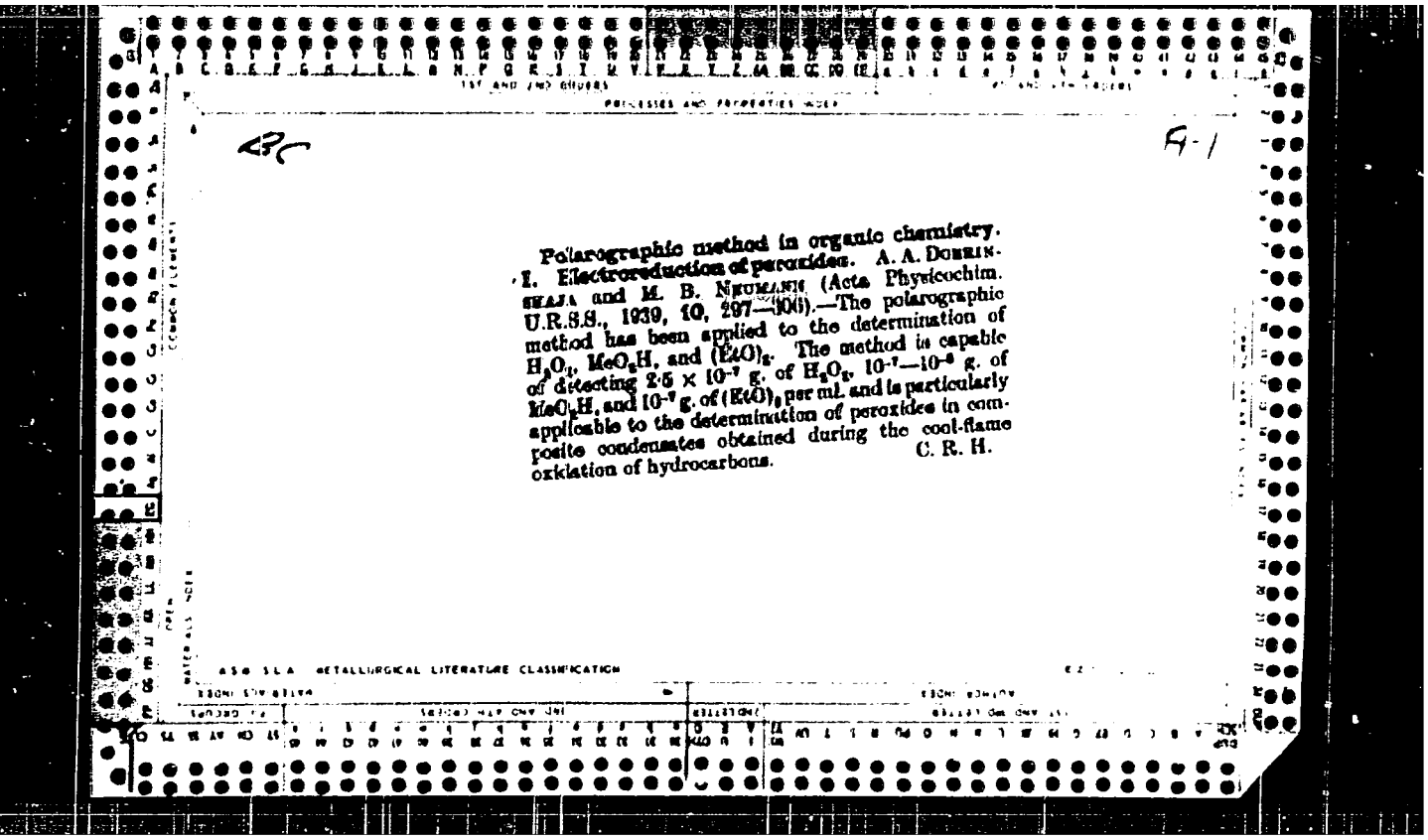
Oxygen-containing organic substances. M. B. Neiman and B. V. Alvazov. Russ 51,180, June 30, 1939. Oxidizable org. compds. such as hydrocarbons are mixed with air or O and heated to a temp. within the limits of formation of cold flame (200-400°). The mixt. is led through the reaction chamber at a rate corresponding to the propagation velocity of cold flame, and rapidly cooled.



NEIMAN, M. B.

C4 24

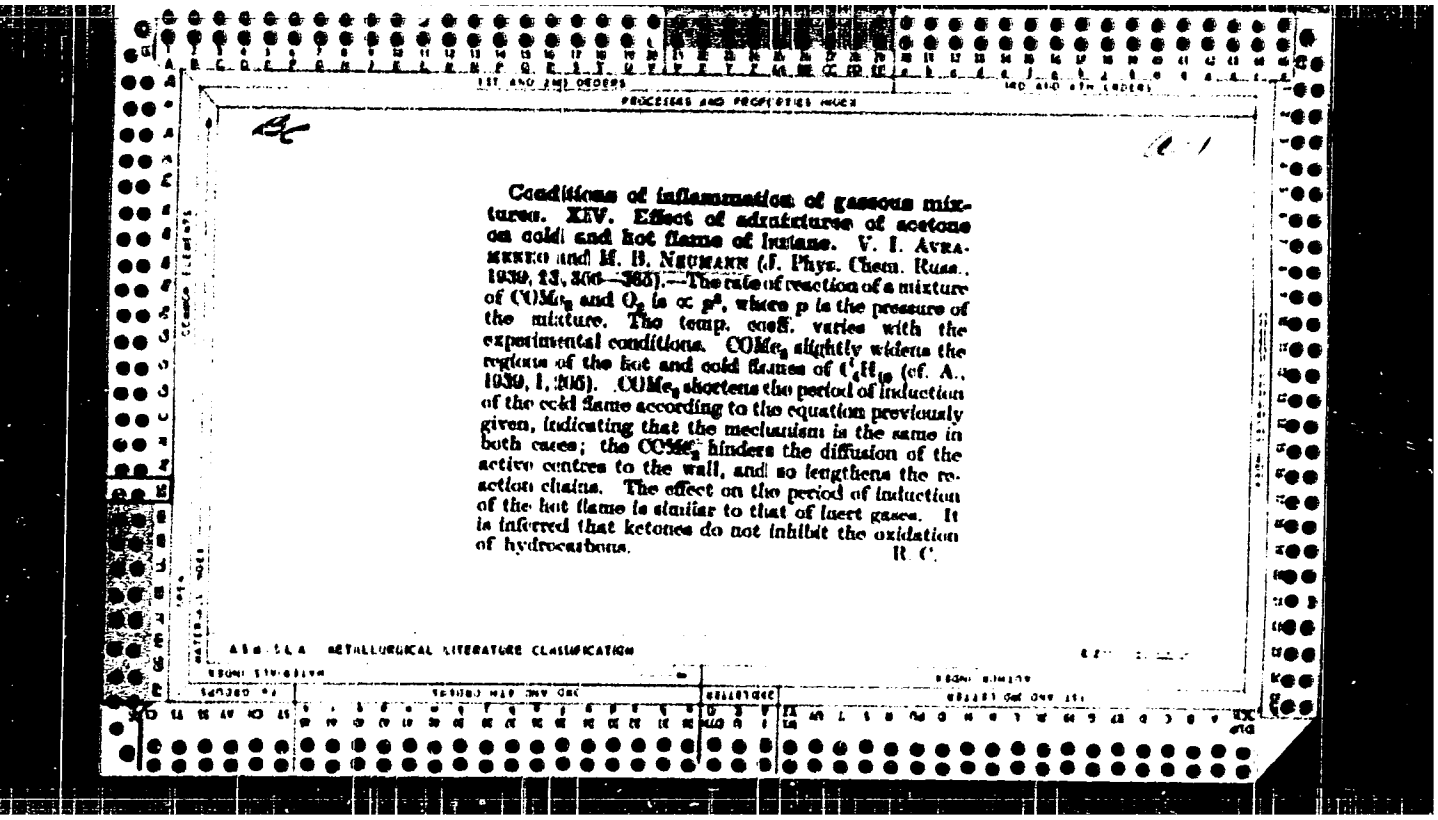
Conditions of ignition of gaseous mixtures. XIII. The effect of admixture of organic peroxides on the formation of cold flame of butane. [illegible] Dat, M. I. Gerber and M. B. Neiman. *J. Gen. Chem.* (U. S. S. R.) 9, 732-47 (1939); cf. Neiman and Futalin, *C. A.* 33, 4424⁶.—Addn. of Et_2O_2 or Me_2O_2 to a C_4H_{10}-O_2 mixt. decreased the cold-flame induction period. The cold flame was formed as the result of accumulation of a critical concn. of peroxides. The thermal decompn. of peroxides induced the cold-flame formation, which in turn could be transformed into the hot flame if the initial pressure of the mixt. was above a certain value. Math. deductions, based on the assumption that during the cold-flame induction period the reaction proceeded and was catalyzed by the peroxides, were developed. The velocity of this reaction is given by $dx/dt = w_0 + kx$, where w_0 is the velocity of primary oxidation process, k is a const. and x the amt. of peroxides. The calcd. induction period agreed well with the observed values [illegible]enty-one references. A. A. P.



A-1

Polarographic method in organic chemistry. I. Electroreduction of peroxides. A. A. Dubinskaya and M. B. Neiman (Acta Physicochim. U.R.S.S., 1939, 10, 297—300).—The polarographic method has been applied to the determination of H_2O_2, MeO_2H, and $(EtO)_2$. The method is capable of detecting 2.5×10^{-7} g. of H_2O_2, 10^{-7}—10^{-6} g. of MeO_2H, and 10^{-7} g. of $(EtO)_2$ per ml. and is particularly applicable to the determination of peroxides in composite condensates obtained during the cool-flame oxidation of hydrocarbons. C. R. H.

