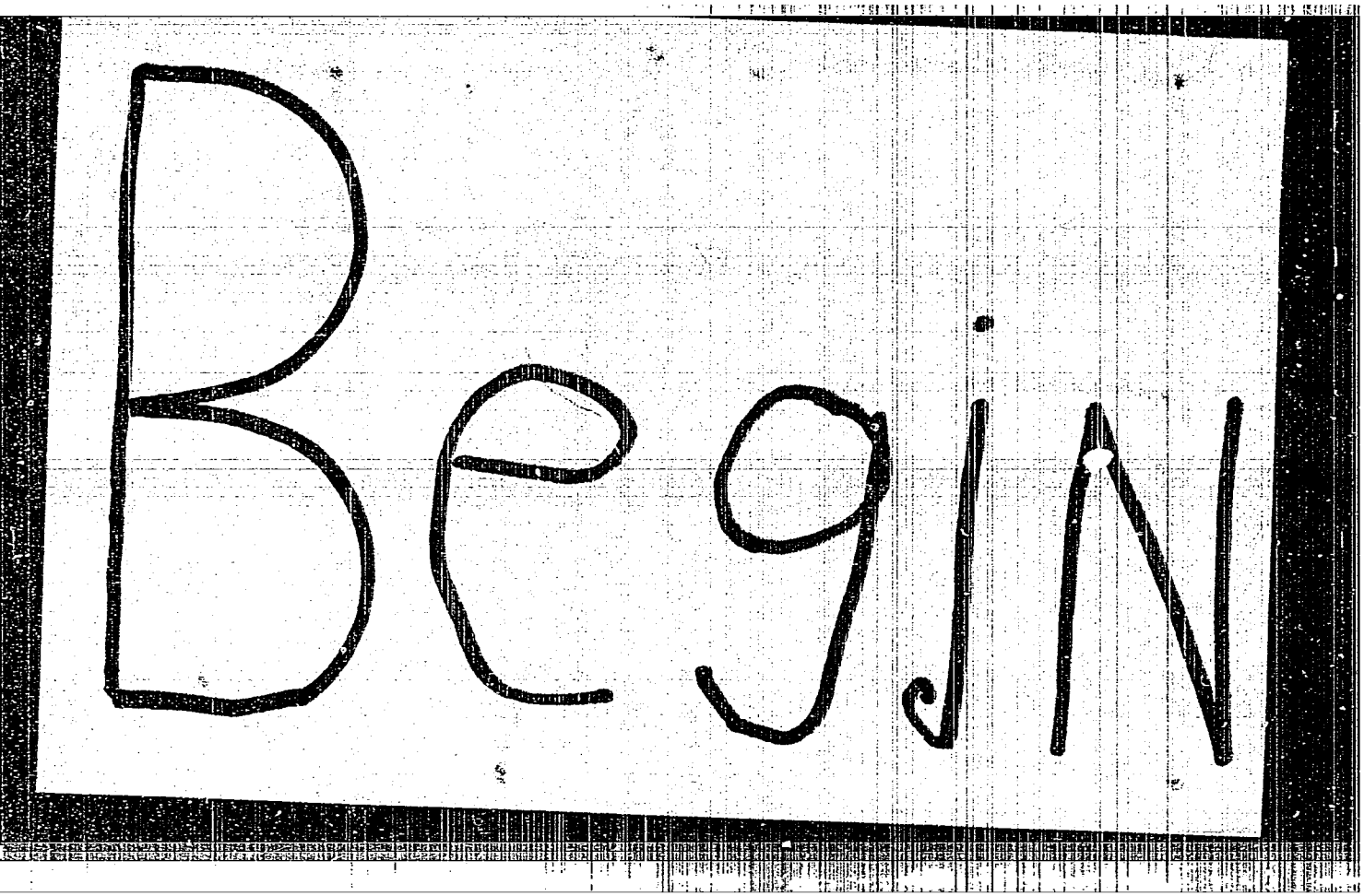

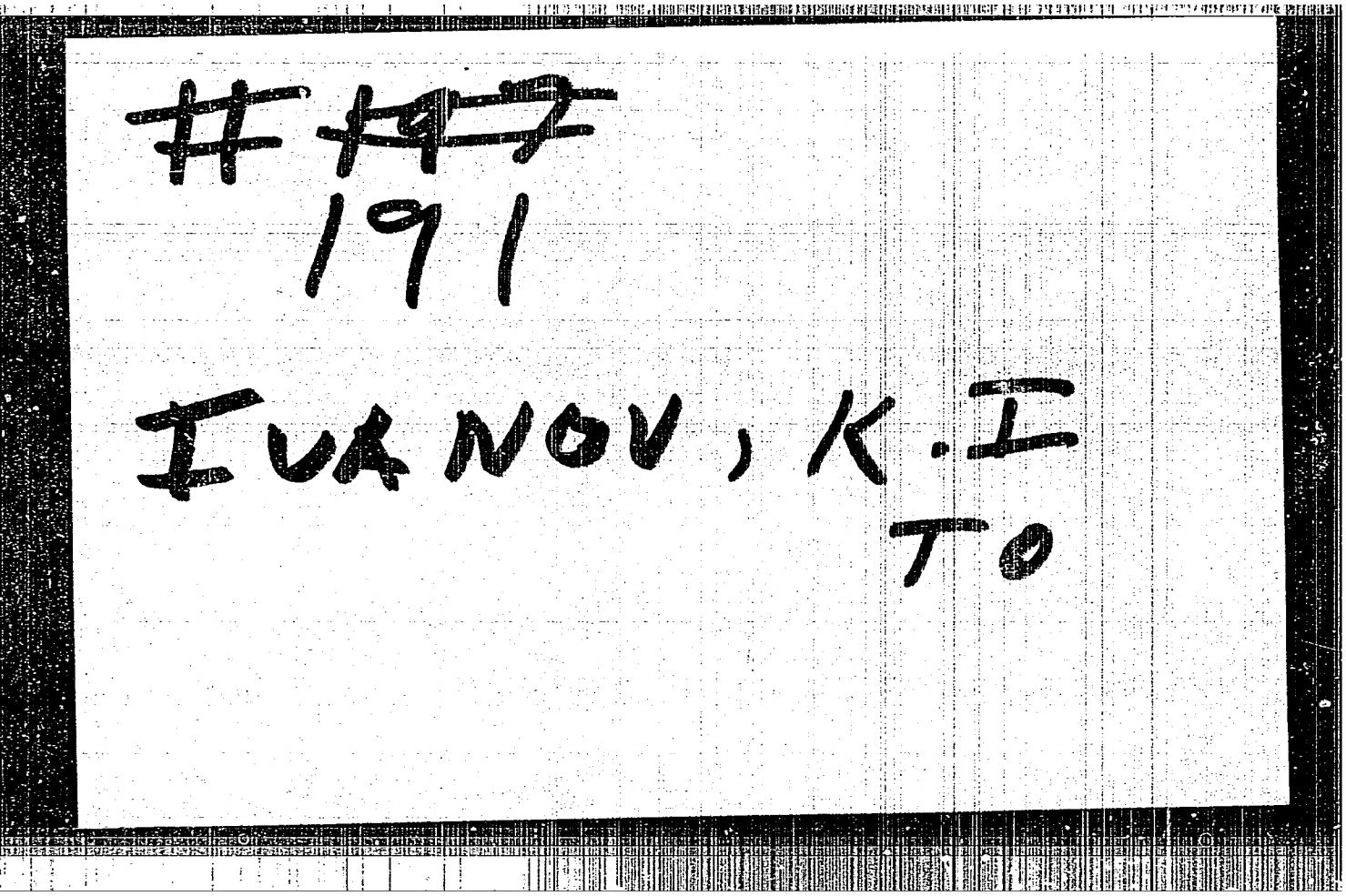

IVANOV, Krasarm Ivanovich; KRYUCHKOV, Vladimir Aleksandrovich; POGODIN, L.Ye., red.

[Realized dreams; on the 20th anniversary of the liberation of Hungary] Voploshchennye mechty; k 20-letiiu osvobozhdeniia Vengrii. Moskva, Znanie, 1965. 38 p. (Novoe v zhizni, nauke, tekhnike. VII Seriia: Mezhdunarodnaia, no.6) (MIRA 18:4)

IVANOV, K.I., inzh.; LEYBOSHIN, R.A., inzh.; SHIFRIN, D.Ya., inzh.

Passenger ship for the Caspian Sea. Sudostroenie 26 no.9:1-5 S'60.
(MIRA 13:10)

(Inland water transportation--Passenger traffic)
(Caspian Sea--Ships)

IVANOV, K.I.; MERKULOV, N.Ya.; SOSNOV, V.D., redaktor; ABRAMOV, V.I., redaktor; IL'INSKAYA, G.M., tekhnicheskiy redaktor.

[Work practice in operating UKT-1 cutter-loaders in mines of the Voroshilovgradcoal Combine] Opyt eksploatatsii kombainov UKT-1 na shakhtakh kombinata Voroshilovgradugol'. Moskva, Ugletekhizdat, 1954. 75 p. (MLRA 8:1)

(Coal-mining machinery)

IVANOV, K. I.

MERKULOV, N.Ya.; IVANOV, K.I.; FATOVSKIY, P.A., nauchnyy redaktor; KONTSEVAYA, Ye.M., redaktor; KRYNOCHKINA, K.V., tekhnicheskiy redaktor.

[Use of machinery in mining] Mekhanizirovannaia prokhodka gornykh vyrabotok. Moskva, Vses. uchebno-pedagog. izd-vo Trudrezervizdat, 1954. 86 p. (MLRA 7:9)
(Mining engineering) (Mining machinery)

IVANOV, K.I..

Maintaining normal steam characteristics in a once-through boiler. Energetik 2 no.1:14-15 Ja '54. (MLRA 7:1)

1. Nachal'nik smeny kotel'nogo tsekha. (Steam boilers)

IVANOV, K.

GRIGOR'YAN, Kh., inzhener; IVANOV, K., inzhener; SHPIL'BERG, I., inzhener.

Metallic supports with hinged tops. Mast.ugl.3 no.10:21-23 O '54. (MLRA 7:12)
(Mine timbering)

IVANOV, K. I.

3802. MEK-I MEKHANIZEEEORGANIPEIBUFFORTST. Ivanov, K.I., Mamontov, N. Ya. and Nasalskii, V.A. (Mekhan. Trud. Tyazhel. Rabot (Mech. Arduous Wk, Moscow), Feb. 1955, 28-32; abstr. in Ugol (Coal, Moscow), June 1955, 47). An illustrated account is given of the successful use of these supports in conjunction with hinged steel top members.

(2)

IVANOV, K.I.: MERKULOV, N.Ya., inzhener; MASAL'SKIY, V.A., inzhener.

The MOK-1 mechanized screw-jack steel prop. Mekh.trud.rab. 9 no.2: 28-32 F '55. (MIRA 8:4)
(Coal mining machinery) (Mine timbering)

IVANOV, Konstantin Ivanovich; MILOSERDIN, Mikhail Mikhaylovich, SHPIL'BERG, Iosif Leybovich; ASTAKHOV, A.V., redaktor; PROZOROVSKAYA, V.L., tekhnicheskiy redaktor.

[The M-32 mechanized screw-jack mine prop for medium thick coal seams] Mekhanizirovannaia posadochnaia krep' M-32 dlia plastov srednei moshchnosti. Moskva, Ugletekhizdat, 1956. 16 p. (MLRA 9:6)
(Mine timbering)

IVANOV, Konstantin Ivanovich; FAYBISOVICH, I.L., otvetstvennyy redaktor; D'YAKOVA, G.B., redaktor izdatel'stva; NADEINSKAYA, A.A., tekhnicheskiy redaktor

[MPK mechanized movable mine supports] Mekhanizirovannaia peredvizhnaia krep' MPK. Moskva, Ugletekhizdat, 1956. 42 p. (MIRA 10:1)
(Mine timbering)

DOROKHOV, Mikhail Il'ich; IVANOV, Konstantin Ivanovich; SOSNOV, V.D., otvetstvennyy redaktor; KOLOMIYTSEV, A.D., redaktor izdatel'stva; ALADOVA, Ye.I., tekhnicheskiy redaktor

[Mechanization and organization of drifting in coal mines] Mekhanizatsiia i organizatsiia provedeniia podgotovitel'nykh vyrabotok. Moskva, Ugletekhizdat, 1956. 215 p. (MLRA 9:9)
(Coal mining machinery)

IVANOV, K., inzhener; PARAMONOV, V., inzhener; SHIL'BERG, I., inzhener.

Metal props for thin seams. Mast.ugl. 5 no.7:23-24 Jl '56.
(Mine timbering) (MIRA 9:9)

VASIL'YEV, A.P., dotsent, kandidat tekhnicheskikh nauk; IVANOV, K.I., kandidat tekhnicheskikh nauk; LYGALOV, V.V., inzhener; FEDOSOV, A.A., inzhener.

Study of thermal piercing in mines. Gor. zhur. no.7:52-56 Jl '56. (MLRA 9:9)

(Boring)

IVANOV, Konstantin Ivanovich; SHPIL'BERG, Iosif Leybovich; ASTAKHOV, A.V., otvetstvennyy redaktor; NADEINSKAYA, A.A., tekhnicheskiy redaktor

[Metal, hinged, cap set mine supports] Metallicheskie sharnirnye verkhniaki zaboinoi krepi. Moskva, Ugletekhizdat, 1957. 60 p. (MIRA 10:5)

(Mine timbering)

IGNAT'YEV, Aleksandr Dmitriyevich, kand.tekhn.nauk; IVANOV, Konstantin Ivanovich, inzh.; PANOV, A.D., kand.tekhn.nauk, red.; NIKONOV, G.P., otvetstvennyy red.; OKHRIMENKO, V.A., red.izd-va; KOROVENKOVA, Z.A., tekhn.red.

[Hydraulic mining of thin and medium thick coal beds] Podzemnaia dobycha uglia gidravlicheskim sposobom na plastakh tonkikh i srednei moshchnosti. Pod obshchei red. A.D.Panova. Moskva, Ugletekhizdat, 1957. 324 p. (MIRA 11:3)
(Hydraulic mining) (Coal mines and mining)

IVANOV, K.I., inzhener; KRASNIKOV, Yu.D., inzhener; TISHCHENKO, N.A., inzhener.

Invent new methods for mechanized coal mining. Mekh.trud.rab. 11 no.5:31-32 My '57. (MIRA 10:7)

(Coal mining machinery)

IVANOV, K.I., gornyy inzhener.

Roof control in hydraulic mining of thin flat seams. Ugol' 32 no.7:29-32 Jl '57. (MIRA 10:7)

1. Vsesoyuznyy Ugol'nyy institut.
(Hydraulic mining)

IVANOV, K. I., Cand Tech Sci --(diss) "Study of ~~the~~ methods of ~~handling roofing~~ controlling roofs without strengthening the stope space in thin flat seams of the Donbass." Mos, 1958. 18 pp (Main Administration of Sci Res and ~~Project~~ Planning Organizations ~~at~~ under Gosplan USSR, All-Union Sci Res Coal Inst VUGI), 150 copies (KL, 35-58, 108)

AUTHOR: Ivanov, K.I., Engineer SOV/118-58-1-5/16

TITLE: On Coal Mining in Stopes Without Supports (O vyyëmke uglya bez krepleniya ochistnogo zaboya)

PERIODICAL: Mekhanizatsiya trudoyëmkikh i tyazhëlykh rabot, 1958, Nr 1, pp 18-23 (USSR)

ABSTRACT: Referring to coal mining practice in the USA, Great Britain, Poland and Western Germany, the author recommends the method of mining stopes without using supports. In the USSR, coal mining of stopes without supports has been applied since 1938 at the first hydraulic mine at the Donbass, in the mines of the Nikopol'-Marganets Trust, and in the Kuzbass mines of "Tyrganskiye uklony" and "Polysayevskaya-Severnaya". In most cases this led to big losses of coal in the depths of the earth, due to the bad consistance of the roofing, and therefore the possibility of support-less mining depends mainly on the properties of the roofing. The Vsesoyuznyy nauchno-issledovatel'skiy ugol'nyy institut (All-Union Scientific Research Institute of Coal Mining) has analyzed the caving properties of various mine roofings to determine the best roofing conditions. One may draw the conclusion that the application of such mining can be realized as well in

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hydraulic mines as in mines not equipped with hydraulic mechanization means and under the most different geological conditions. The basic supposition of applying efficiently the various methods of coal mining of stopes without supports, is a correct control of the roofing.
There are 4 diagrams, 1 table, and 1 photograph.

1. Mining engineering 2. Underground structures

IVANOV K I

127-58-6-12/25

AUTHORS: Ivanov, K.I., Candidate of Technical Sciences and Mal'-chonok, V.O., Engineer

TITLE: A Calculation of the Acceleration of a Percussion Drill in **Cable Tool Drilling** (Opredeleniye uskoreniya burovogo snaryada pri udarno-kanatnom burenii)

PERIODICAL: Gornyy Zhurnal, 1958, Nr 6, pp 44-48 (USSR)

ABSTRACT: The authors analyze various formulas devised for the calculating the acceleration of a percussion drill in **cable tool drilling** [Ref. 1, 2, 3] and present their own formulas, devised by analytic and graphic calculation. There are 3 graphs, and 3 Soviet references.

AVAILABLE: Library of Congress

Card 1/1 1. Drills-Performance 2. Mathematical analysis

PHASE I BOOK EXPLOITATION 845

Yakhontov, Aleksey Dmitriyevich, Ivanov, Konstantin Ivanovich, Zinyuk, Yuriy Nikolayevich, Usevich, Ignat Vasil'yevich

Oksilikvity, ikh proizvodstvo i primeneniye (Liquid Oxygen Exlposives, Their Manufacture and Use) Moscow, Metallurgizdat, 1958. 230 p. 2,200 copies printed.

Ed.: Garkalenko, K.I.; Ed. of Publishing House: Partsevskiy, V.N.; Tech. Ed.: Islent'yeva, P.G.