ASS SLA METALLURGICAL LITERATURE CLASSIFICATION



Conditions of inflammation of gaseous mixtures. XIV. Effect of admixtures of acetone on cold and hot flame of butane. V. I. AVRAMENKO and M. B. NEUMANN (J. Phys. Chem. Russ., 1939, 13, 360—365).—The rate of reaction of a mixture of $COMe_2$ and O_2 is $\propto p^2$, where p is the pressure of the mixture. The temp. coeff. varies with the experimental conditions. $COMe_2$ slightly widens the regions of the hot and cold flames of C_4H_{10} (cf. A., 1939, I, 305). $COMe_2$ shortens the period of induction of the cold flame according to the equation previously given, indicating that the mechanism is the same in both cases; the $COMe_2$ hinders the diffusion of the active centres to the wall, and so lengthens the reaction chains. The effect on the period of induction of the hot flame is similar to that of inert gases. It is inferred that ketones do not inhibit the oxidation of hydrocarbons.

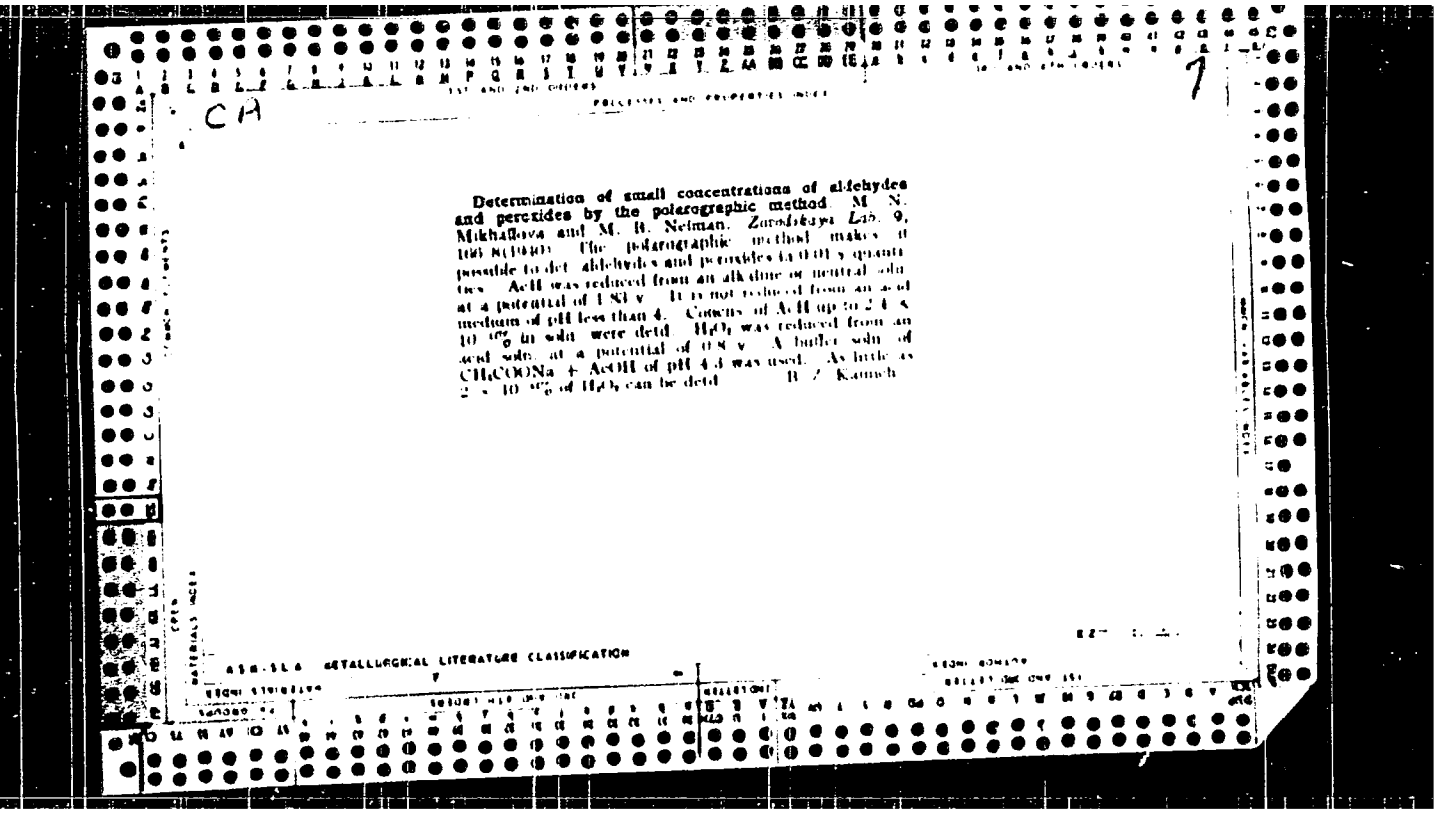
R. C.

1. YERMAKOVA, K.I.; YERMOLOVA, A.P.; NEYMAN, M.B.

2. USSR (600)

"Research on the Conditions of the Combustion of Gaseous Mixtures --XV. The Cold and Hot Flames of Methyl Ether, "Zhur. Fiz. Khim, 13, No. 12, 1939. Leningrad, Inst. of Chemical Physics, Lab. of the Oxidation of Hydrocarbons. Received 26 July 1939.

9. [redacted] Report U-1615, 3 Jan 1952.



CA

Determination of small concentrations of aldehydes and peroxides by the polarographic method. M. N. Mikhailova and M. B. Neiman. *Zavodskaya Lab.* 9, 1065 (1940). The polarographic method makes it possible to det. aldehydes and peroxides in oily quantities. AcH was reduced from an alk. or neutral soln. at a potential of 1.85 v. It is not reduced from an acid medium of pH less than 4. Concns. of AcH up to 2.4×10^{-6} g. in soln. were detd. H_2O_2 was reduced from an acid soln. at a potential of 0.8 v. A buffer soln. of CH_3COONa + AcOH of pH 4.3 was used. As little as 2×10^{-6} g. of H_2O_2 can be detd. B. Z. Kamich

AYVAZOV, B. V.; KHYAR, N. P.; NEYMAN, M. B.

Leningrad

Laboratory of Hydrocarbon Reactions, Institute of Chemical Physics, Academy of Sciences USSR, (-194C-).

"Examination of the Conditions of Combustion of Gaseous Mixtures." Part XVI. "The Effect of Acetyl Hydrogen Peroxide on the Cold-Flame Oxidation of Acetaldehyde."

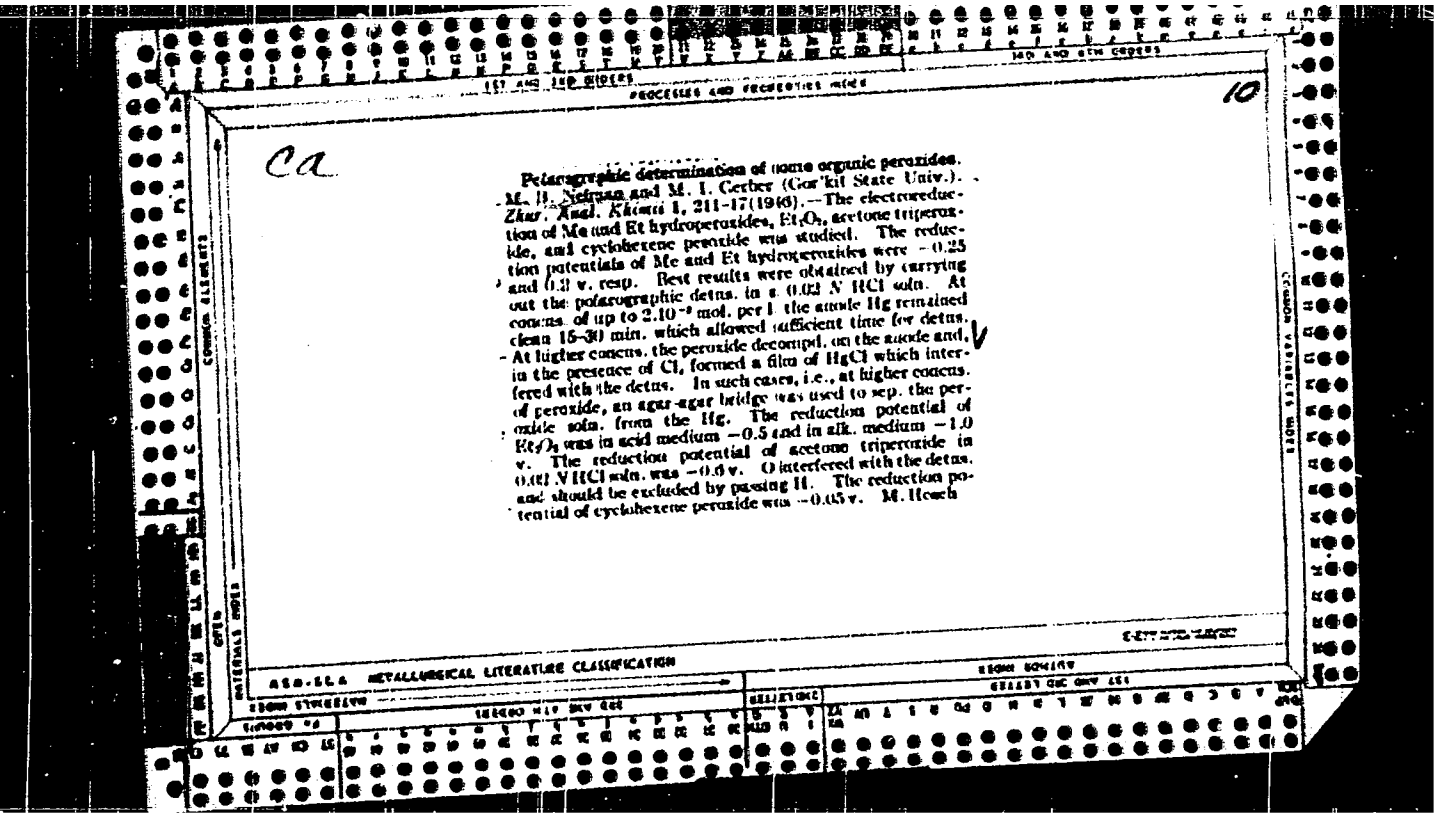
Zhur. Fiz. Khim., Vol. 14, No. 12, 1940.

1-C

A-1

Dependence of the induction period of acetaldehyde cool flame on the composition of the mixture. N. P. Kever and M. B. Neumann (*Acta Physicochim. U.R.S.S.*, 1941, **14**, 451—462). —The cool flame induction period τ is related to the composition of the mixture by $\tau = (k_1[O_2]^2 + k_2)/k_3$ MeCHO ^{2} O_2 ^{2}. This expression is deducible from the authors' theory of the mechanism of the reaction (cf. A., 1941, I, 340) and its correctness is established by experiments over the temp. range 231—265°. The oxidation of MeCHO is an example of a chain reaction with degenerate branching which occurs on triple collisions between AcO_2H mols. and those of MeCHO and O_2.

F. L. U.



Ca

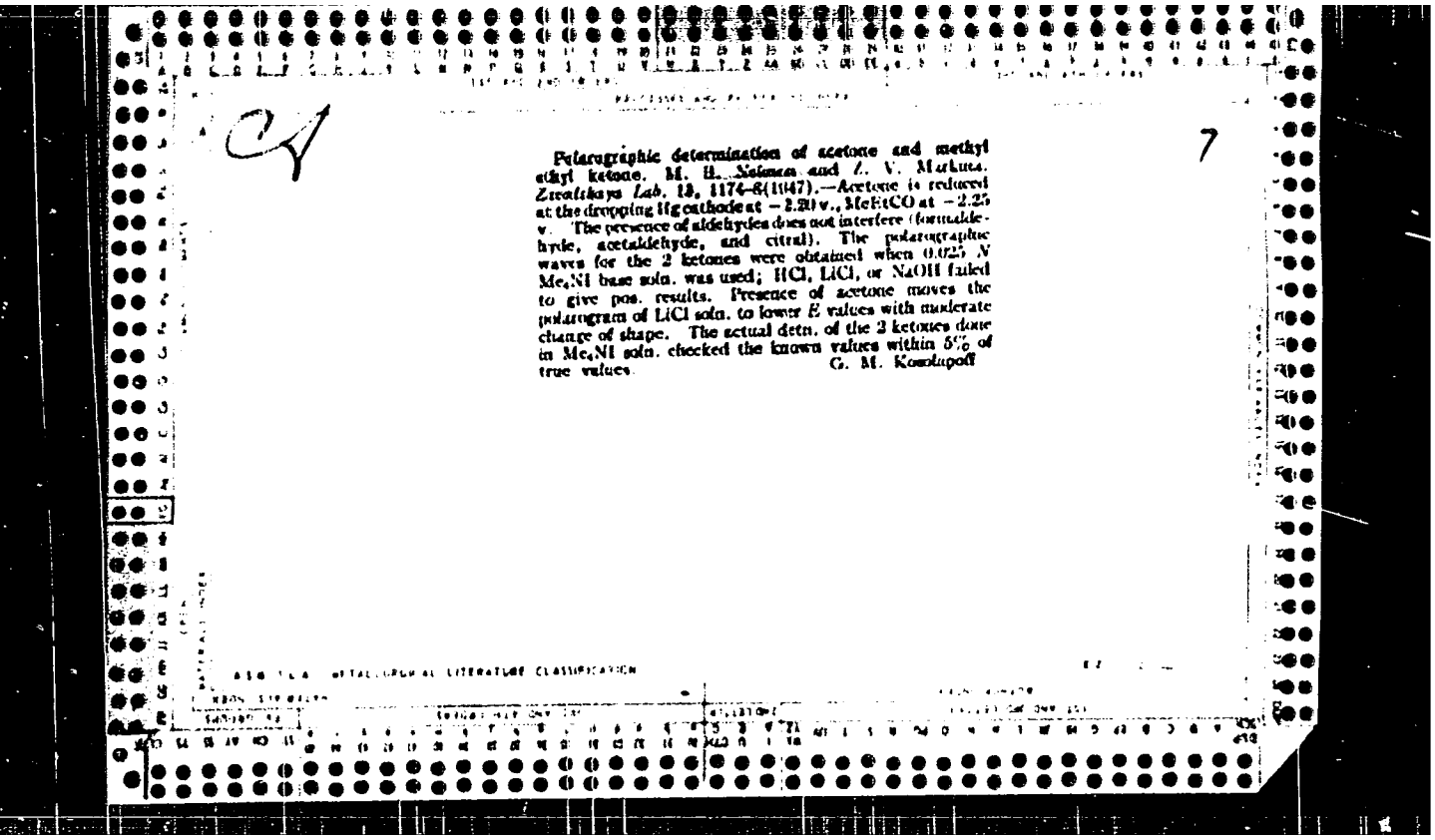
10

Polarographic determination of some organic peroxides. M. B. Neiman and M. I. Gerber (Gor'kii State Univ.). *Zhur. Anal. Khimii* 1, 211–17(1946).—The electroreduction of Me and Et hydroperoxides, Et_2O_2, acetone triperoxide, and cyclohexene peroxide was studied. The reduction potentials of Me and Et hydroperoxides were −0.25 and 0.2 v. resp. Best results were obtained by carrying out the polarographic detns. in a 0.02 *N* HCl soln. At concns. of up to 2.10^{-3} mol. per l. the anode Hg remained clean 15–30 min. which allowed sufficient time for detns. At higher concns. the peroxide decompd. on the anode and, in the presence of Cl, formed a film of HgCl which interfered with the detns. In such cases, i.e., at higher concns. of peroxide, an agar-agar bridge was used to sep. the peroxidic soln. from the Hg. The reduction potential of Et_2O_2 was in acid medium −0.5 and in alk. medium −1.0 v. The reduction potential of acetone triperoxide in 0.01 *N* HCl soln. was −0.6 v. O interfered with the detns. and should be excluded by passing H. The reduction potential of cyclohexene peroxide was −0.05 v. M. Hosch