PURPOSE: This book is for engineers and technicians working in mining industry and planning organizations. It can be used as a practical handbook in the organization and performance of mining blasting operations.

COVERAGE: This book covers the general topic of liquid oxygen explosives, also called oxyliquits, used in the USSR and abroad. The

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physicochemical properties of oxyliquits are described, as well as the manufacture of cartridges with the use of various absorbents. Blasting operations, safety procedures, and liquid oxygen techniques are also included. Much attention is given to the oxyliquits with peat as the absorbent which were used in the Noril'sk open-pit operations from 1942 - 1956, where the authors were employed at that time. The authors participated in the study of new explosives and of their industrial application. The technique of blasting with oxyliquits is described in detail for the case of percussion-cable drilling. A comparative evaluation of oxyliquits as explosives for mining operations is also included. There are 89 tables, 91 figures, and 56 references, 40 of which are Soviet, 14 English, and 2 French.

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12-9-58

IVANOV, K.I.

14(5) PHASE I BOOK EXPLOITATION SOV/2769

Baranov, Yevgeniy Gerasimovich, Pavel Stepanovich Danchev, Konstantin Ivanovich Ivanov, Vladimir Olimpiyevich Mal'chonok, Aleksey Dmitriyevich Pashkov, and Aleksandr Nisanovich Khanukayev

Issledovaniye protsessov bureniya i vzryvaniya s primeneniyem kinos"yemki (Photographic Study of Drilling and Blasting Processes) Moscow, Ugletekhizdat, 1959. 186 p. 2,000 copies printed.

Ed.: K.V. Pavlov; Ed. of Publishing House: T.I. Koroleva; Tech. Ed.: A. Sabitov.

PURPOSE: The book is intended for scientists and engineers in the mining industry. It may also be used as a textbook in institutes of higher technical training.

COVERAGE: The book contains the results of a photographic study of drilling and blasting processes. Analysis of the operation of perforators and percussive drilling rigs, and the study of explosion phenomena by filming helped to reveal

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the physical nature and the regularities of high-speed processes and to indicate ways and means of increasing the efficiency of drilling and blasting work. Photographic work was done at the Central Film Laboratory of the MVO by B.V. Frantsisson and B.G. Sukhov. The author thanks M.M. Dokuchayev. There are 56 references: 48 Soviet, 4 English, 3 German, and 1 French.

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12-30-59

SOV/118-59-4-15/25

28(1)

AUTHOR: Ivanov, K.I., Candidate of Technical Sciences

TITLE: The Excavation of Coal Veins Without Using Face Supports

PERIODICAL: Mekhanizatsiya i avtomatizatsiya proizvodstva, 1959, Nr 4, pp 41-45 (USSR)

ABSTRACT: The author refers in detail to various methods and machines used in the US, Great Britain, West Germany and France, for working coal faces without supports. Following a suggestion made by the Dnepropetrovskiy gornyy institut - DGI (Dnepropetrovsk Institute of Mining) and the Donetskiy nauchno-issledovatel'skiy ugol'nyy institut - DonUGI (Donets Scientific Research Institute for Coal), successful tests have been carried out for the last few years with coal saws in steep-pitch coal working. The coal saw is a toothed cable, the reciprocating motion of which is accomplished by 2 winches, placed in the ventilating entry. Despite lack of experience in using means of

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The Excavation of Coal Veins Without Using Face Supports

excavation without face supports, the method has proved to be promising and economical. There are 3 photographs, 2 diagrams, and 1 sketch.

Card 2/2

SIDOROV, I.P.; BABOKIN, I.A.; IVANOV, K.I.; MEL'NIKOV, S.S.; POLUEKTOV, V.M.

Results of industrial tests of auger underground coal mining system. Ugol' 34 no.11:13-18 N '59 (MIRA 13:3)

1. Glavnyy inzhener shakhty No.7 tresta Novovolyaskugol' (for Sidorov). 2. Institut gornogo dela AN SSSR (for all except Sidorov).
(Lvov-Volyn' Basin--Coal mines and mining)
(Boring machinery--Testing)

IVANOV, K.I., kand.tekhn.nauk

Using UVK type coal-sawing machines for thin steeply pitching coal seams. Ugol' 35 no.2:13-17 F '60. (MIRA 13:5)

1. Institut gornogo dela AN SSSR.
(Coal mining machinery)

IVANOV, K.I., kand.tekhn.nauk

Creating the conditions needed for the efficient use of narrow range coal mining machinery units. Ugol' 35 no.7:59 Jl '60. (MIRA 13:7)

(Coal mining machinery)

IVANOV, K.I., kand. tekhn. nauk

Mining steep coal seams with BGI-type rope saws manufactured by the All-Union Scientific Research Institute of Mine Surveying. Nauch. soob. IGD 11:56-65 '61. (MIRA 16:4)

(Coal mining machinery)

IVANOV, K.I.; GOYEV, V.N.; USHKOV, N.N.; YARMAK, M.F.

Study of rock breaking in percussion drilling. Vzryv. delo no.46/3: 21-28 '61. (MIRA 15:1)

(Boring)

VASIL'YEV, A.P.; IVANOV, K.I.; DUSHUTIN, L.S.; NOVOSEL'SKIY, Yu.A.

Study of rock breaking in thermal drilling. Vzryv. delo no.46/3: 79-97 '61. (MIRA 15:1)

(Boring)

IVANOV, K.I.; MAL'CHONOK, V.O.

Effect of the height of the tool's fall and its weight on the efficiency of cable drilling rigs. Vzryv. delo no.46/3:98-105 '61. (MIRA 15:1)

(Boring machinery)

BELOV, A.I.; IVANOV, K.I.; KLOCHKO, N.A.; SIDOROV, S.P.; USHKOV, N.N.; YARMAK, M.F.

Ways of improving bits for BA-100 air percussion drilling rigs. Vzryv. delo no.46/3:232-238 '61. (MIRA 15:1)
(Boring machinery)

IVANOV, K.I., red.; LIPSHTEYN, R.A., red.; SHAKHNOVICH, M.I., red.; EMINOVA, Ye.A., red.; LEVINA, Ye.S., ved. red.; YAKOVLEVA, Z.I., tekhn. red.

[Improving the quality of transformer oils]Uluchshenie kachestva transformatornykh masel; trudy nauchno-tekhnicheskogo soveshchaniia. Pod red. K.I.Ivanova, i dr. Moskva, Gostoptekhizdat, 1962. 134 p. (MIRA 15:12)

1. Nauchno-tekhnicheskoye soveshchaniye po uluchsheniyu kachestva transformatornykh masel iz vostochnykh sernistykh i drugikh neftei. 1961.
(Petroleum--Refining)

GLAZUNOV, V.N.; IVANOV, K.I.; KLOCHKO, N.A.; KUDRYA, N.A.; USHKOV, N.N.

Foreign tools for drilling slim holes. Gor.zhur. no.8:39-42 Ag '62. (MIRA 15:8)

(Boring machinery)

KHESIN, G. L.; BABENKOV, I. S.; IVANOV, K. I.; MEDVEDEV, I. F.

Photoelastic method of modeling the stress state of a drill and a rock. Gor. zhur. no.10:30-35 O '62. (MIRA 15:10)

(Boring machinery) (Rocks—Testing)
(Photoelasticity)

VASIL'YEV, Petr Vasil'yevich; IVANOV, Konstantin Ivanovich; KARNYSHEV, Anatoliy Dmitriyevich; KUZNETSOV, S.T., kand. tekhn. nauk, retsenzent; KAZAKOV, B.Ye., inzh., otv. red.; OKHRIMENKO, V.A., red.izd-va; LOMILINA, L.N., tekhn. red.

[Controlling roofs in flat seams] Upravlenie krovlei na pologikh plastakh. Moskva, Gosgortekhizdat, 1962. 249 p. (MIRA 16:8)

1. Vsesoyuznyy nauchno-issledovatel'skiy marksheyderskiy institut (for Kuznetsov).
(Mine timbering) (Coal mines and mining)

SUDOPLATOV, Aleksey Pavlovich; IVANOV, Konstantin Ivanovich; BABOKIN, I.A., otv. red.; OKHRIMENKO, V.A., red. izd-va; MINSKER, L.I., tekhn. red.

[New high-efficiency methods of coal mining] Novye vysokoproizvoditel'nye sposoby dobychi uglia. Moskva, Gos. nauchno-tekhn. izd-vo lit-ry po gornomu delu, 1962. 164 p. (MIRA 15:2)

(Coal mines and mining)

LOKHANOV, B.N.; KOVALENKO, V.A.; BETANELI, K.P.; VESKOV, M.I.; DRANNIKOV, S.A.; IVANOV, K.I.; BEREZNYAK, M.N.; VASIL'YEV, Ye.I.; TSETSUL'NIKOV, V.R.

Trial operation of cutter loaders in mining with the room-and-pillar method. Ugol' 37 no.8:33-35 Ag '62. (MIRA 15:9)

1. Krasnogorskiy razrez (for Lokhanov, Kovalenko). 2. Institut gornogo dela im. A.A.Skochinskogo (for Betaneli, Veskov, Drannikov, Ivanov). 3. Kemerovskiy gornyy institut (for Bereznyak, Vasil'yev, TSetsul'nikov).
(Coal mining machinery—Testing) (Mining engineering)

IVANOV, Konstantin Ivanovich; GLAZUNOV, Vsevolod Nikolayevich; NADION, Mikhail Fedotovich [deceased]; BRONNIKOV, D.M., doktor tekhn. nauk, retsenzent; VASIL'CHIKOV, N.V., kand. tekhn. nauk, otv. red.; KOSTON'YAN, A.Ya., red.izd-va; LOMILINA, L.N., tekhn. red.

[Modern methods of hard rock drilling] Sovremennye metody bureniia krepkikh porod. Moskva, Gosgortekhizdat, 1963. 191 p. (MIRA 16:12)

(Rock drills)

IVANOV, Konstantin Ivanovich; USHKOV, Nikolay Nikolayevich; YARMAK Mikhail Fedorovich, GOYEV, Vadim Nikitich; TARASOV, L.Ya., otv. red.; PARTSEVSKIY, V.N., red.izd-va; SABITOV, A., tekhn. red.

[Boring holes in underground mining of ores] Burenie shpurov i skvazhin pri podzemnoi dobyche rud. Moskva, Gosgortekhizdat, 1963. 130 p. (MIRA 16:9)

(Boring)

BEGAGOYEN, Izrail' Anatol'yevich, kand. tekhn.nauk; DYADYURA, Armi Grigor'yevich; DOBROBORSKIY, S.I., kand. tekhn. nauk, retsenzent; IVANOV, K.I., kand. tekhn. nauk, otv. red.; FROLOVA, Ye.I., red.izd-va; IL'INSKAYA, G.M., tekhn.red.

[Design and construction of modern rock drills and air hammers] Ustroistco i raschet sovremennykh perforatorov i pnevmoudarnikov. Moskva, Gosgortekhizdat, 1963. 178 p. (MIRA 16:8)

(Boring machinery)

IVANOV, K.I., kand. tekhn. nauk; BETANELI, K.P., inzh.

Using the seismic method under natural conditions to study the stress state of coal pillars. Nauch. soob. IGD 20:29-41 '63. (MIRA 16:10)

(Coal--Seismic properties) (Strains and stresses)

IVANOV, K.I., kand.tekhn.nauk; BETANELI, K.P., inzh.

Some results of full-scale testing of the bearing capacity and the stressed state of coal pillars. Ugol' 38 no.3:21-28 Mr '63. (MIRA 18:3)

1. Institut gornogo dela im. A.A.Skochinskogo.

IVANOV, K.I., kand. tekhn. nauk; BETANELI, K.P., inzh.

Studying the deformations, bearing capacity, and stressed state of wide coal blocks. Ugol' 39 no.6:20-25 Je'64 (MIRA 17:7)

1. Institut gornogo dela imeni A.A. Skochinskogo.

IVANOV, K.I.

Sequence of autoxidative transformations of normal alkanes. Dokl. AN SSSR 160 no.1:115-118 Ja '65. (MIRA 18:2)

1. Teplotekhnicheskiy nauchno-issledovatel'skiy institut im. F.E. Dzerzhinskogo. Submitted July 3, 1964.

ACC NR: AP7002570 (A, N) SOURCE CODE: UR/0413/66/000/023/0062/0062

INVENTOR: Ivanov, K. I.; Zeger, K. Ye.; Chmovzh, V. Ye.; Polyakovskaya, V. I.; Kudryavova, G. V.

ORG: none

TITLE: Method of improving the antiwear and anticorrosion properties of heavy liquid fuels. Class 23, No. 189110 [announced by All-Union Heat Engineering Institute im. F. E. Dzerzhinskiy (Vsesoyuznyy teplotekhnicheskiy institut)]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 23, 1966, 62

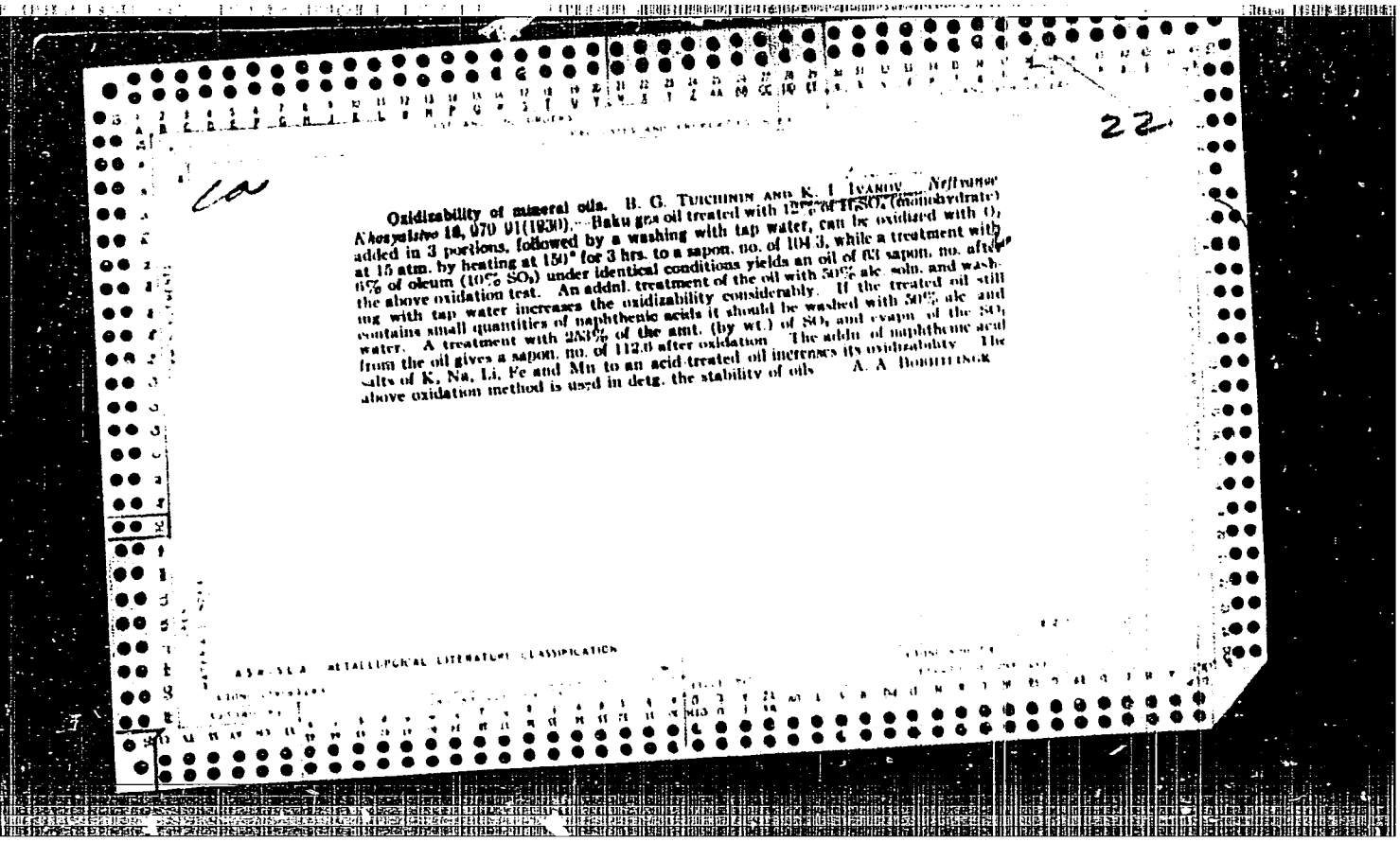
TOPIC TAGS: fuel additive, antiwear additive, anticorrosion additive

ABSTRACT:

An Author Certificate has been issued for a method of improving the antiwear and anticorrosion properties of heavy liquid fuels [unspecified], involving the introduction of additives based on compounds, soluble in water or organic media, of the type $MeX_1 + AlX_2$, where Me is Ca, Mg, or Zn, and X_1 and X_2 are anions or functional groups, taken in quantities such that the Al/Me ratio be 0.05 to 0.95.