PROCESSES AND PROPERTIES INDEX

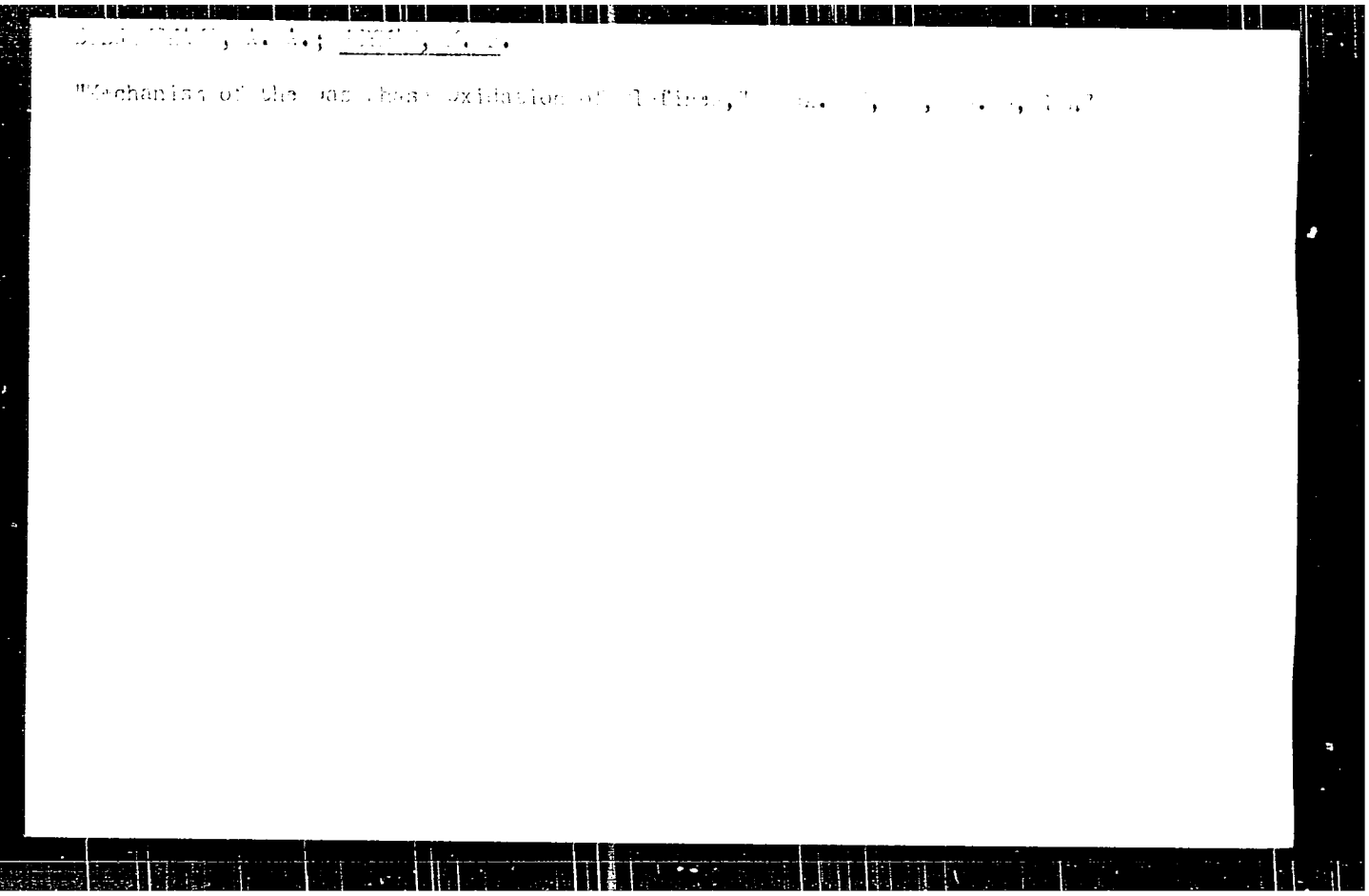
Polarographic determination of saturated and unsaturated aldehydes. M. B. Neiman and M. I. Gerber. *Zhur. Anal. Khim.* 2, 131 (1947). — The relation between the diffusion current (*I*) and concn. (*c*) of CH_2O is linear. The diffusion current rose with the temp. The observed results and the theoretical values are reconciled by assuming that part of the CH_2O is hydrated and becomes polarographically inactive. From the temp.-diffusion current curve, the heat of hydration of CH_2O is 13,000 cal./mol. The polarographic reduction potential of CH_2O was −1.60 v. The satd. higher aldehydes reduced at −1.8 v. The higher satd. aldehydes were reduced at this potential and could not be sepd. CH_2O is best detd. in 1.0 N soln. at 0-60°. A marked increase in the diffusion current indicates CH_2O. The latter can also be identified from its reaction with dimedon; 10 min. after the addn. of dimedon, the wave due to CH_2O is completely suppressed. Unsatd. aldehydes having conjugated bonds were reduced in acid solns. at −0.8 to −1.0 v. Since some peroxides are reduced at the same potential, it is advisable to carry out the detn. at pH 8.0. Two waves, the height of which changes with the pH, indicate the presence of unsatd. aldehydes having conjugated bonds. M. Hosch

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



Polarographic determination of acetone and methyl ethyl ketone. M. B. Neiman and L. V. Markina. *Zavodskaya Lab.* 13, 1174–6(1947).—Acetone is reduced at the dropping Hg cathode at −2.20 v., MeEtCO at −2.25 v. The presence of aldehydes does not interfere (formaldehyde, acetaldehyde, and citral). The polarographic waves for the 2 ketones were obtained when 0.025 *N* Me_4NI base soln. was used; HCl, LiCl, or NaOH failed to give pos. results. Presence of acetone moves the polarogram of LiCl soln. to lower *E* values with moderate change of shape. The actual detn. of the 2 ketones done in Me_4NI soln. checked the known values within 5% of true values.

G. M. Kosolapoff



NEYMAN, M. B.

Kineticheskii metod fiziko-khimicheskogo analiza. The kinetic method on physical chemistry analysis. Moskva, Izd-vo Akademii nauk SSSR, 19[illegible]. [illegible] p. [illegible]

QD175.N4

1. Chemistry, Analytic. 2. Alloys - Analysis. I. Shushunov, V. A., jt. au.

PA 4/49T24

NEYMAN, M. B.

USSR/Chemistry - Polarography, in Industrial Laboratories
Chemistry - Methacrylic Acid, Esters, Detection of

Apr 48

"Polarographic Method of Determining Methacrylic Ester," M. B. Neyman, M. A. Shubenko, Chem Inst, Gor'kiy State U, 3 pp

"Zavod Lab" Vol XIV, No 4

Methyl ester of methacrylic acid is used in plastic manufacture. Describes method of determining it in solutions on LiCl or $(CH_3)_4NI$ background. Strength of diffusion current is proportional to concentration. Polymerization can be studied by same method.

4/49T24

NEYMAN, M. B.

PA 64/49T2

USSR/Chemistry - Analysis Jul/Aug 48
Chemistry - Indicators, Radioactive

"Use of Radioactive Indicators in Analytical Chemistry," M. B. Neyman, Gor'kiy, An. N. Nesmeyanov, Moscow, 31 pp

"Uspekh Khim" Vol XVII, No 4

Presents an extensive tabular description of results obtained from use of radio-active elements for qualitative and quantitative determination of elements and substances, followed by a list of specific applications. Also considers frequency of emission of the indicators, and their aid in determining the solubility of salts.

64/49T2

NEYMAN, M. B.

USSR/Metals Feb 1948
Tin Alloys
Metallography

"The Kinetic Method of Physical and Chemical Analysis, II," M. B. Neyman, V. A. Shushunov, Sci Res Inst of Chem, Gor'kiy State U, 10½ pp

"Zhur Fiz Khim" Vol XXII, No 2

Study kinetics of the reaction of tin-sodium alloys with ethyl bromide vapors in wide ranges of temperature and pressure. Use kinetic methods to show presence of intermetallic compounds of NaSn and $NaSn_2$. Reaction forming $SnEt_4$ can be seen to take place on NaSn alloys having clearly defined induction periods. Describes various mechanisms that explain the details of the reaction. Submitted 22 May 1947.

64n66

NEYMAN, M. B.

PA 64T64

USSR/Metals Feb 1948
Lead Alloys
Metallography

"The Kinetic Method of Physical and Chemical Analysis, IV," M. B. Neyman, V. A. Shushunov, Sci Res Inst of Chem, Gor'kiy State U, 6 pp

"Zhur Fiz Khim" Vol XXII, No 2

Use kinetic method of physical chemical analysis to study ternary systems such as Na + Pb + K. Study relation of the induction period during reaction of ethylchloride vapors on alloys to the temperature of the reaction, the pressure exerted by C_2H_5Cl and the nature of the alloys. Kinetic method brings out the fact that in ternary alloys there is formed chemically bonded NaPb alloy in which frequently potassium can replace the sodium. Submitted 17 Jun 1947.

64T64

2709. INVESTIGATION OF CONDITIONS FOR IGNITION OF GAS MIXTURES. XVIII. INFLUENCE OF CONVECTION ON RATE OF PROPAGATION OF COLD FLAMES IN [redacted]AIR MIXTURE. Neuman, M. B. and [illegible]ubina, K. M. (Zhurnal Fizicheskoi (J. Phys. Chem.), Feb. 1948, vol. 22, 171-178).

The presence of convection during horizontal propagation of cold flame in the above m xture was demonstrated. A method of rapid computation of the rate of flame propagation in horizontal tubes of different diameters and under different pressures is proposed.

Feb 1948

USSR/Physics
Gases - Ignition
Ignition

"Research on the Inflammability of Gas Mixtures,"
M. B. Neyman, Kh. M. Rubina, Inst of Chem Phys,
Acad Sci USSR, 8 pp

"Zhur Fiz Khim" Vol XXII, No 2

Show the presence of convection when cool flame is horizontally propagated into a mixture of ether and air. Speed of propagation in this case can be determined using Grashoff's criteria. Establish method to calculate the speed of the propagation of flame in horizontal tubes of varying cross sections and under various pressure conditions. Submitted 22 May 1947.

PA 64T85

64T85

NEYMAN, M. B.

USSR/Physics Jun 48
Combustion
Flame Propagation

"Research on the Combustion of Gaseous Mixtures: XIX, Area of Cold Flame Propagation in Mixtures of Ethyl Ether With Air," M. B. Neyman, Kh. M. Rubina, R. B. Shmol', Inst of Phys Chem, Acad Sci USSR, Chair of Phys Chem, Gor'kiy State U, 6 pp

"Zhur Fiz Khim" Vol XXII, No 6

Although the area of ether cold flame propagation is considerably greater than that of its cold flame, temperature variation between the two is less than 110°. Area of propagation is maximum when the

PA 56/49T93

USSR/Physics (Contd) Jun 48

ether cold flame is directed upwards. It can be increased by increasing pressure, temperature, or diameter of the jet. Propagation area depends on composition of mixture, reaching a maximum at $\alpha = 0.2$. Submitted 2 Sep 47.

56/49T93

NEYMAN, M. B.

USSR/Physics Jun 48
Combustion
Flame Propagation

"Research on the Combustion of Gaseous Mixtures: XI, Fundamental Rate of Propagation of the Cold Flame in Mixtures of Ethyl Ether With Air," M. B. Neyman, Kh, M. Rubina, P. B. Shnol', Inst of Phys Chem, Acad Sci USSR, Chair of Phys Chem, Gor'kiy State U, 7 pp

"Zhur Fiz Khim" Vol XXII, No 6

Fundamental rate (speed when shot vertically downwards) of propagation of the cold flame depends on pressure and temperature rather than on diameter

PA 56/49T92

USSR/Physics (Contd) Jun 48

of the jet. Maximum rate is obtained when composition of mixture is expressed by $\alpha = 0.15$. N_2 and CO_2 slow up propagation, the latter to a greater degree than the former. Peroxide increases the rate, but tetramethyl lead and methylamine slow it down. Flame has a chain-thermal nature. Submitted 2 Sep 47.