SUB CODE: 11/ SUBM DATE: 05Apr65/ ATD PRESS: 5112

Card 1/1 UDC: 546.27'261:620.197



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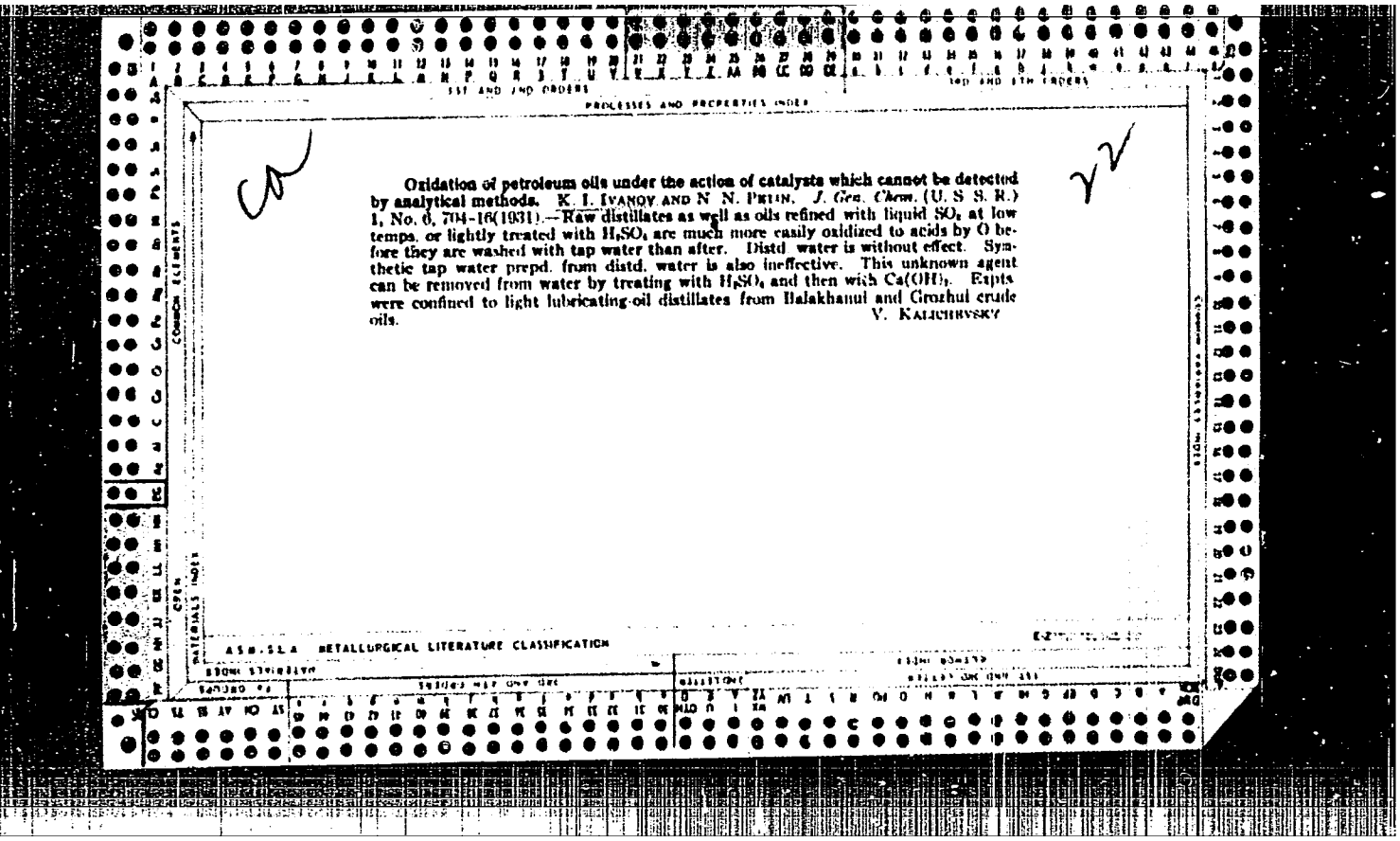
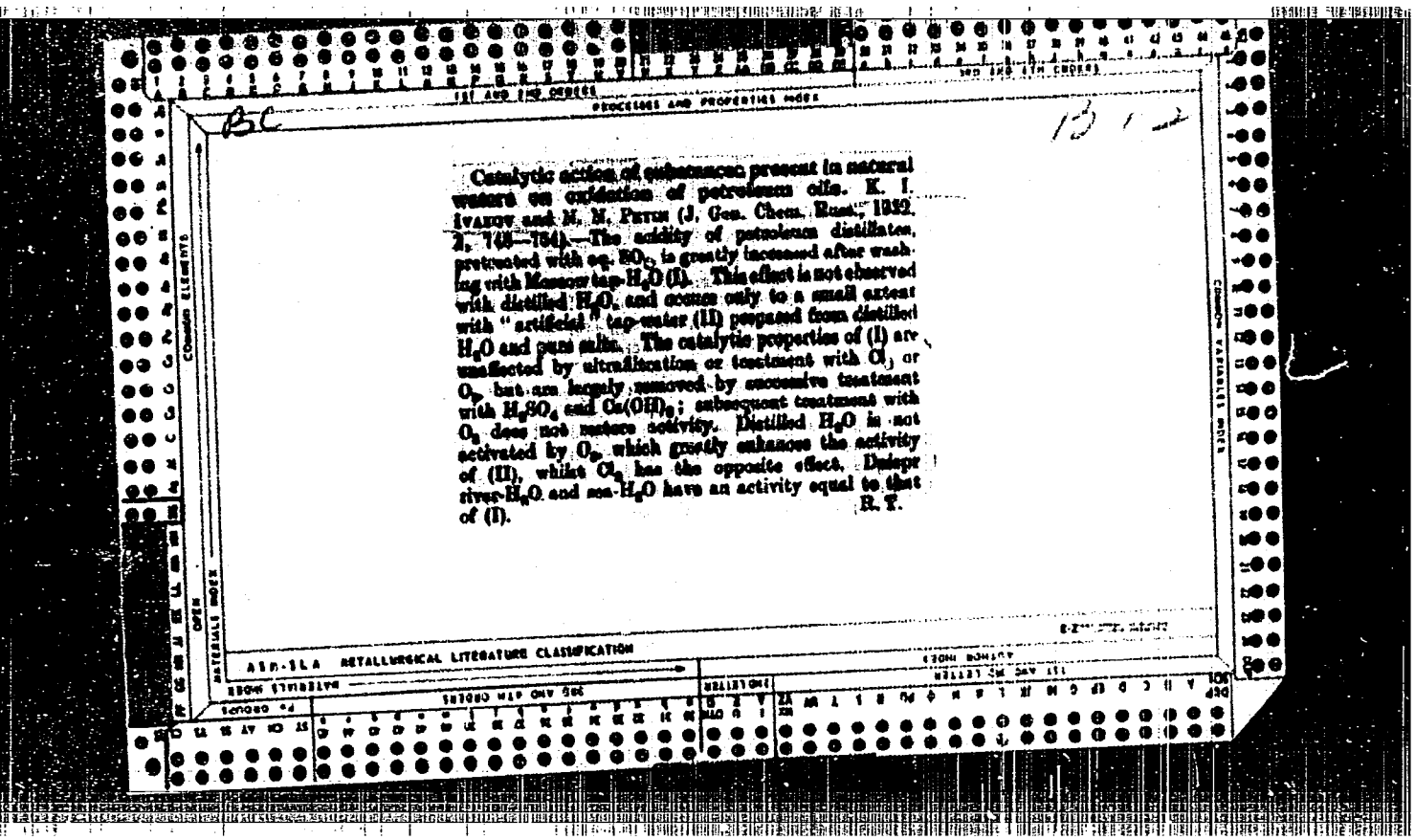
Oxidizability of mineral oils. B. G. Tuchinin and K. I. Ivanov. *Neftyanoe Khozyaistvo* **14**, 970-91(1930).—Baku gas oil treated with 12% of 10.5% $(NaSO_4)_2$ (monohydrate) added in 3 portions, followed by a washing with tap water, can be oxidized with O_2 at 15 atm. by heating at 150° for 3 hrs. to a sapon. no. of 104.3, while a treatment with 6% of oleum (10% SO_3) under identical conditions yields an oil of 63 sapon. no. after the above oxidation test. An addnl. treatment of the oil with 50% alc. soln. and washing with tap water increases the oxidizability considerably. If the treated oil still contains small quantities of naphthenic acids it should be washed with 50% alc. and water. A treatment with 2.5% of the amt. (by wt.) of SO_3 and evapn. of the SO_3 from the oil gives a sapon. no. of 112.0 after oxidation. The addn. of naphthenic acid salts of K, Na, Li, Fe and Mn to an acid-treated oil increases its oxidizability. The above oxidation method is used in detg. the stability of oils. A. A. Boehtlingk

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



Oxidation of petroleum oils under the action of catalysts which cannot be detected by analytical methods. K. I. IVANOV AND N. N. PRUN. *J. Gen. Chem.* (U. S. S. R.) 1, No. 6, 704–16(1931).—Raw distillates as well as oils refined with liquid SO_2 at low temps. or lightly treated with H_2SO_4 are much more easily oxidized to acids by O before they are washed with tap water than after. Distd. water is without effect. Synthetic tap water prepd. from distd. water is also ineffective. This unknown agent can be removed from water by treating with H_2SO_4 and then with $Ca(OH)_2$. Expts. were confined to light lubricating-oil distillates from Balakhanui and Grozhui crude oils.

V. KALICHEVSKY



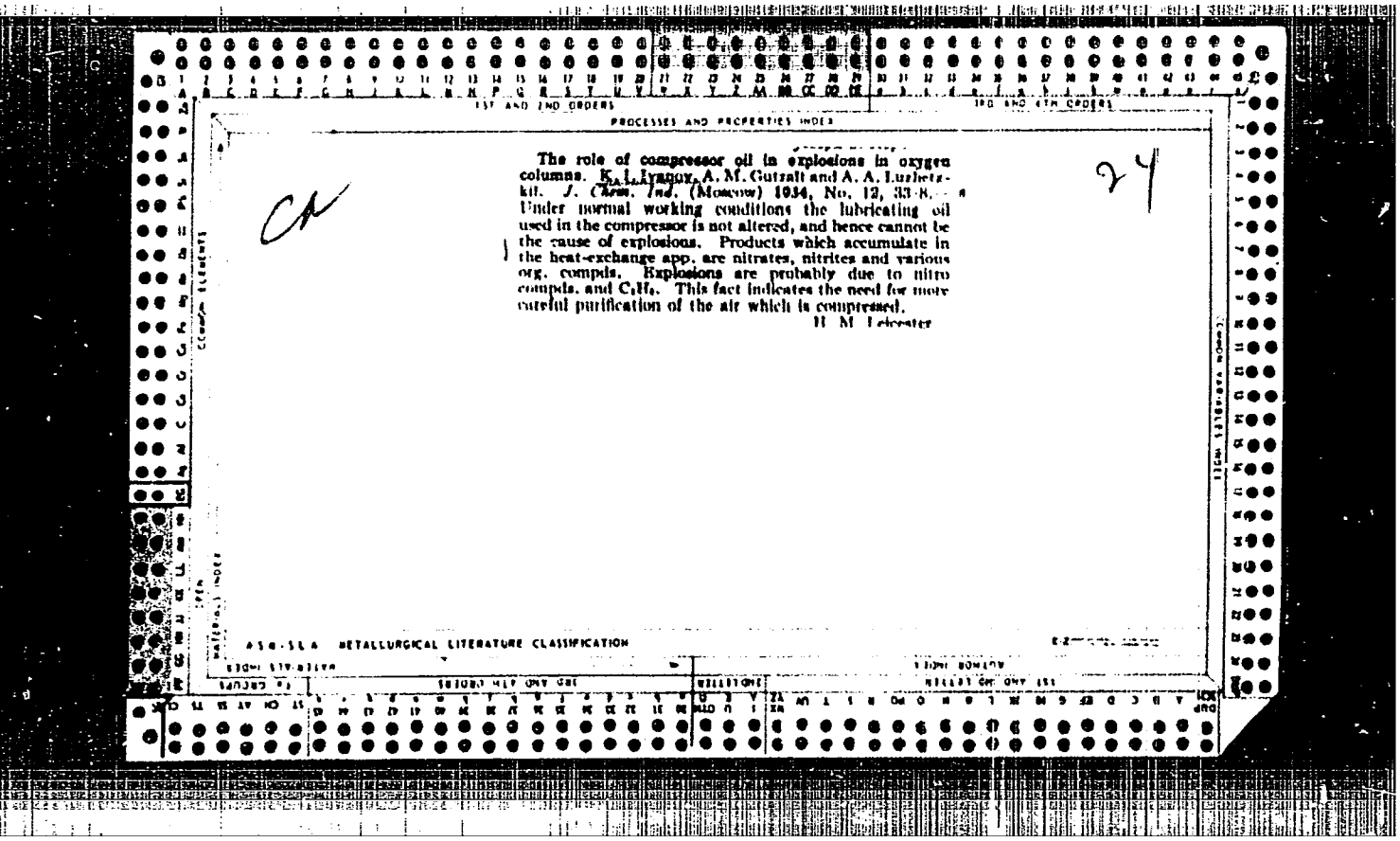
Catalytic action of substances present in natural waters on oxidation of petroleum oils. K. I. IVANOV and M. M. PETER (J. Gen. Chem. Russ., 1939, 9, 748—754).—The acidity of petroleum distillates, pretreated with aq. SO_3, is greatly increased after washing with Moscow tap-H_2O (I). This effect is not observed with distilled H_2O, and occurs only to a small extent with "artificial" tap-water (II) prepared from distilled H_2O and pure salts. The catalytic properties of (I) are unaffected by ultrafiltration or treatment with O_3 or O_2, but are largely removed by successive treatment with H_2SO_4 and $Ca(OH)_2$; subsequent treatment with O_3 does not restore activity. Distilled H_2O is not activated by O_2, which greatly enhances the activity of (II), whilst O_3 has the opposite effect. Dnieper river-H_2O and sea-H_2O have an activity equal to that of (I). R. T.

Ca

PROCESSES AND PROPERTIES INDEX

Experimental hydrogenation of the residue from the primary tar from Barzass coals, for the special purpose of obtaining lubricating oils. K. I. Ivanov, V. F. Palin and N. V. Morozova. *Destructive Hydrogenation of Fuels, O. N. T. I. Goskhimtekhizdat* (Leningrad) 1, 255-74 (1934).—The residue of the primary tar had d. 1.0314, Brenken flash point 189°, E_{50} viscosity 6.6, pour point +18°, Hanus I no. 18, and contained phenols 3.81, acids 2.46, bases 0.86, asphaltenes 16.10, carbenes and carboids 5.15, fuller's earth resins 28.30, and neutral residue 43.30%. Hydrogenation was conducted at 300-90° for 4-6 hrs. The oils obtained from the nonhydrogenated crude-tar bottoms are characterized by a high sp. gr. and a considerable oxidizability, forming ppts. Through hydrogenation the yields of lubricating-oil fractions are raised by about 30%, sp. gr. is lowered and stability toward oxidation is increased. Hydrogenation in the presence of Ni oxide or Mo oxide catalysts yielded an oil which contained considerably less resinous substances than that obtained in the absence of catalysts. Mo oxide was more active than Ni oxide, particularly at higher temps. Oils obtained on hydrogenating bottoms contg. resinous substances, phenols, acids and bases were superior and had a higher yield than those passed through a preliminary refining. The best temp. was about 390° and the best duration was about 4 hrs. A. A. B.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



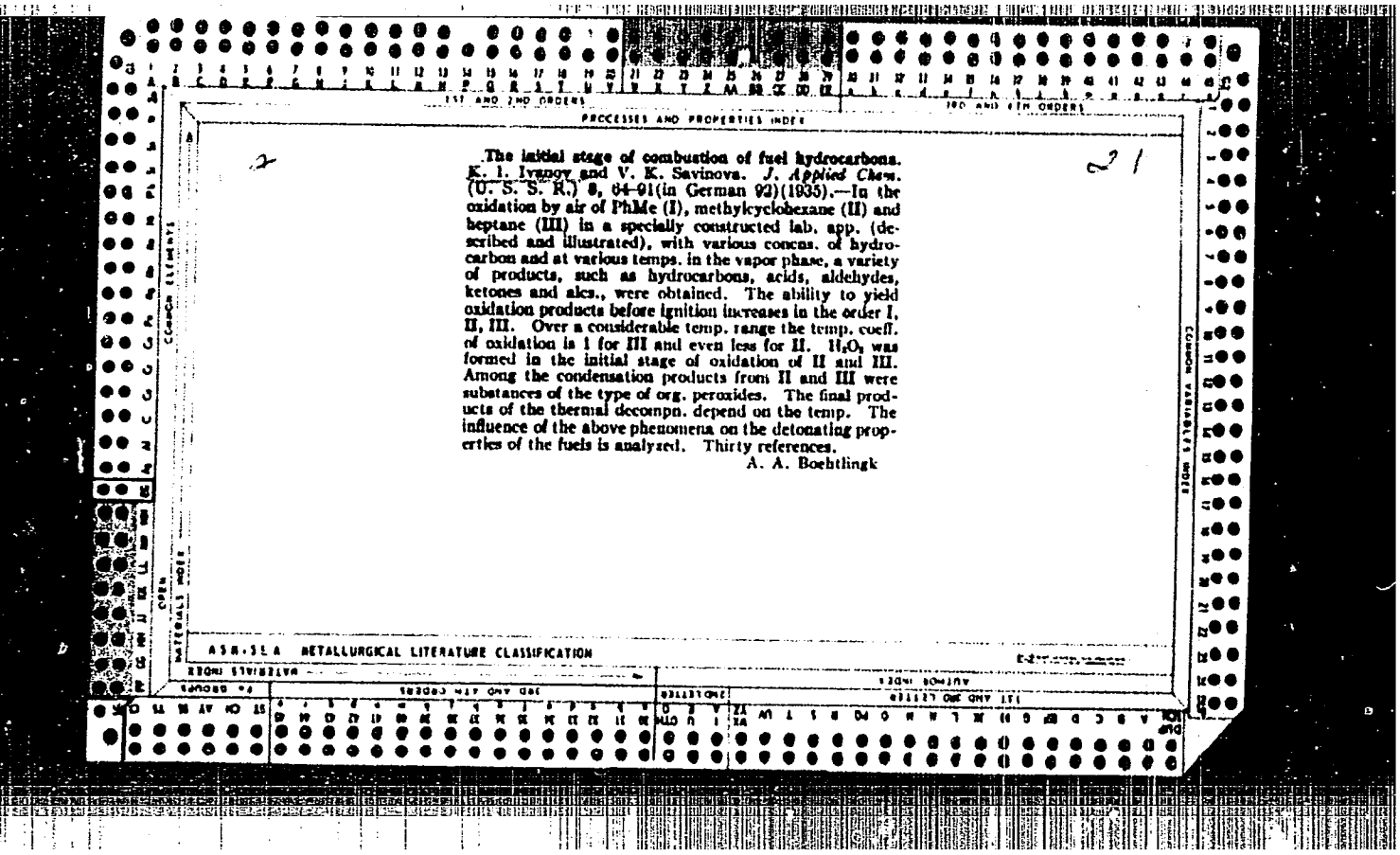
PROCESSES AND PROPERTIES INDEX

The role of compressor oil in explosions in oxygen columns. K. I. Ivanov, A. M. Gutzait and A. A. Luzhetskii. *J. Chem. Ind.* (Moscow) 1934, No. 12, 33-8. — Under normal working conditions the lubricating oil used in the compressor is not altered, and hence cannot be the cause of explosions. Products which accumulate in the heat-exchange app. are nitrates, nitrites and various org. compds. Explosions are probably due to nitro compds. and C_4H_6. This fact indicates the need for more careful purification of the air which is compressed.

H. M. Leicester

24

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



PROCESSES AND PROPERTIES INDEX

.The initial stage of combustion of fuel hydrocarbons. K. I. Ivanov and V. K. Savinova. *J. Applied Chem.* (U. S. S. R.) 8, 84-91(in German 92)(1935).—In the oxidation by air of PhMe (I), methylcyclohexane (II) and heptane (III) in a specially constructed lab. app. (described and illustrated), with various concns. of hydrocarbon and at various temps. in the vapor phase, a variety of products, such as hydrocarbons, acids, aldehydes, ketones and alcs., were obtained. The ability to yield oxidation products before ignition increases in the order I, II, III. Over a considerable temp. range the temp. coeff. of oxidation is 1 for III and even less for II. H_2O_2 was formed in the initial stage of oxidation of II and III. Among the condensation products from II and III were substances of the type of org. peroxides. The final products of the thermal decompn. depend on the temp. The influence of the above phenomena on the detonating properties of the fuels is analyzed. Thirty references.

A. A. Boehtlingk

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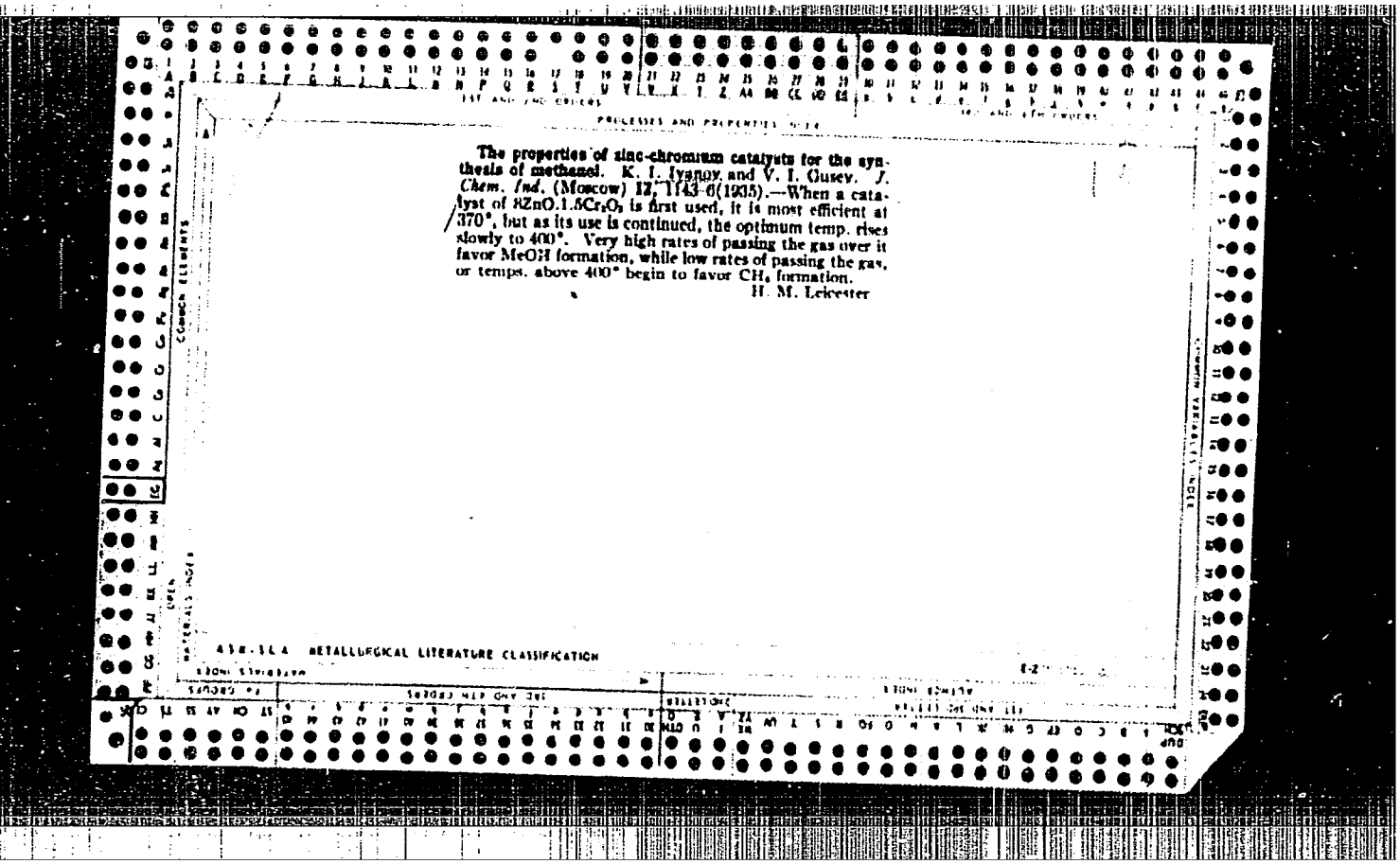
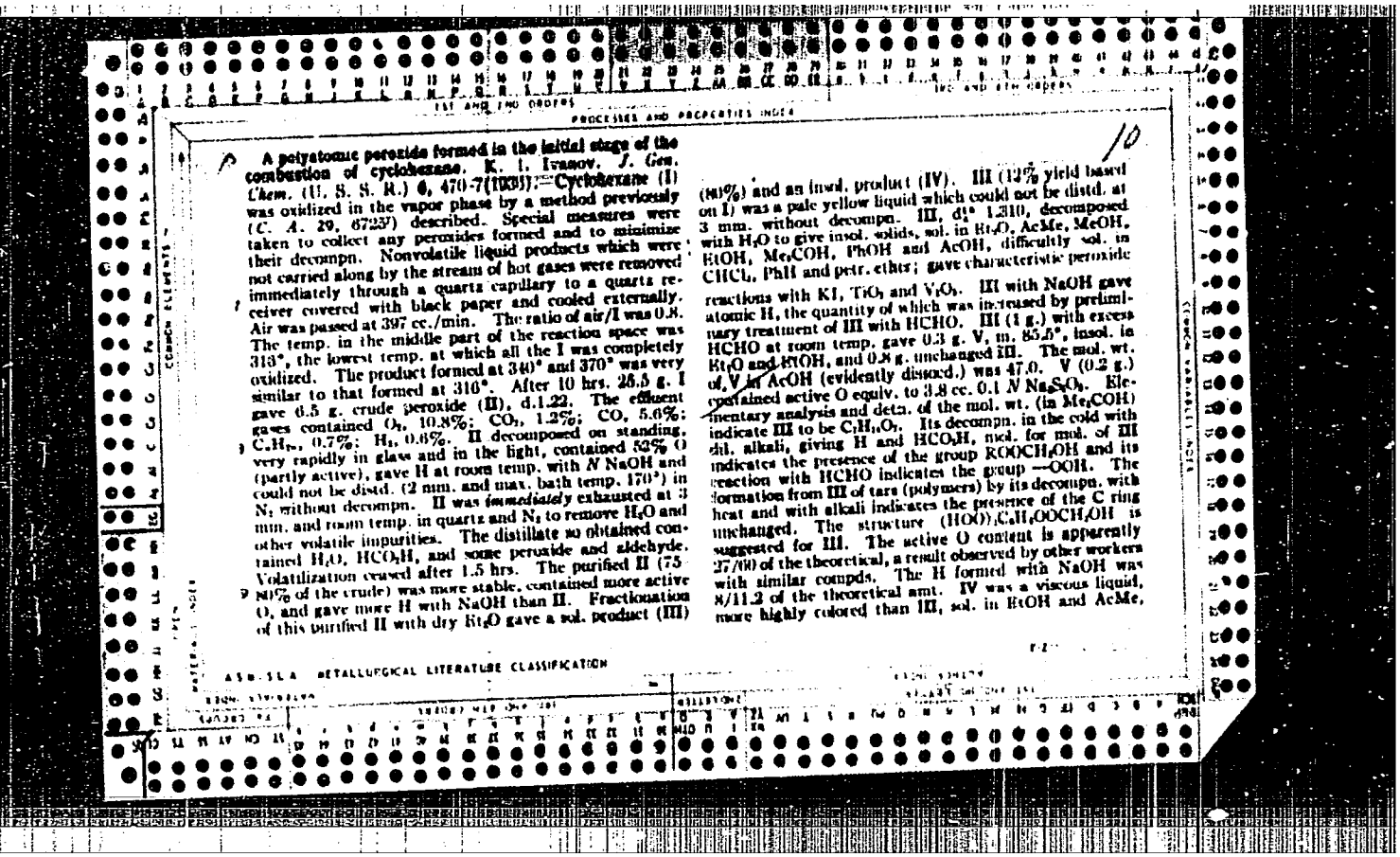


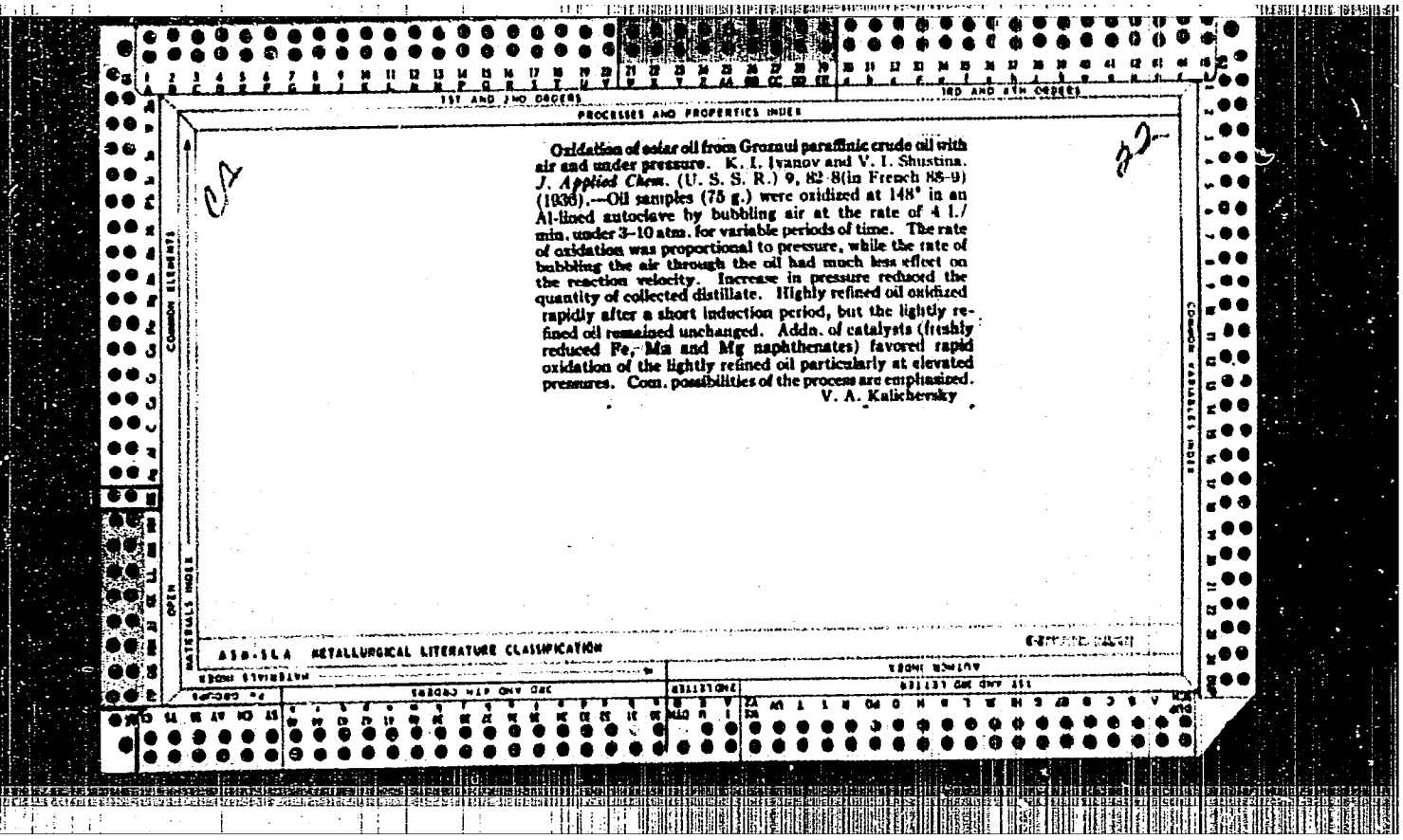
The properties of zinc-chromium catalysts for the synthesis of methanol. K. I. Ivanov and V. I. Gusev. *J. Chem. Ind.* (Moscow) **12**, 1143-6(1935).—When a catalyst of $8ZnO.1.5Cr_2O_3$ is first used, it is most efficient at 370°, but as its use is continued, the optimum temp. rises slowly to 400°. Very high rates of passing the gas over it favor MeOH formation, while low rates of passing the gas, or temps. above 400° begin to favor CH_4 formation.
H. M. Leicester



A polyatomic peroxide formed in the initial stage of the combustion of cyclohexane. K. I. Ivanov. *J. Gen. Chem.* (U. S. S. R.) 9, 470-7(1939).—Cyclohexane (I) was oxidized in the vapor phase by a method previously (*C. A.* 29, 6725) described. Special measures were taken to collect any peroxides formed and to minimize their decompn. Nonvolatile liquid products which were not carried along by the stream of hot gases were removed immediately through a quartz capillary to a quartz receiver covered with black paper and cooled externally. Air was passed at 397 cc./min. The ratio of air/I was 0.8. The temp. in the middle part of the reaction space was 313°, the lowest temp. at which all the I was completely oxidized. The product formed at 340° and 370° was very similar to that formed at 310°. After 10 hrs. 26.5 g. I gave 6.5 g. crude peroxide (II), d. 1.22. The effluent gases contained O_2, 10.8%; CO_2, 1.2%; CO, 5.6%; C_nH_m, 0.7%; H_2, 0.6%. II decomposed on standing, very rapidly in glass and in the light, contained 52% O (partly active), gave H at room temp. with *N* NaOH and could not be distd. (2 mm. and max. bath temp. 170°) in N_2 without decompn. II was *immediately* exhausted at 3 mm. and room temp. in quartz and N_2 to remove H_2O and other volatile impurities. The distillate so obtained contained H_2O, HCO_2H, and some peroxide and aldehyde. Volatilization ceased after 1.5 hrs. The purified II (75-80% of the crude) was more stable, contained more active O, and gave more H with NaOH than II. Fractionation of this purified II with dry Et_2O gave a sol. product (III) (80%) and an insol. product (IV). III (12% yield based on I) was a pale yellow liquid which could not be distd. at 3 mm. without decompn. III, d_4^{20} 1.210, decomposed with H_2O to give insol. solids, sol. in Et_2O, AcMe, MeOH, EtOH, Me_3COH, PhOH and AcOH, difficultly sol. in $CHCl_3$, PhH and petr. ether; gave characteristic peroxide reactions with KI, TiO_2 and V_2O_5. III with NaOH gave atomic H, the quantity of which was increased by preliminary treatment of III with HCHO. III (1 g.) with excess HCHO at room temp. gave 0.3 g. V, m. 85.5°, insol. in Et_2O and EtOH, and 0.8 g. unchanged III. The mol. wt. of V in AcOH (evidently dissocd.) was 47.0. V (0.2 g.) contained active O equiv. to 3.8 cc. 0.1 *N* $Na_2S_2O_3$. Elementary analysis and detn. of the mol. wt. (in Me_3COH) indicate III to be $C_7H_{14}O_7$. Its decompn. in the cold with dil. alkali, giving H and HCO_2H, incd. for mol. of III indicates the presence of the group $R(OOCH_2OH)_2$ and its reaction with HCHO indicates the group —OOH. The formation from III of tars (polymers) by its decompn. with heat and with alkali indicates the presence of the C ring unchanged. The structure $(HOO)_2C_3H_4OOCH_2OH$ is suggested for III. The active O content is apparently 27/60 of the theoretical, a result observed by other workers with similar compds. The H formed with NaOH was 8/11.2 of the theoretical amt. IV was a viscous liquid, more highly colored than III, sol. in EtOH and AcMe,

slowly sol. Me_2CO, insol. in PhH and petr. ether. III on standing gave some IV. Elementary analysis, detn. of the mol. wt. and the observed properties suggest for IV the structure $HOOC_6H_8(OH)OOCH_2OH$. The formation of III from I is probably to be explained by the interaction of $C_6H_8(OOH)_4$, the primary product, with HCHO, also formed from I by oxidation. Peroxide formation is to be regarded as the chief process in the initial stage of oxidation of I and much larger quantities of peroxides are formed than are indicated by the yields of III and IV. In order to obtain the yields shown the successive steps in the prepn. of III and IV must be carried out quickly and without interruption at any stage.