56/49T92

NEYMAN, M. B.

NEYMAN, M. B.

USSR/Chemistry - Radioactivity, of Iodine Aug 48
Chemistry - Iodine, Isotopes of, Radio Activity of

"Radioactive Isotopes of Iodine," B. G. Dzantiyev, M. B. Neyman, 11½ pp

"Uspekhi Fiz Nauk" Vol XXXV, No 2

Describes method of preparing iodine isotopes which can be used by any laboratory with a (Ra-Be) or (Rn-Be) neutron source. Table shows conditions for obtaining optimum quantity of isotope desired. Discusses formation of radioactive isotopes of xenon during decomposition of I^{133} and I^{135}.

11/49T16

NEYMAN, M. B.

Oct ..

USSR/Chemistry - Tritium
Chemistry - Radioactive Substances

"Radioactive Isotope of Hydrogen - Tritium," S. V. Ayvazov, M. B. Neyman, 36 pp

"Uspekhi Fiz Nauk" Vol xxxVI, No 2

Summarizes knowledge on tritium. Most reference material is work done by scientists outside USSR. Describes discovery of tritium and methods to obtain it, period of semidisintegration and energy of beta-radiation of tritium, properties, methods to determine its presence, and its use in chemistry and biology as an indicator.

PA 33.49T25

NEYMAN, M. B.

67T29

USSR/Chemistry - Periodic Acids May 1948
Chemistry - Dissociation

"Dissociation of Periodic Acid at Various Temperatures," M.F. Ivanova, M.B. Neyman, Gor'kiy State U, 4 pp

"Dok Ak Nauk SSSR, Nov Ser" Vol LX, No 6

Describe experiments conducted to study subject reaction. Submitted by Academician A.N. Frumkin 20 Mar 1948.

67T29

USSR/Chemistry - Surface, Reactions at Jun 1948
Chemistry - Reactions, At Surface

"New Type of Topochemical Reaction," M. B. Neyman, V. A. Shushunov, Inst of Phys Chem, Acad Sci USSR; Chem Inst, Gor'kiy State U, 4 pp

"Dok Ak Nauk SSSR" Vol LX, No 8

Topochemical reactions occur on surface of the division between two phases, and are usually associated with the formation of new phase. Describe new-type topochemical reaction observed by authors: characterized by slowing down process at high temperatures. Submitted by Acad N. N. Semenov 23 Mar 1948.

[redacted] 78T12

NEMAN, M. B.

23930 NEMAN, M. B. Radioativnyye Izotopy Ugleroda I Ikh Primeneniye. Uspekhi Khimii, 1949, Vyp. 4, S. 402-42. -- Bibliogr: S. 425-42

SO: Letopis, No. 32, 1949.

USSR/Chemistry - Reduction, Electro- Nov 49
Bromine Compounds

"Electroreduction of Bromoacetic Acid and Bromoform on a Mercury-Drop Cathode," M. B. Neyman, T. A. Petukhovskaya, A. V. Ryabov, Ye. M. Sheyanova, Inst of Chem, Gor'kiy State U, 3 1/2 pp

"Zavod Lab" No 11

153110

Results of experiments show that many organic compounds containing halogen atoms can be determined polarographically. Moreover, new technique can be used for compounds into which halogen atoms can easily be introduced, e.g., unsaturated compounds can be

USSR/Chemistry - Reduction, Electro- Nov 49
(Contd)

brominated and resultant bromides determined. Discusses mechanism of cathode reaction, with three diagrams.

153110

NEYMAN, M. B.

NEYMAN, M. B.

USSR/Chemistry - Reduction, Electro-Polarography nov 49

"Polarographic Determinati n of Picric Acid," M.B. Neyman, L. I. Kuznetsov, I. B. Rabinovich, A. V. Ryabov, Inst of Chem, Gor'kiy State U, 4 pp

"Zavod Lab" No 11

Describes experiments on electroreduction of picric acid on mercury-drop cathode. Determinesmost favorable conditions for its quantitative determination by polarographic methods. Includes four graphs.

PA 153T11

NEYMAN, M. B.

Aug 50

USSR/Chemistry - Analysis, Gases

"Apparatus for Microanalysis of Gases," A. A. Dobrinskaya, M. B. Neyman, Ye. A. Andreyev, Inst of Phys Chem, Acad Sci USSR

"Zavod Lab" Vol XVI No 8, pp 934-938

Describes improved construction of apparatus for microanalysis of gases. Demonstrates possibility of using this apparatus for kinetic investigations and analysis of gases dissolved in metals. Error in determination of separate components of gas mixture does not exceed 1%.

169T10

USSR/Nuclear Physics - Isotopes Jul/Aug 49
Nuclear Physics - Carbon

"Radioactive Isotopes of Carbon and Their Uses," B. V. Ayvazov, M. B. Neyman, V. I. Tal'roze, Gor'kiy, 47 pp

"Uspekhi Khim" Vol XVIII, No 4

Studies C^{14}, C^{11}, and C^{10} isotopes, and their chemical and biochemical uses. Discusses chemical uses: synthesis of compounds containing these isotopes, research on isotopic exchange reaction, on mechanism of oxidation, mechanism of Orlov-Fisher-Tropish reaction, and other reactions. Biochemical uses: photosynthesis, assimilation of CO_2 by bacteria (nonphotochemical

53/49T83

USSR/Nuclear Physics - Isotopes (Contd) Jul/Aug 49

synthesis), assimilation of CO_2 by animal tissues, and study of mechanism of exchange reaction.

53/49T83

NEYMAN, M. B.

CA

2

Thermochemical studies of solutions. IV. Vapor pressure and composition in the binary system $C_6H_5OC_2H_5$ + C_2H_5Cl. M. E. Mel'man and S. Z. Denikhovskaya. *Zhur. Obshchei Khim.* 19, 593-602; *J. Gen. Chem. U.S.S.R.* 19, 641-51(1949)(English translation); cf. *C.A.* 27, 1812.—Measurements were made at 5° intervals from 0 to 35° for the pure compds. and for various mixts. Heats of vaporization were detd. and ranged from 6810 kcal. for Et_2O to 5900-6100 kcal. for all mixts. There are extensive tables of vapor pressures and vapor compns. at the various temps. and soln. concns. At 25°, e.g., values of mole % of EtCl in the soln., partial pressure of EtCl in mm., and total vapor pressure in mm., are: 0.0, 0.0, 839; 19.6, 222, 780; 52.1, 711, 1004; 70.0, 877, 1075; 92.0, 1072, 1150; 100.0, 1162, 1162. The vapor pressure-concn. curves show pos. deviations from Raoult's law at all temps., but the b.p.'s of the pure components are sufficiently different to prevent azeotrope formation.

Arild J. Miller

PA38/49T6

USSR/Chemistry - Butane, 2 - 3, Dimethyl, Mar 49
Ether
Chemistry - Inhibitors

"Retarding the Oxidation of Diisopropyl Ether and the Amyl Fraction by Means of Inhibitors," M. B. Neyman, V. A. Moldovskiy, G. A. Bogdarin, Chair of Physic-chem, Gor'kiy State U, 8 pp

"Zhur Fiz Khimii" Vol XXIII, No 3

Shows that inhibitors do not effect appreciable retarding action on oxidation of diisopropyl ether. Shows that period of induction of oxidation of amyl fractions decreases with increased

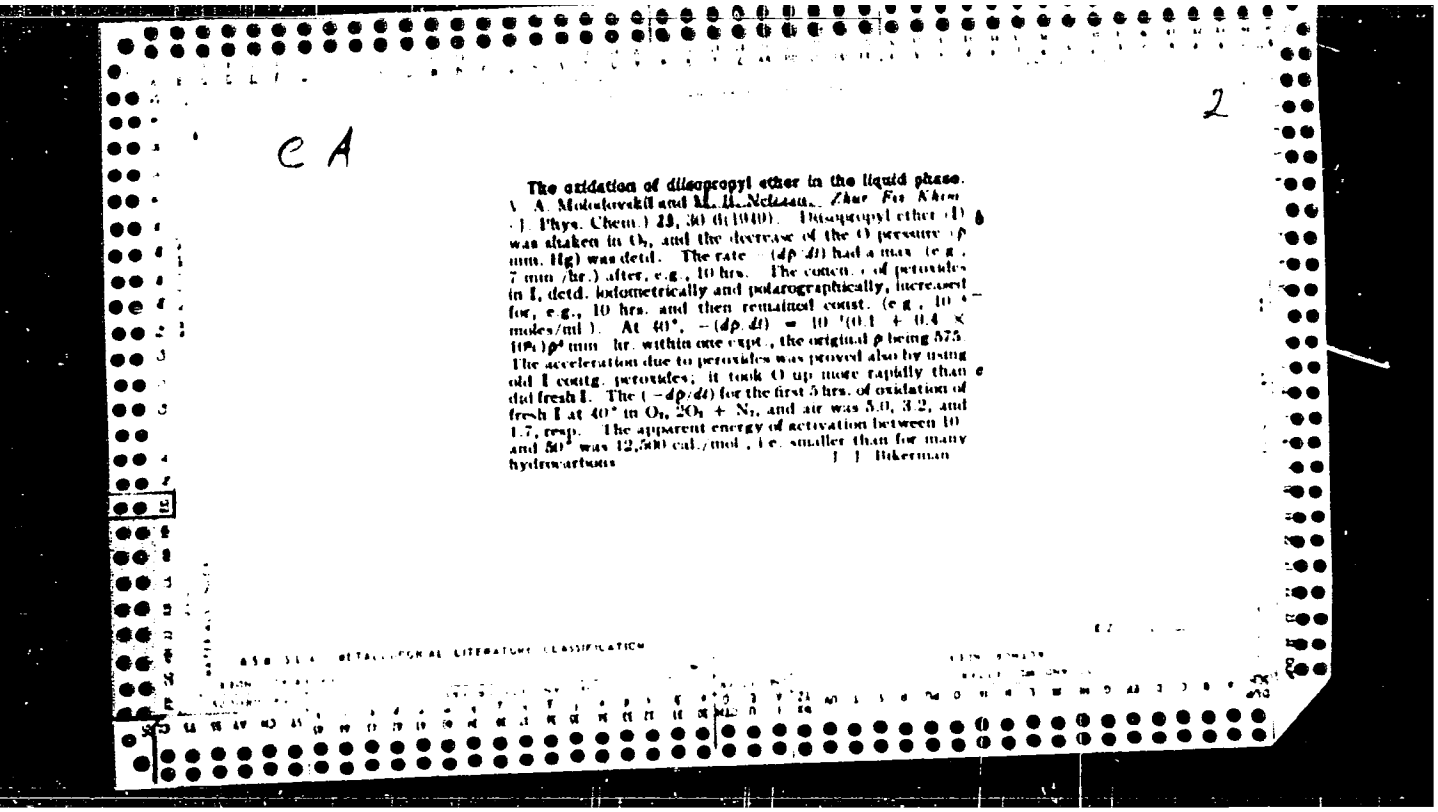
38/49T6

USSR/Chemistry - Butane, [illegible] - 3, Dimethyl, Mar 49
Ether (Contd)

temperature and pressure, and increases with increased concentration of the inhibitor.
Submitted 21 Jun 48.

38/49T6

NEYMAN, M. B.



CA

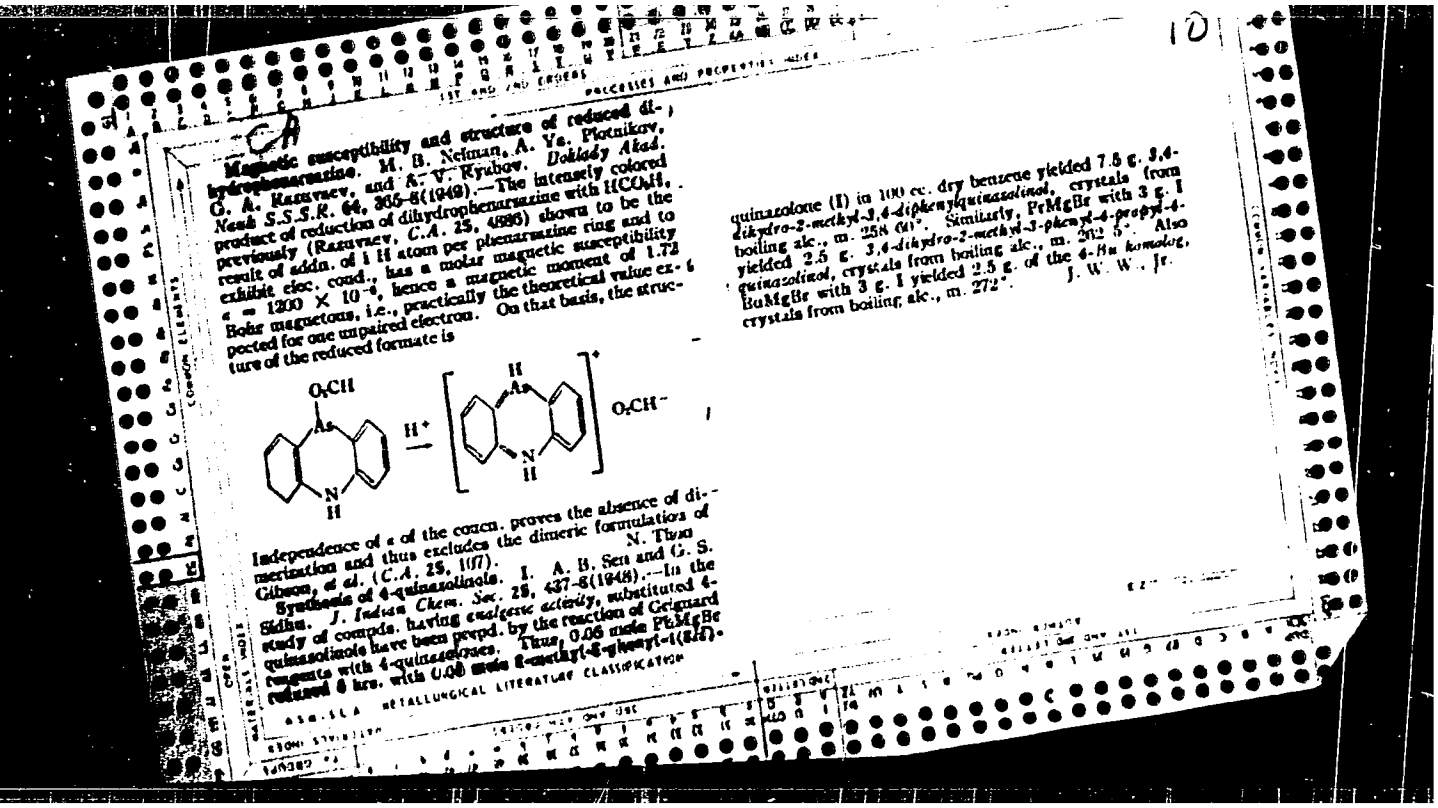
2

The oxidation of diisopropyl ether in the liquid phase. V. A. Molodovskii and M. B. Neiman. *Zhur. Fiz. Khim.* 24, 30 (1950). Diisopropyl ether (I) was shaken in O_2, and the decrease of the O pressure (p mm. Hg) was detd. The rate $(-dp/dt)$ had a max. (e.g., 7 mm./hr.) after, e.g., 10 hrs. The concn. of peroxides in I, detd. iodometrically and polarographically, increased for, e.g., 10 hrs. and then remained const. (e.g., 10^{-4} moles/ml.). At 40°, $-(dp/dt) = 10^{-4}(0.1 + 0.4 \times 10^{8})p^{4}$ mm. hr. within one expt., the original p being 575. The acceleration due to peroxides was proved also by using old I contg. peroxides; it took O up more rapidly than did fresh I. The $(-dp/dt)$ for the first 5 hrs. of oxidation of fresh I at 40° in O_2, $2O_2 + N_2$, and air was 5.0, 3.2, and 1.7, resp. The apparent energy of activation between 10 and 50° was 12,500 cal./mol., i.e. smaller than for many hydrocarbons. I. I. Bikerman

CA

2

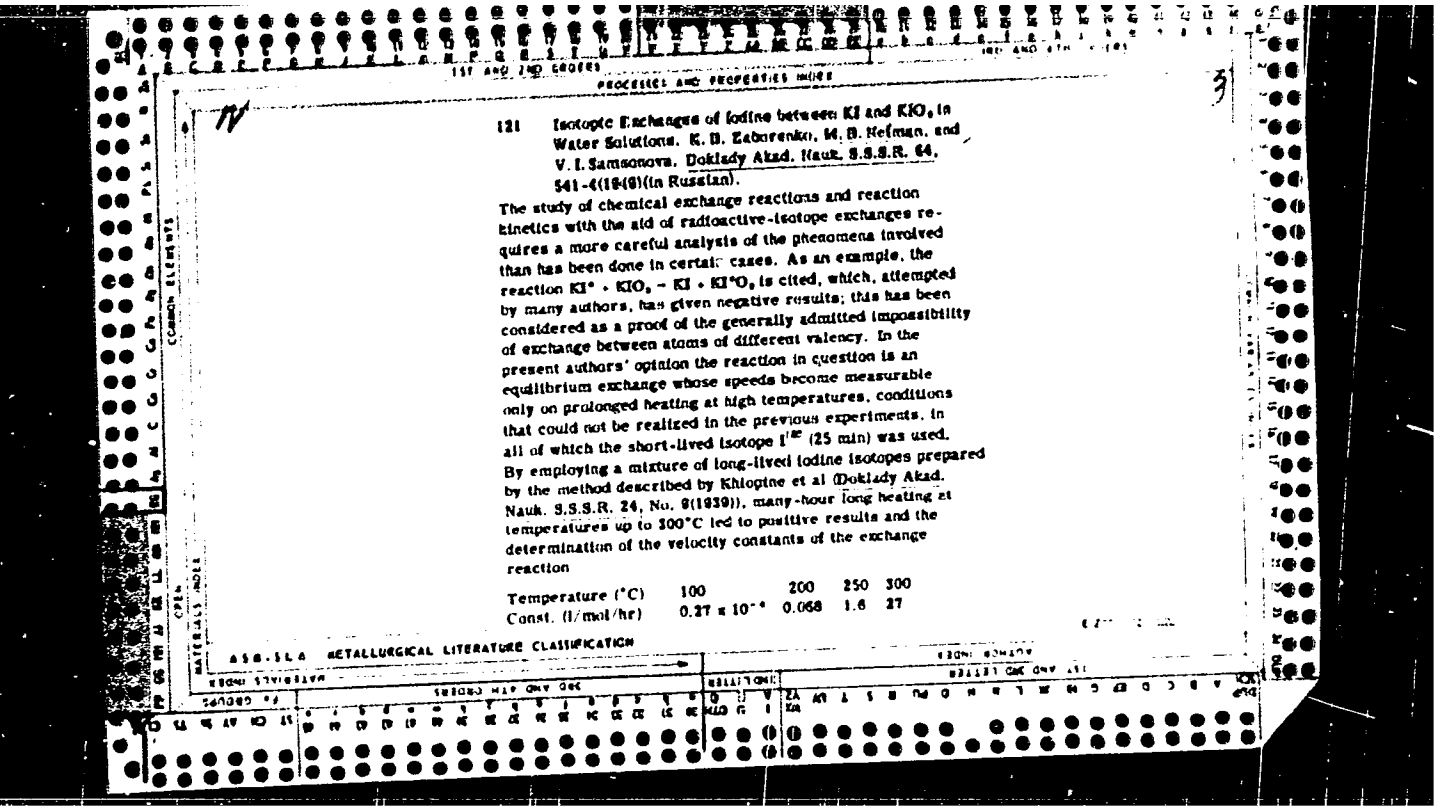
Radioactive isotopes of phosphorus. B. G. Dzantiev and M. B. Neiman. *Uspekhi Fiz. Nauk* 38, 338-76 (1949). A crit. review; 147 references. N. Thon