Lewis W. Hutz



PROCESSES AND PROPERTIES INDEX

Oxidation of solar oil from Groznui paraffinic crude oil with air and under pressure. K. I. Ivanov and V. I. Shustina. *J. Applied Chem.* (U. S. S. R.) 9, 82-8(in French 88-9) (1936).—Oil samples (75 g.) were oxidized at 148° in an Al-lined autoclave by bubbling air at the rate of 4 l./min. under 3–10 atm. for variable periods of time. The rate of oxidation was proportional to pressure, while the rate of bubbling the air through the oil had much less effect on the reaction velocity. Increase in pressure reduced the quantity of collected distillate. Highly refined oil oxidized rapidly after a short induction period, but the lightly refined oil remained unchanged. Addn. of catalysts (freshly reduced Fe, Mn and Mg naphthenates) favored rapid oxidation of the lightly refined oil particularly at elevated pressures. Com. possibilities of the process are emphasized.
V. A. Kalichevsky

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

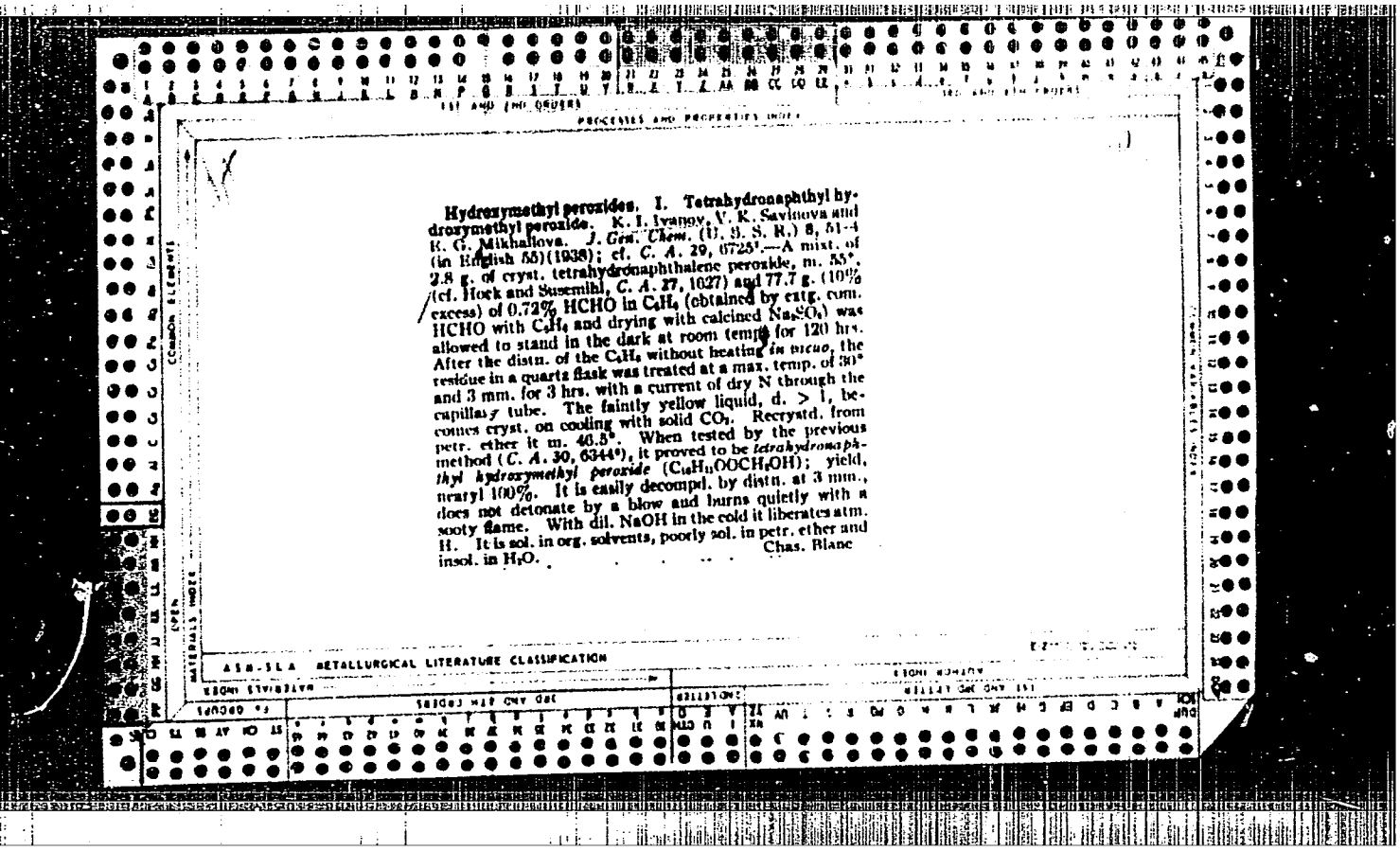
1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

The viscosity of mineral oils at low temperatures. K. I. Ivanov and A. M. Gutsen. *Neftyanoe Khoz.* 1937, No. 6, 32-5; *Chem. Zentr.* 1937, II, 3844-5.—The viscosity of the oils at low temps. was measured under pressure in the capillary viscometer of Ubbelohde and [illegible] Near the solidifying point, transformer oils and turbine oils showed a relationship between the viscosity and the previous thermal treatment which was more pronounced the lower the temp. of the viscosity measurements. In contrast to fuel oils, however, the f. p. showed no variation with the kind of thermal pretreatment. One transformer oil (f. p. −48°) showed only half as great a viscosity at −45° after it had been heated to 50° as that shown by the unheated oil. The viscosity curves for transformer oils show a characteristic break at about −3°; those for turbine oils show one at [illegible]. Above [illegible] these temps. the curves are flat; in the neighborhood of the solidifying point the viscosity increases sharply. The formula log (η + 0.8) = a + b log t is therefore of little value at low temps. Better results were obtained with the formula of Tanaka, Kobayashi, Tsukoda and Ono (cf. C. A. 30, [illegible]), namely [illegible]. Formulas developed for transformer oils were [illegible] and for turbine oils [illegible]. Properties reported for transformer oil I are d_4^{20} = 0.8742, Engler viscosity at 50° = 1.6 and at 20° = 3.7, f. p. −48°; for transformer oil II, d. = 0.8800, viscosity = 1.65 at 50° and 4.12 at 20°, f. p. = −46°; for the turbine oil d. = 0.8851, viscosity at 50° = 3.05, and f. p. = −11°. M. G. M.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



Hydroxymethyl peroxides. I. Tetrahydronaphthyl hydroxymethyl peroxide. K. I. Ivanov, V. K. Savinova and K. G. Mikhailova. *J. Gen. Chem.* (U. S. S. R.) 8, 51-4 (in English 55)(1938); cf. *C. A.* 29, 6725⁴.—A mixt. of 2.8 g. of cryst. tetrahydronaphthalene peroxide, m. 55°, (cf. Hock and Susemihl, *C. A.* 27, 1027) and 77.7 g. (10% excess) of 0.72% HCHO in C_6H_6 (obtained by extg. com. HCHO with C_6H_6 and drying with calcined Na_2SO_4) was allowed to stand in the dark at room temp. for 120 hrs. After the distn. of the C_6H_6 without heating *in vacuo*, the residue in a quartz flask was treated at a max. temp. of 30° and 3 mm. for 3 hrs. with a current of dry N through the capillary tube. The faintly yellow liquid, d. > 1, becomes cryst. on cooling with solid CO_2. Recrystd. from petr. ether it m. 46.5°. When tested by the previous method (*C. A.* 30, 6344⁶), it proved to be *tetrahydronaphthyl hydroxymethyl peroxide* ($C_{10}H_{11}OOCH_2OH$); yield, nearly 100%. It is easily decompd. by distn. at 3 mm., does not detonate by a blow and burns quietly with a sooty flame. With dil. NaOH in the cold it liberates atm. H. It is sol. in org. solvents, poorly sol. in petr. ether and insol. in H_2O.

Chas. Blanc

PROCESSES AND PROPERTIES INDEX

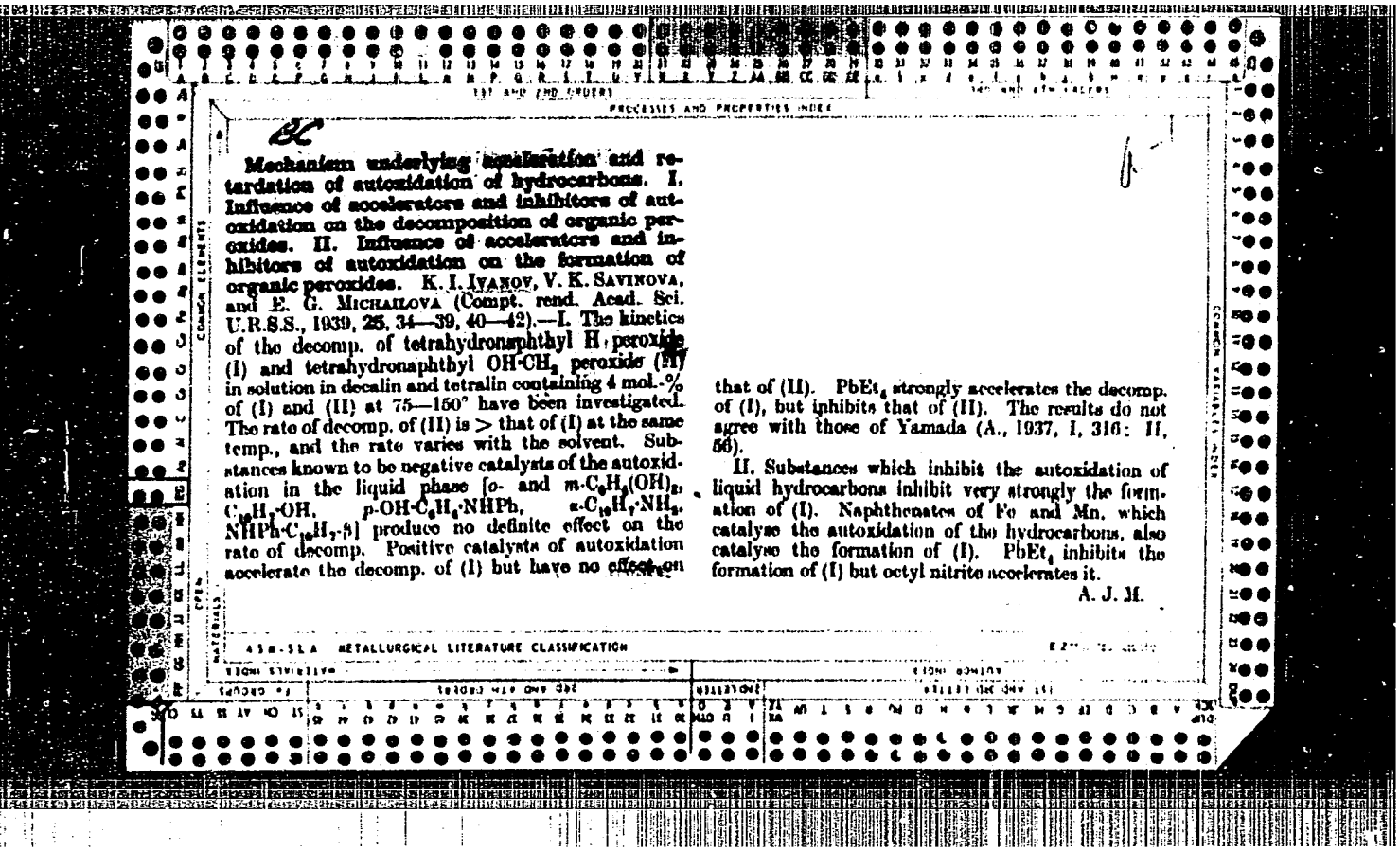
BC

B-1-2

Test of the stability of turbine and transformer oils. Estimation of their ability to form [illegible] acids at the beginning of ageing. [illegible] A. I. [illegible], and V. P. Maximova (Zavod. Lab., 1939, 8, 1156—1157).—Oxidation of oil by air in glass does not duplicate the production conditions. The rate of oxidation is raised by Cu and even more so by Fe. In an approved test air is bubbled through oil containing a Cu and an Fe ball. Oxidation at 160° for 14 hr. and measurement of the sediment, the acid val., and the sap. val. gives the total rate of acid formation; oxidation at 120° for 6 hr. and testing the pH of the aq. extract gives the rate of formation of low-mol. acids.

J. J. B.

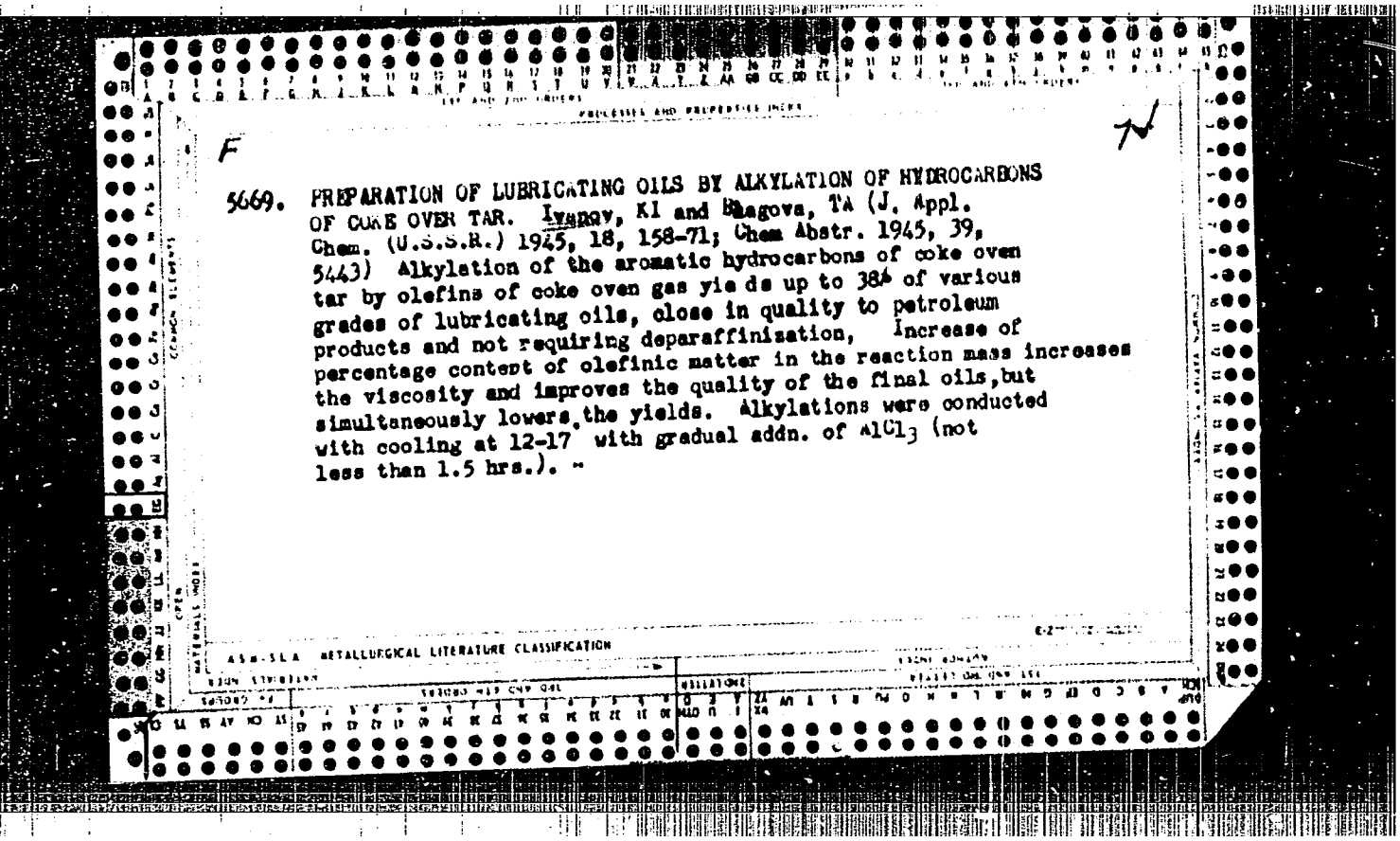
ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



Mechanism underlying acceleration and retardation of autoxidation of hydrocarbons. I. Influence of accelerators and inhibitors of autoxidation on the decomposition of organic peroxides. II. Influence of accelerators and inhibitors of autoxidation on the formation of organic peroxides. K. I. IVANOV, V. K. SAVINOVA, and E. G. MICHAILOVA (Compt. rend. Acad. Sci. U.R.S.S., 1939, 25, 34—39, 40—42).—I. The kinetics of the decomp. of tetrahydronaphthyl H peroxide (I) and tetrahydronaphthyl OH·CH_2 peroxide (II) in solution in decalin and tetralin containing 4 mol.-% of (I) and (II) at 75—150° have been investigated. The rate of decomp. of (II) is > that of (I) at the same temp., and the rate varies with the solvent. Substances known to be negative catalysts of the autoxidation in the liquid phase [*o*- and *m*-$C_6H_4(OH)_2$, $C_{10}H_7$·OH, *p*-OH·C_6H_4·NHPh, α-$C_{10}H_7$·NH_2, NHPh·$C_{10}H_7$-β] produce no definite effect on the rate of decomp. Positive catalysts of autoxidation accelerate the decomp. of (I) but have no effect on that of (II). $PbEt_4$ strongly accelerates the decomp. of (I), but inhibits that of (II). The results do not agree with those of Yamada (A., 1937, I, 316; II, 56).

II. Substances which inhibit the autoxidation of liquid hydrocarbons inhibit very strongly the formation of (I). Naphthenates of Fe and Mn, which catalyse the autoxidation of the hydrocarbons, also catalyse the formation of (I). $PbEt_4$ inhibits the formation of (I) but octyl nitrite accelerates it.