Magnetic susceptibility and structure of reduced dihydrophenarsazine. M. B. Neiman, A. Ya. Plotnikov, G. A. Razuvaev, and A. V. Kyuhov. *Doklady Akad. Nauk S.S.S.R.* 64, 365-8(1949).—The intensely colored product of reduction of dihydrophenarsazine with HCO_2H, previously (Razuvaev, *C.A.* 25, 4986) shown to be the result of addn. of 1 H atom per phenarsazine ring and to exhibit elec. cond., has a molar magnetic susceptibility $\chi = 1200 \times 10^{-6}$, hence a magnetic moment of 1.72 Bohr magnetons, i.e., practically the theoretical value expected for one unpaired electron. On that basis, the structure of the reduced formate is

Independence of χ of the concn. proves the absence of dimerization and thus excludes the dimeric formulation of Gibson, *et al.* (*C.A.* 25, 107). N. Thus

Synthesis of 4-quinazolinols. I. A. B. Sen and G. S. Sidhu. *J. Indian Chem. Soc.* 25, 437-8(1948).—In the study of compds. having *analgesic activity*, substituted 4-quinazolinols have been prepd. by the reaction of Grignard reagents with 4-quinazolones. Thus, 0.06 mole PhMgBr reacted 6 hrs. with 0.05 mole 2-methyl-3-phenyl-4(3*H*)-quinazolone (I) in 100 cc. dry benzene yielded 7.5 g. *3,4-dihydro-2-methyl-3,4-diphenylquinazolinol*, crystals (from boiling alc., m. 258 (d)°. Similarly, PrMgBr with 3 g. I yielded 2.5 g. *3,4-dihydro-2-methyl-3-phenyl-4-propyl-4-quinazolinol*, crystals from boiling alc., m. 202.5°. Also BuMgBr with 3 g. I yielded 2.5 g. of the *4-Bu homolog*, crystals from boiling alc., m. 272°. J. W. W., Jr.



121 Isotopic Exchanges of Iodine between KI and KIO_3 in Water Solutions. K. B. Zaborenko, M. B. Neiman, and V. I. Samsonova. Doklady Akad. Nauk. S.S.S.R. 64, 541-4((1949))(In Russian).

The study of chemical exchange reactions and reaction kinetics with the aid of radioactive-isotope exchanges requires a more careful analysis of the phenomena involved than has been done in certain cases. As an example, the reaction $KI^* + KIO_3 = KI + KI^*O_3$ is cited, which, attempted by many authors, has given negative results; this has been considered as a proof of the generally admitted impossibility of exchange between atoms of different valency. In the present authors' opinion the reaction in question is an equilibrium exchange whose speeds become measurable only on prolonged heating at high temperatures, conditions that could not be realized in the previous experiments, in all of which the short-lived isotope I^{128} (25 min) was used. By employing a mixture of long-lived iodine isotopes prepared by the method described by Khlopine et al (Doklady Akad. Nauk. S.S.S.R. 24, No. 9(1939)), many-hour long heating at temperatures up to 300°C led to positive results and the determination of the velocity constants of the exchange reaction

Temperature (°C)	100	200	250	300
Const. (l/mol/hr)	0.27×10^{-4}	0.068	1.6	27

NEYMAN M. B.

USSR/ Chemistry - Pyrolysis 21 Jun 49

"Influence of an Oxygen Admixture Upon the Thermal Decomposition of Butane," M. F. Mayzus, V. G. Markovich, M. B. Neyman, Inst of Chem Phys, Acad Sci USSR, 4 pp

"Dok Ak Nauk SSSR" Vol LXVI, No 6

Previously conjectured that chain reactions of oxidation and thermal decomposition may have same active centers that take part in development of chains as holds true for oxidation and polymerization reactions. If this is the case, thermal decomposition of hydrocarbons should be accelerated under influence of oxygen. Experiments with concentrations of oxygen in butane ranging 0.015 - 2.51% with change in pressure as air in ignition of course of reaction showed that reaction was accelerated. Submitted by Acad. N. N. Semenov 21 Apr 49.

Pa 151T11

NEYMAN, M. B.

22995 Ob izotopnom obmene fosfora mezhdy H_3PO_2, H_3PO_3 i H_3PO_4. - Doklady Akad. Nauk sssr, novaya seriya, T. LXVII, No. 3, 1949, C. 463-66. - Bibliogr: 5 nazv

SO: LETOPIS' NO. 31, 1949

USSR/Chemistry - Polarography 21 Oct 49

"Polarographic Determination of Halogen Derivatives," M. B. Neyman, A. V. Ryabov, Ye. M. Sheyanova, Gor'kiy State U

"Dok Ak Nauk SSSR" Vol LXVIII, No 6, pp 1065-1068

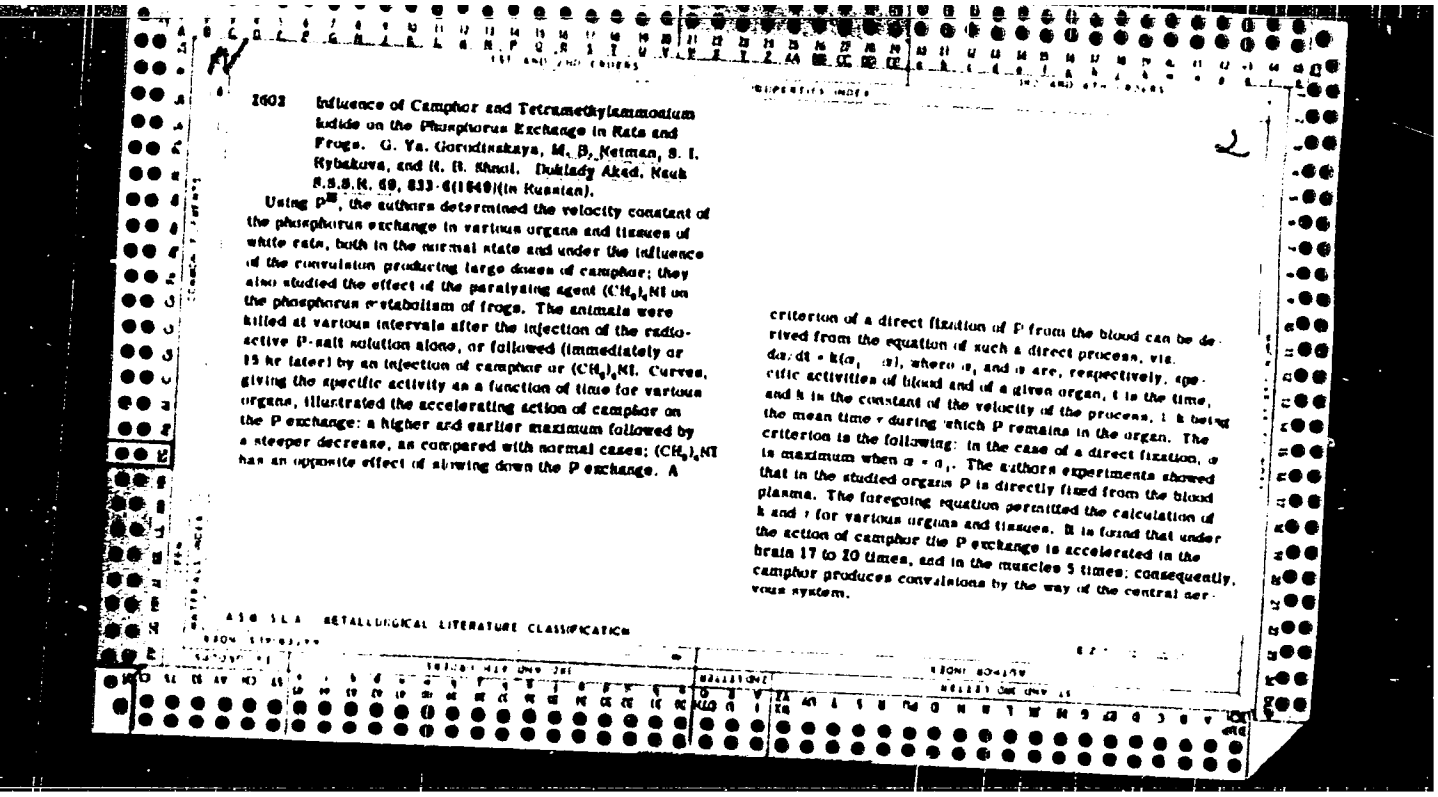
Results of studies of electroreduction on mercury dropping cathode of halogen deriv of organic compd. Studied electroreduction of halogen deriv in water, alc, and dioxane sol cont 0.1 N KCl, 0.1 N HCl, 0.1 N LiCl, 0.1 N LiOH, and 0.1 $(CH_3)_4NI$. Table introduces parameters characterizing electroreduction of halogen deriv of aliphatic series on

172T6

USSR/Chemistry - Polarography (Contd) 21 Oct 49

mercury dropping cathode. Derives general formula describing electroreduction. Data introduced should lead to further use of polarographic analysis in scientific research laboratories and organic synthesis industry. Submitted by Acad A. N. Frumkin 11 Aug 49.