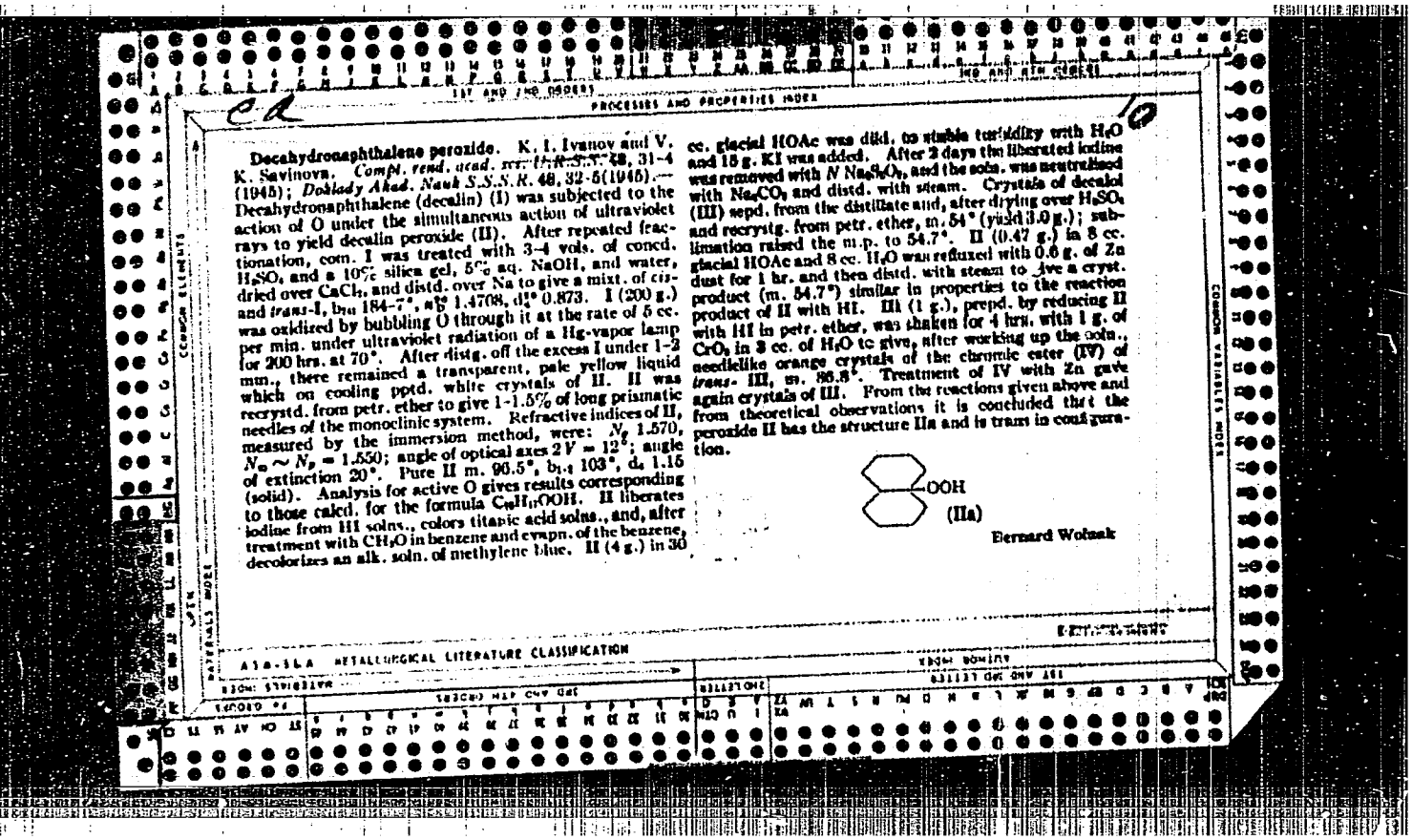
A. J. M.



F

5669. PREPARATION OF LUBRICATING OILS BY ALKYLATION OF HYDROCARBONS OF COKE OVER TAR. Ivanov, KI and Bagova, TA (J. Appl. Chem. (U.S.S.R.) 1945, 18, 158-71; Chem Abstr. 1945, 39, 5443) Alkylation of the aromatic hydrocarbons of coke oven tar by olefins of coke oven gas yields up to 38% of various grades of lubricating oils, close in quality to petroleum products and not requiring deparaffinization, Increase of percentage content of olefinic matter in the reaction mass increases the viscosity and improves the quality of the final oils, but simultaneously lowers the yields. Alkylations were conducted with cooling at 12-17° with gradual addn. of $AlCl_3$ (not less than 1.5 hrs.). -

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



Decahydronaphthalene peroxide. K. I. Ivanov and V. K. Savinova. *Compt. rend. acad. sci. U.R.S.S.* 48, 31-4 (1945); *Doklady Akad. Nauk S.S.S.R.* 48, 32-5(1946).—Decahydronaphthalene (decalin) (I) was subjected to the action of O under the simultaneous action of ultraviolet rays to yield decalin peroxide (II). After repeated fractionation, com. I was treated with 3–4 vols. of concd. H_2SO_4 and a 10% silica gel, 5% aq. NaOH, and water, dried over $CaCl_2$, and distd. over Na to give a mixt. of *cis*- and *trans*-I, b_{760} 184–7°, n_D^{20} 1.4708, d_4^{20} 0.873. I (200 g.) was oxidized by bubbling O through it at the rate of 5 cc. per min. under ultraviolet radiation of a Hg-vapor lamp for 200 hrs. at 70°. After distg. off the excess I under 1–2 mm., there remained a transparent, pale yellow liquid which on cooling pptd. white crystals of II. II was recrystd. from petr. ether to give 1–1.5% of long prismatic needles of the monoclinic system. Refractive indices of II, measured by the immersion method, were: N_g 1.570, $N_m \sim N_p$ 1.550; angle of optical axes $2V = 12°$; angle of extinction 20°. Pure II m. 90.5°, $b_{1:4}$ 103°, d_4 1.15 (solid). Analysis for active O gives results corresponding to those calcd. for the formula $C_{10}H_{17}OOH$. II liberates iodine from HI solns., colors titanic acid solns., and, after treatment with CH_2O in benzene and evapn. of the benzene, decolorizes an alk. soln. of methylene blue. II (4 g.) in 30 cc. glacial HOAc was ddd. to stable turbidity with H_2O and 15 g. KI was added. After 2 days the liberated iodine was removed with *N* $Na_2S_2O_3$, and the soln. was neutralized with Na_2CO_3 and distd. with steam. Crystals of decalol (III) sepd. from the distillate and, after drying over H_2SO_4 and recrystg. from petr. ether, m. 54° (yield 3.0 g.); sublimation raised the m.p. to 54.7°. II (0.47 g.) in 8 cc. glacial HOAc and 8 cc. H_2O was refluxed with 0.6 g. of Zn dust for 1 hr. and then distd. with steam to give a cryst. product (m. 54.7°) similar in properties to the reaction product of II with HI. III (1 g.), prepd. by reducing II with HI in petr. ether, was shaken for 4 hrs. with 1 g. of CrO_3 in 3 cc. of H_2O to give, after working up the soln., needlelike orange crystals of the chromic ester (IV) of *trans*- III, m. 86.8°. Treatment of IV with Zn gave again crystals of III. From the reactions given above and from theoretical observations it is concluded that the peroxide II has the structure IIa and is trans in configuration.

(IIa)

Bernard Wolnak

PA 38T28

IVANOV, K. I.

USSR/Engineering
Fuels, Liquid
Lubricating Oils

Nov 1946

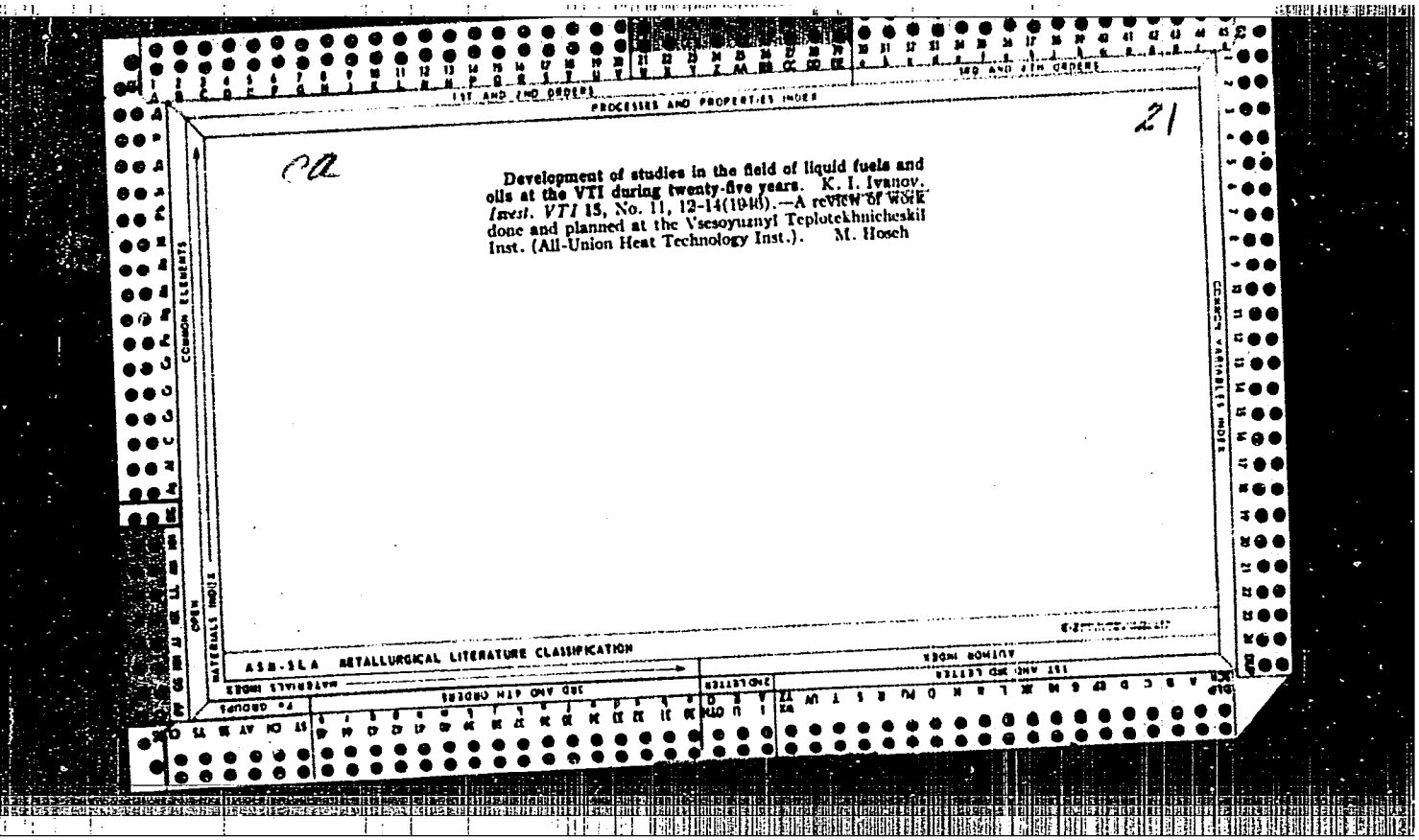
"Progress of Research Work on Liquid Fuels and Lubricating Oils in the VTI, for Twenty-five Years," K. I. Ivanov, Lubricating Oils Laboratory, 2½ pp

"Izvest VTI" No 11 (137)

Very general historical description of the development of the study of liquid fuels and lubricating oils, with mention of the scientists and institutions which have contributed toward the solution of the various problems.

38T28

IC



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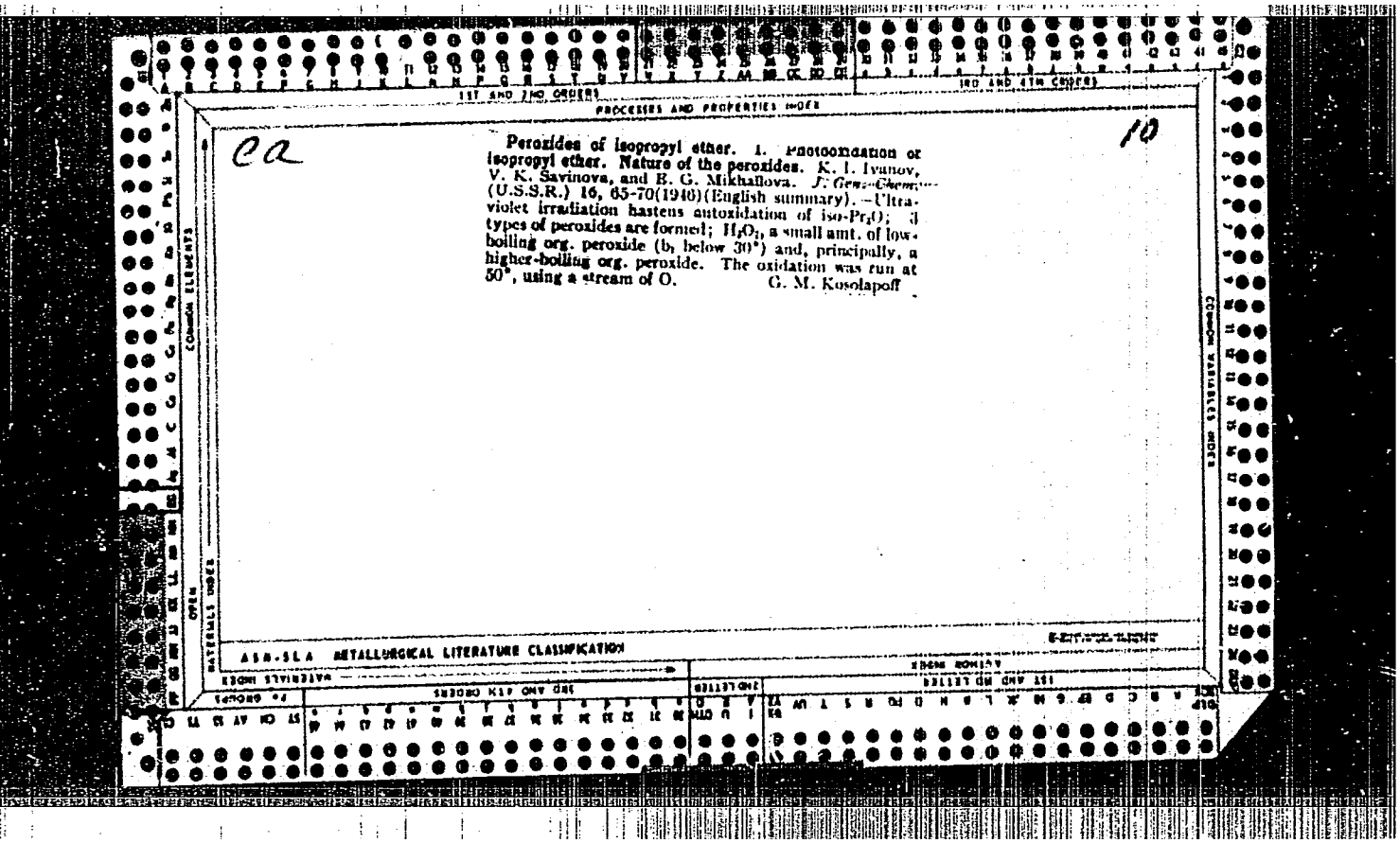
Development of studies in the field of liquid fuels and oils at the VTI during twenty-five years. K. I. Ivanov. *Izvest. VTI* 15, No. 11, 12-14(1946).—A review of work done and planned at the Vsesoyuznyi Teplotekhnicheskii Inst. (All-Union Heat Technology Inst.). M. Hosch



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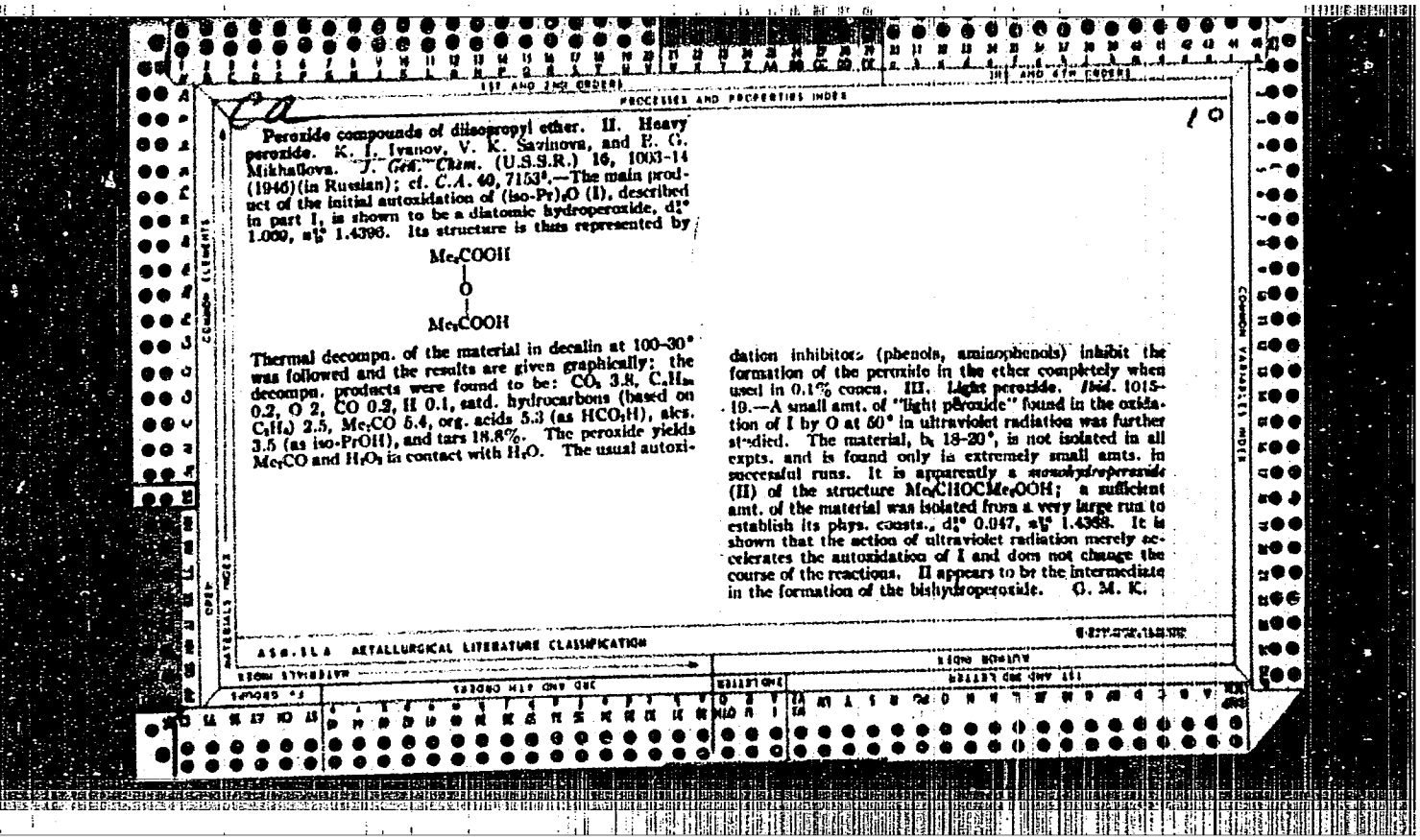
Peroxides of isopropyl ether. I. Photooxidation of isopropyl ether. Nature of the peroxides. K. I. Ivanov, V. K. Savinova, and B. G. Mikhailova. *J. Gen. Chem.* (U.S.S.R.) 16, 65-70(1946)(English summary).—Ultraviolet irradiation hastens autoxidation of iso-Pr_2O; 3 types of peroxides are formed; H_2O_2, a small amt. of low-boiling org. peroxide (b_1 below 30°) and, principally, a higher-boiling org. peroxide. The oxidation was run at 50°, using a stream of O. G. M. Kosolapoff

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



Peroxide compounds of diisopropyl ether. II. Heavy peroxide. K. I. Ivanov, V. K. Savinova, and E. G. Mikhailova. *J. Gen. Chem.* (U.S.S.R.) 16, 1003-14 (1946)(in Russian); cf. *C.A.* 40, 7153⁸.—The main product of the initial autoxidation of (iso-Pr)₂O (I), described in part I, is shown to be a diatomic hydroperoxide, d_4^{20} 1.009, n_D^{20} 1.4396. Its structure is thus represented by

$$Me_2COOH$$
$$|$$
$$O$$
$$|$$
$$Me_2COOH$$

Thermal decompn. of the material in decalin at 100–30° was followed and the results are given graphically; the decompn. products were found to be: CO_2 3.8, C_nH_{2n} 0.2, O 2, CO 0.2, H 0.1, satd. hydrocarbons (based on C_3H_8) 2.5, Me_2CO 5.4, org. acids 5.3 (as HCO_2H), alcs. 3.5 (as iso-PrOH), and tars 18.8%. The peroxide yields Me_2CO and H_2O_2 in contact with H_2O. The usual autoxidation inhibitors (phenols, aminophenols) inhibit the formation of the peroxide in the ether completely when used in 0.1% concn. III. Light peroxide. *Ibid.* 1015–19.—A small amt. of "light peroxide" found in the oxidation of I by O at 50° in ultraviolet radiation was further studied. The material, b_4 18–20°, is not isolated in all expts. and is found only in extremely small amts. in successful runs. It is apparently a *monohydroperoxide* (II) of the structure $Me_2CHOCMe_2OOH$; a sufficient amt. of the material was isolated from a very large run to establish its phys. consts., d_4^{20} 0.947, n_D^{20} 1.4368. It is shown that the action of ultraviolet radiation merely accelerates the autoxidation of I and does not change the course of the reactions. II appears to be the intermediate in the formation of the bishydroperoxide. G. M. K.

IVANOV, K. I.

"Peroxide Compounds of Diisopropyl Ether." III. by K. I. Ivanov, V. K. Sivinova and E. G. Mikhaylova. (p. 1019)

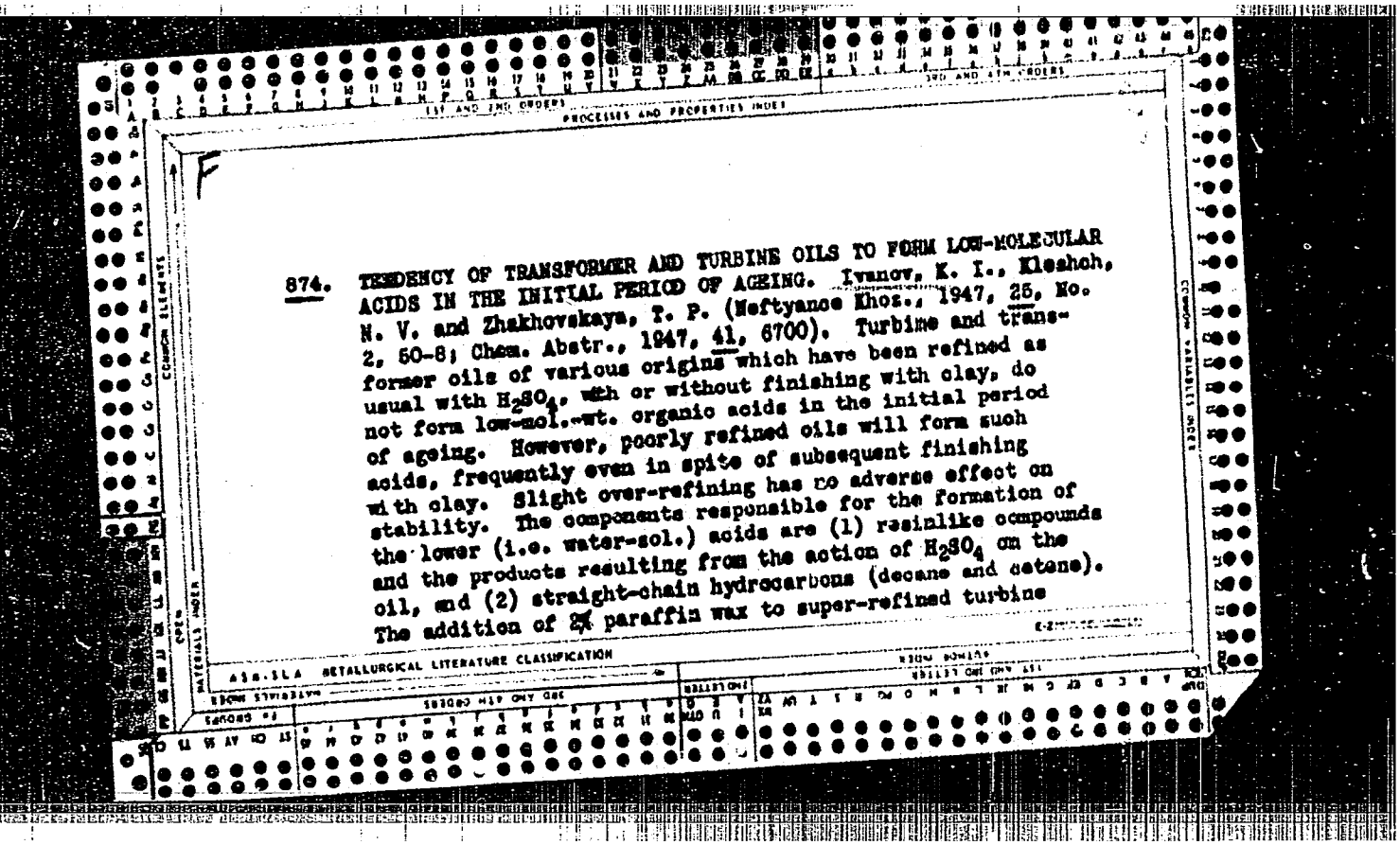
SO: Journal of General Chemistry (Zhurnal Obshchei Khimii) 1946, Volume 16, No. 7

IVANOV, K. I.

"The Intermediate Products and Intermediate Reactions of Auto-Oxidation of Hydrocarbons," Sub. 26 Jun 47, Inst of Mineral Fuels, Acad Sci USSR.

Dissertations presented for degrees in science and engineering in Moscow in 1947.
Dr. Chemical Sci.

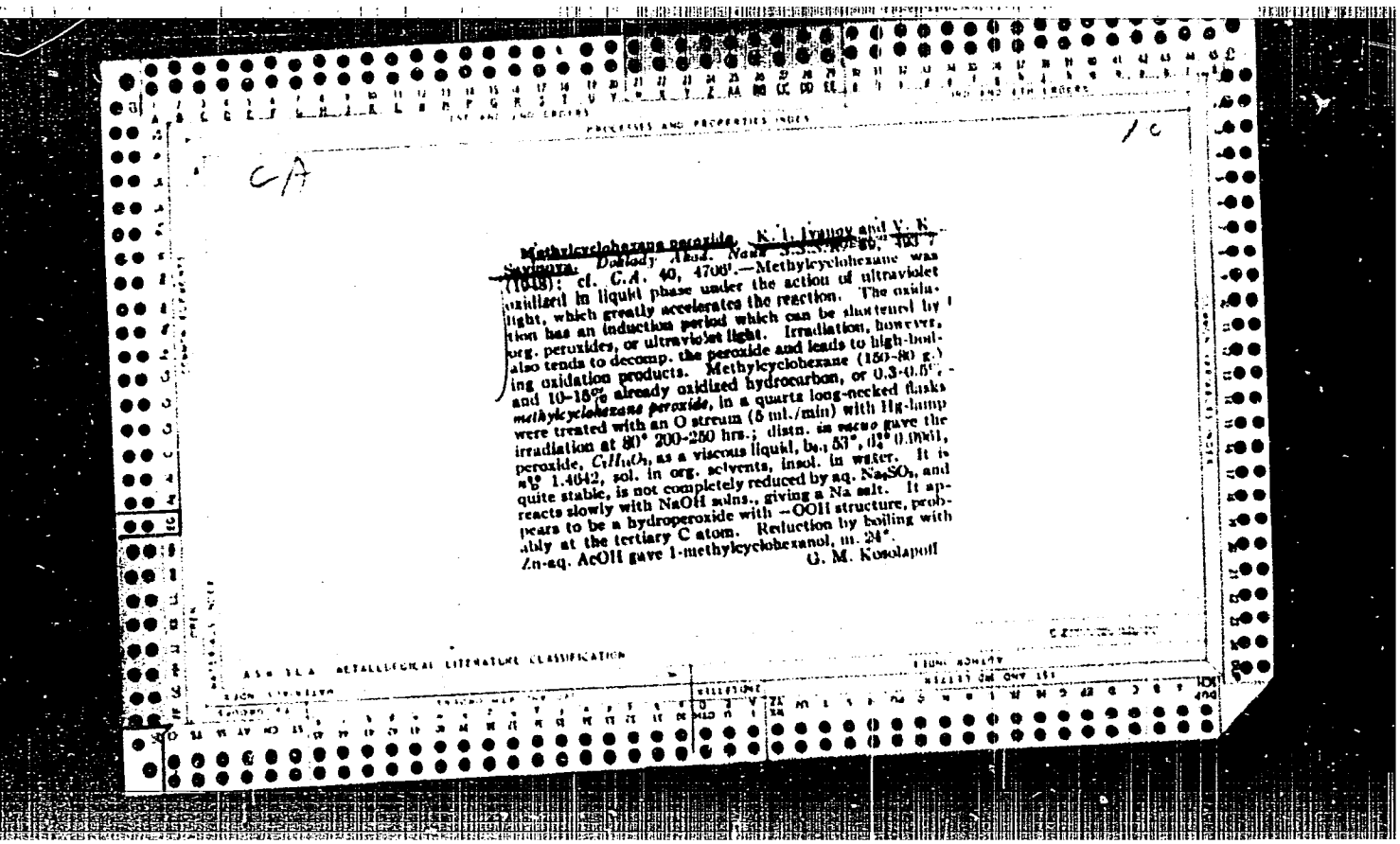
SO: Sum.No.457, 18 Apr 55



874. TENDENCY OF TRANSFORMER AND TURBINE OILS TO FORM LOW-MOLECULAR ACIDS IN THE INITIAL PERIOD OF AGEING. Ivanov, K. I., Kleshch, N. V. and Zhakhovskaya, T. P. (Neftyanoe Khoz., 1947, 25, No. 2, 60-8; Chem. Abstr., 1947, 41, 6700). Turbine and transformer oils of various origins which have been refined as usual with H_2SO_4, with or without finishing with clay, do not form low-mol.-wt. organic acids in the initial period of ageing. However, poorly refined oils will form such acids, frequently even in spite of subsequent finishing with clay. Slight over-refining has no adverse effect on stability. The components responsible for the formation of the lower (i.e. water-sol.) acids are (1) resinlike compounds and the products resulting from the action of H_2SO_4 on the oil, and (2) straight-chain hydrocarbons (decane and cetene). The addition of 2% paraffin wax to super-refined turbine

oil and to a perfumery-grade oil caused the formation of lower acids on ageing. Experimental data are tabulated. Careful control by both the oil manufacturer and the power-plant operator is suggested.

C. A.



C/7

1 C

Methylcyclohexane peroxide. K. I. Ivanov and V. K. Savinova. *Doklady Akad. Nauk S.S.S.R.* 59, 103-7 (1948); cf. *C.A.* 40, 4706⁵.—Methylcyclohexane was oxidized in liquid phase under the action of ultraviolet light, which greatly accelerates the reaction. The oxidation has an induction period which can be shortened by org. peroxides, or ultraviolet light. Irradiation, however, also tends to decomp. the peroxide and leads to high-boiling oxidation products. Methylcyclohexane (150–80) g.) and 10–15% already oxidized hydrocarbon, or 0.3–0.5% *methylcyclohexane peroxide*, in a quartz long-necked flasks were treated with an O stream (5 ml./min) with Hg-lamp irradiation at 80° 200–250 hrs.; distn. *in vacuo* gave the peroxide, $C_7H_{14}O_2$, as a viscous liquid, $b_{0.1}$ 53°, d_4^{18} 0.9941, n_D^{18} 1.4642, sol. in org. solvents, insol. in water. It is quite stable, is not completely reduced by aq. Na_2SO_3, and reacts slowly with NaOH solns., giving a Na salt. It appears to be a hydroperoxide with —OOH structure, probably at the tertiary C atom. Reduction by boiling with Zn-aq. AcOH gave 1-methylcyclohexanol, m. 24°.

G. M. Kosolapoff

CA

PROCESSES AND PROPERTIES INDEX

Peroxide compounds of 2,7-dimethyloctane. K. I. Ivanov, V. K. Savinova, and V. P. Zhakhovskaya (*Doklady Akad. Nauk S.S.S.R.* 59, 703-6(1948)). 2,7-Dimethyloctane, b_{760} 159.5-60.5°, d_4^{20} 0.7214, n_D^{20} 1.4081, was prepd. by the Wurtz reaction from iso-AmBr in 50% yield. This (180 g.) was bubbled with O (5 ml./min.) 180-200 hrs. with ultraviolet irradiation at either 70.5 or 85.8°. After cooling to −20° the viscous diperoxide layer was sepd., the main soln. concd. by evapn., the residue in 2.5 l. benzene repeatedly washed with 5% NaHCO$_3$, then with 50% MeOH (which removes the rest of the diperoxide), and the residual soln. distd., finally *in vacuo*, to give the pure *monoperoxide*, *Me$_2$CH(CH$_2$)$_4$C(OOH)Me$_2$*, $b_{0.05}$ 49.5°, d_4^{20} 0.8853, n_D^{20} 1.4300, gives qual. tests for active H, burns quietly on ignition, and is quite stable in closed vessels in the dark. It is not completely reduced by sulfite solns. and does not react quantitatively with aq. alkali; it is sol. in the usual org. solvents. Boiling with 20% FeSO$_4$ soln. 4 hrs. gave Me$_2$CO, which confirmed the structure. The aq. MeOH ext. (above) was concd. *in vacuo* and the residue, dild. with benzene and dried, was blown with dry N at 1 mm. and below 50° to remove the solvent; the residue was substantially pure *diperoxide*, Me$_2$CH(CH$_2$)$_3$CH(OOH)C(OOH)Me$_2$, colorless, very viscous liquid, undistillable in a high vacuum, d_4^{20} 1.010, n_D^{20} 1.4581. On boiling 0.5 hrs. with 25% FeSO$_4$ soln. it gave Me$_2$CO and 4-methylcaproic acid (characterized as the amide, m. 102°). The diperoxide is much less stable than the mono deriv. and decomp. with vigor at 75-80°. G. M. Kosolapoff

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

PROCESSES AND PROPERTIES INDEX

CA

10

Peroxide of sec-butylbenzene. K. I. Ivanov, V. K. Savinova, and V. P. Zhakhovskaya. *Doklady Akad. Nauk S.S.S.R.* 59, 905-8(1948).—C_6H_6 (9 mols.) and 1 mol. BuBr treated with 0.6 mol. $AlCl_3$ gradually over 4 hrs. at 2.5–3.5° and then kept 4 hrs. at 22°, gave 70% *sec-BuPh*, b_{760} 172.5–3.5°, d_4^{21} 0.8613, n_D^{21} 1.4805. This (200 g.) treated with O (5 cc./min.) at 85° with ultraviolet illumination 350 hrs. gave on evapn. of most of the hydrocarbon *in vacuo* and treatment of the cooled residue with 7.3 g. cold 35% NaOH, the *Na salt* of the *peroxide*, which after isolation was treated with excess cold 10% H_2SO_4 in water and extd. with benzene; distn. of the ext. gave the pure *peroxide*, b 48–9°, d_4^{20} 1.0431, n_D^{20} 1.5208. The compd. is a hydroperoxide, ROOH; it is not stable on long storage and forms resinous substances at room temp. Heating with 25% $FeSO_4$ soln. readily gives AcPh, isolated as the semicarbazone, m. 195.5°. The peroxide gives the above-mentioned Na salt, which forms hygroscopic white crystals.