172T6



1603 Influence of Camphor and Tetramethylammonium Iodide on the Phosphorus Exchange in Rats and Frogs. G. Ya. Gorodinskaya, M. B. Neiman, S. I. Rybakova, and K. B. Khaid. Doklady Akad. Nauk S.S.S.R. 69, 833-6(1949)(in Russian).

Using P^{32}, the authors determined the velocity constant of the phosphorus exchange in various organs and tissues of white rats, both in the normal state and under the influence of the convulsion producing large doses of camphor; they also studied the effect of the paralyzing agent $(CH_3I_4NI$ on the phosphorus metabolism of frogs. The animals were killed at various intervals after the injection of the radioactive P-salt solution alone, or followed (immediately or 15 hr. later) by an injection of camphor or $(CH_3)_4NI$. Curves, giving the specific activity as a function of time for various organs, illustrated the accelerating action of camphor on the P exchange: a higher and earlier maximum followed by a steeper decrease, as compared with normal cases; $(CH_3)_4NI$ has an opposite effect of slowing down the P exchange. A criterion of a direct fixation of P from the blood can be derived from the equation of such a direct process, viz. $da/dt = k(a_1 - a)$, where a_1 and a are, respectively, specific activities of blood and of a given organ, t is the time, and k is the constant of the velocity of the process, $1/k$ being the mean time τ during which P remains in the organ. The criterion is the following: in the case of a direct fixation, a is maximum when $a = a_1$. The authors experiments showed that in the studied organs P is directly fixed from the blood plasma. The foregoing equation permitted the calculation of k and τ for various organs and tissues. It is found that under the action of camphor the P exchange is accelerated in the brain 17 to 20 times, and in the muscles 5 times; consequently, camphor produces convulsions by the way of the central nervous system.

A10 SLA METALLURGICAL LITERATURE CLASSIFICATION

MEYMAN, M. B. and SHMONIN, V. A.

"Kinetical Method of Physical Chemical Analysis," received a [illegible] Stalin Prize for 1946 and 1949.

Vestnik AS USSR 3/50
M-12746

NEYMAN, M. B. and KAPTSAN, O. L.

"Review of Soviet Progress in the Polarography of Organic Compounds", Zhurnal Analiticheskoy Khimii (Journal of Analytical Chemistry), Vol. 5, No. 3, 1950.

A Digest W-12968, 29 Aug 1950

[This is a digest of review of recent Soviet improvements in polarographic technique and polarographic appliances. These improvements are largely based on research done in the USSR and reflect a demand for efficient analytical and automatic plant control appliances, particularly in branches of chemical production where poisonous or otherwise dangerous substances are handled. The development of solid electrodes, which permit polarographic analyses of high melting materials or of substances which react with mercury, is emphasized in this paper and in other recent Russian work on the Subject]

NEIMAN, M. B.

Dobrinskaia, A. A. and Neiman, M. B. Investigation of absorption spectra of unsaturated aldehydes and ketones in acid and alkaline solutions. Pages 520-524.

Inst. of Chemical Physics
Acad. of Aci. USSR.

SO: Bulletin of the Academy of Sciences, Izvestia, (USSR) Vol. 14 No. 4. (1950) Series on Physics.

PA 169T12

NEYMAN, M. B.

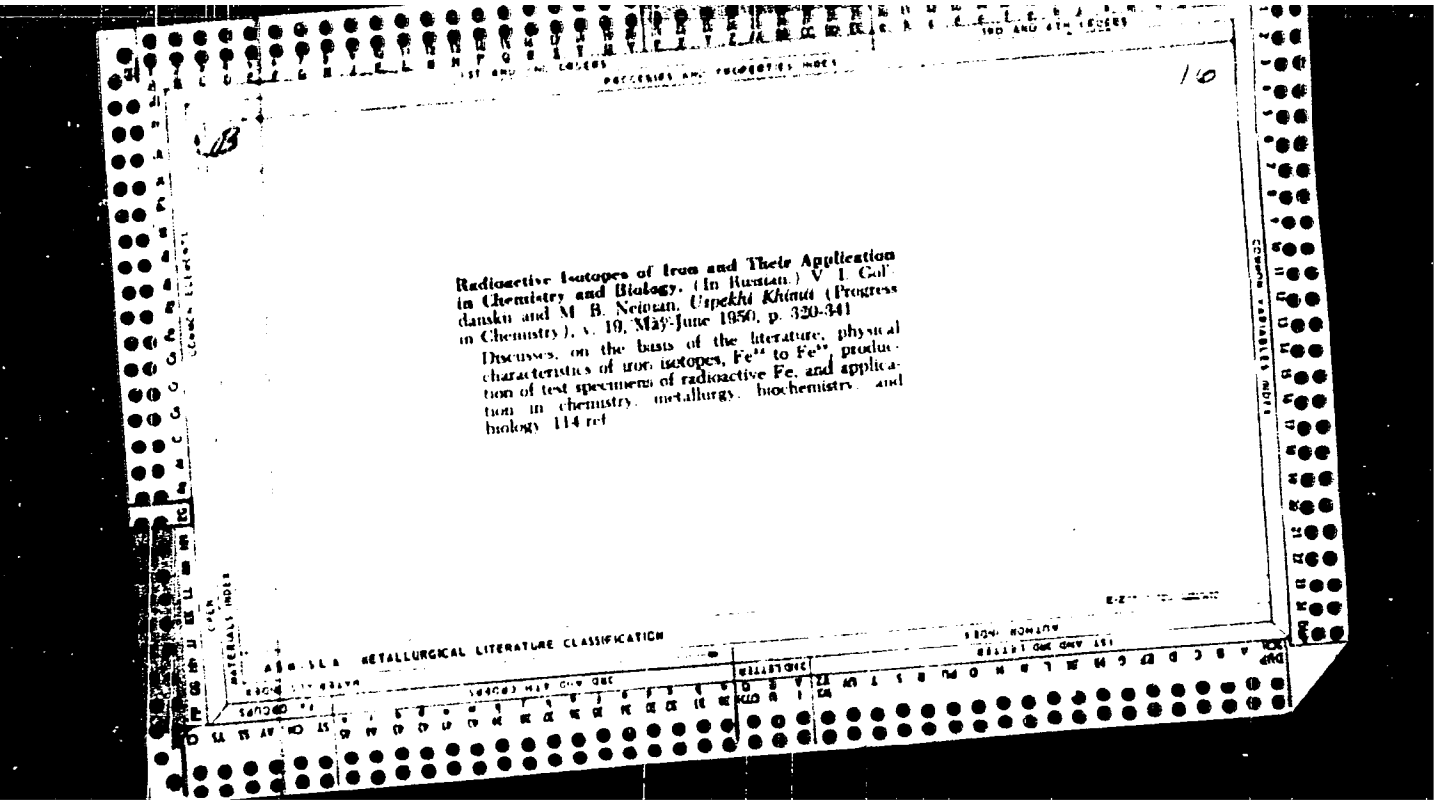
USSR/Chemistry - Analysis, Equipment Aug 50

"Polarographic Vessel With Ultramicroburet,"
M. B. Neyman, A. A. Dolzhenkov

"Zavod Lab" Vol XVI, No 8, pp 1007-1009

Electrolyzer with special ultramicroburet permits, after elimination of oxygen, introducing into vessel accurate small quantities of substance under study. Permits more rapid and precise determinations.

169T12



Radioactive Isotopes of Iron and Their Application in Chemistry and Biology. (In Russian.) V. I. Gol'danskii and M. B. Neiman. *Uspekhi Khimii* (Progress in Chemistry), v. 19, May-June 1950, p. 320-341

Discusses, on the basis of the literature, physical characteristics of iron isotopes, Fe^{++} to Fe^{59}, production of test specimens of radioactive Fe, and application in chemistry, metallurgy, biochemistry, and biology. 114 ref.

NEYMAN, M. B .

USSR /Nuclear Physics - Isotopes, Nitrogen radioactive , Nitrogen Jun 50

"Radioactive Isotopes of Nitrogen," A. G. Lurman, M. B. Neyman 36 pp

"Uspekhi Fiz Nauk" Vol XL, No 1

Presents methods for obtaining radioactive nitrogen N_7^{12}, N_7^{13}, N_7^{16}, N_7^{17}, and discusses their properties, and certain applications in chemistry and biology.

PA 159T72