G. M. Kosolapoff

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

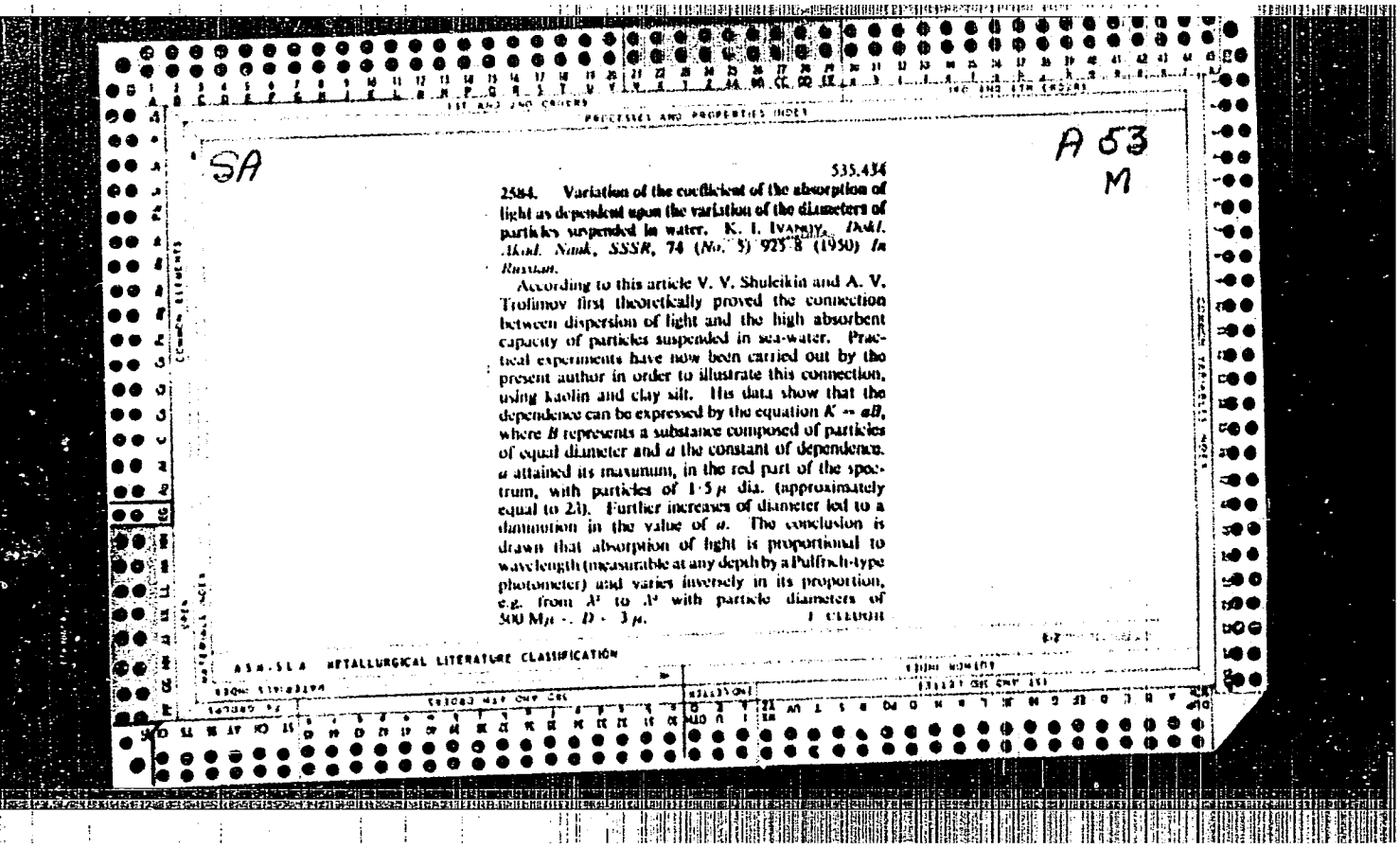
CA

10

Direction of the peroxidation of the straight alkane chain. The peroxide formed in the autoxidation of normal heptane. K. I. Ivanov, V. K. Savinova, and V. P. Zhukhovskaya. *Doklady Akad. Nauk S.S.S.R.* 72, 913-6(1950).—The nature of the intermediate peroxide formed in the autoxidation of C_7H_{16} in the liquid phase was ascertained by its extn. with aq. alkali. In liquid phase the autoxidation is surprisingly slow, in contrast to the relatively easy oxidation of C_7H_{16} in the gas phase (as compared with cycloheptane and PhMe); oxidation catalysts such as org. Mn salts or CrO_3, or ultraviolet light, have hardly any accelerating effect. The concn. of the peroxide reaches 0.5–0.6% in 150 hrs. and does not increase any further up to 400 hrs. On boiling the aq. alk. ext., the peroxide goes over mainly (70%) into 2-heptanone, with about 30% going over into 2-heptanol. This establishes the peroxide as AmCH(O_2H)Me (I), i.e., contrary to previous assumptions, the O_2 mol. attacks not the 1st, but the 2nd C atom of the C_7H_{16} chain. The consts. of I are: $b_{0.05}$ 38°, d_4^{20} 0.9072, n_D^{20} 1.4305, δ(specific dispersion) = $[(n_F - n_C)/d.]10^4$ = 85.0. The compd. gives the iodine and thiocyanate reactions for active O and the hydroperoxide group reaction with $(AcO)_4Pb$. It is stable in storage and burns with a sooty flame. Its decompn. product, I → AmCOMe was identified by the semicarbazone, m. 121°.

N. Thon

Translation W-13914



SA

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535.434

2584. **Variation of the coefficient of the absorption of light as dependent upon the variation of the diameters of particles suspended in water.** K. I. IVANOV. *Dokl. Akad. Nauk, SSSR*, 74 (No. 5) 925–8 (1950) *In Russian.*

According to this article V. V. Shuleikin and A. V. Trofimov first theoretically proved the connection between dispersion of light and the high absorbent capacity of particles suspended in sea-water. Practical experiments have now been carried out by the present author in order to illustrate this connection, using kaolin and clay silt. His data show that the dependence can be expressed by the equation $K = aB$, where B represents a substance composed of particles of equal diameter and a the constant of dependence. a attained its maximum, in the red part of the spectrum, with particles of 1·5 μ dia. (approximately equal to 2λ). Further increases of diameter led to a diminution in the value of a. The conclusion is drawn that absorption of light is proportional to wavelength (measurable at any depth by a Pulfrich-type photometer) and varies inversely in its proportion, e.g. from λ^1 to λ^4 with particle diameters of 500 Mμ – D – 3 μ. I. CHUDOV

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

May 52

IVANOV K.I., V.K. SAVINOVA, V.P. ZHAKHOVSKAYA

USSR/Chemistry- Peroxides

"The Peroxide of Butylbenzene," All-Union Heat Engineering Inst. im F. Dzerzhinskiy

Zhur Obshch Khim, Vol 22, No.5, pp 781-784

In photo-oxidation of n-butylbenzene with oxygen at 80°, a hydroperoxide with an OOH at the carbon atom of the side-chain group is formed. The peroxide was isolated and its properties were detd

263 T 28

may 52

K.I. IVANOV, T.A. BLAGOVA

USSR/Chemistry - Peroxides

"Methods of Obtaining Dialkyl Peroxides. Tetralylethyl peroxide and Phenylisopropyl ether Peroxide", All-Union Heat engineering Inst. im F. Dzerzhinskiy

Zhur Obshch Khim, Vol 22, No5, pp 784-789

Developed a method for the synthesis of deslkyl peroxides by the reaction between alkali salts of hydroperoxides and halogen alkyls in a methanol soln. The above peroxides, not previously described, were synthesized and their porperties investigated, Their constitution was established

263 T 29

IVANOV, K. I.

Chemical Abst.
Vol. 48 No. 5
Mar. 10, 1954
Organic Chemistry

1-Phenylbutylhydroperoxide. K. I. Ivanov, V. K. Savinkova, and V. P. Zhukhovitskaya. *J. Gen. Chem. U.S.S.R.* 22, 843-8(1953)(Engl. translation).—See *C.A.* 47, 3305b. H. L. H.

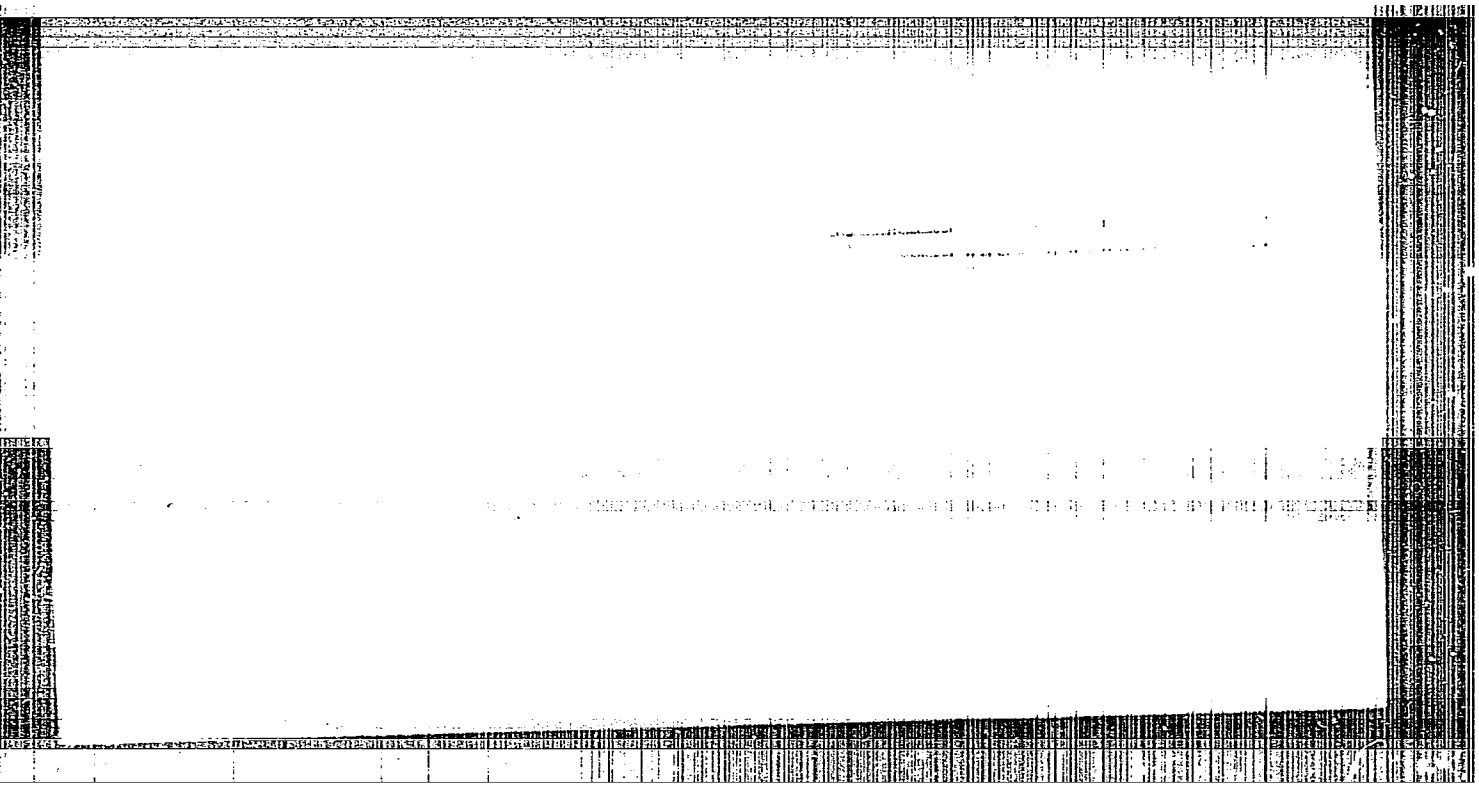
NF 1-28-54

IVANOV, K. I.

Chemical Abst.
Vol. 48 No. 5
Mar. 10, 1954
Organic Chemistry

Preparation of dialkyl peroxides. Tetrahydronaphthyl ethyl peroxide and α-phenylisopropyl ethyl peroxide. K. I. Ivanov and T. A. Blagova. *J. Gen. Chem. U.S.S.R.* 22, 847-50(1952)(Engl. translation).—See *C.A.* 47, 3265*f*.
H. L. H.

2-19-54



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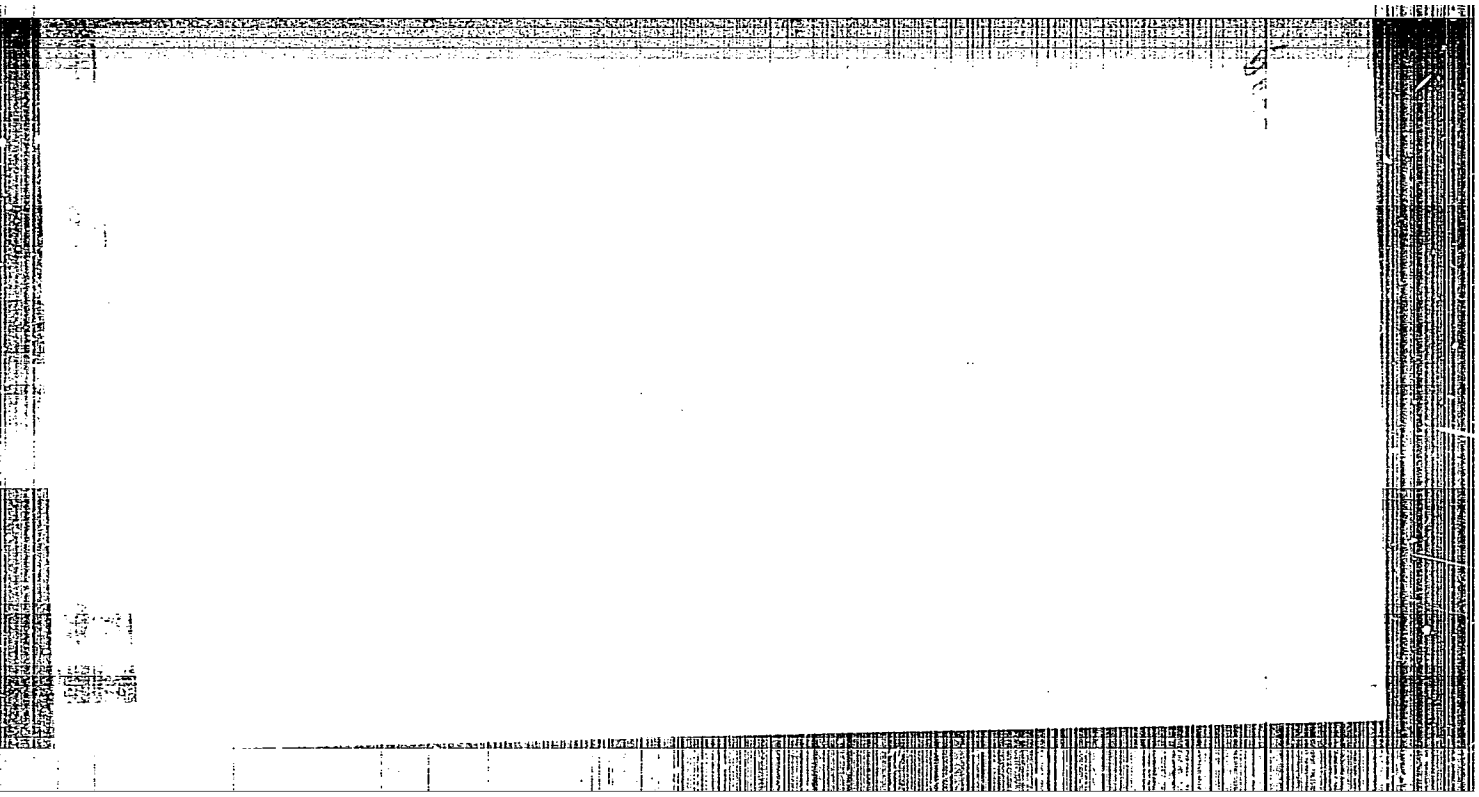

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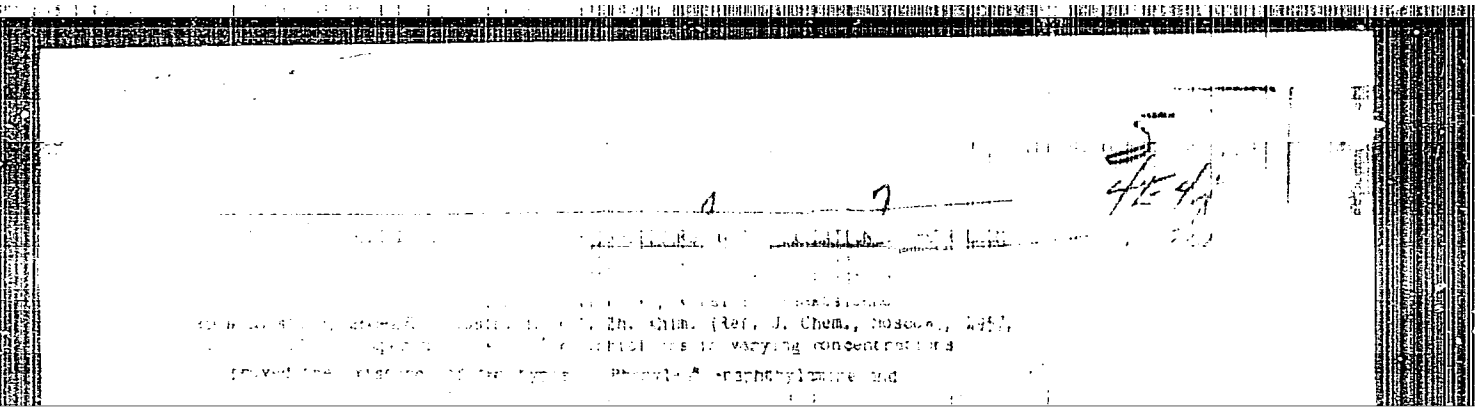
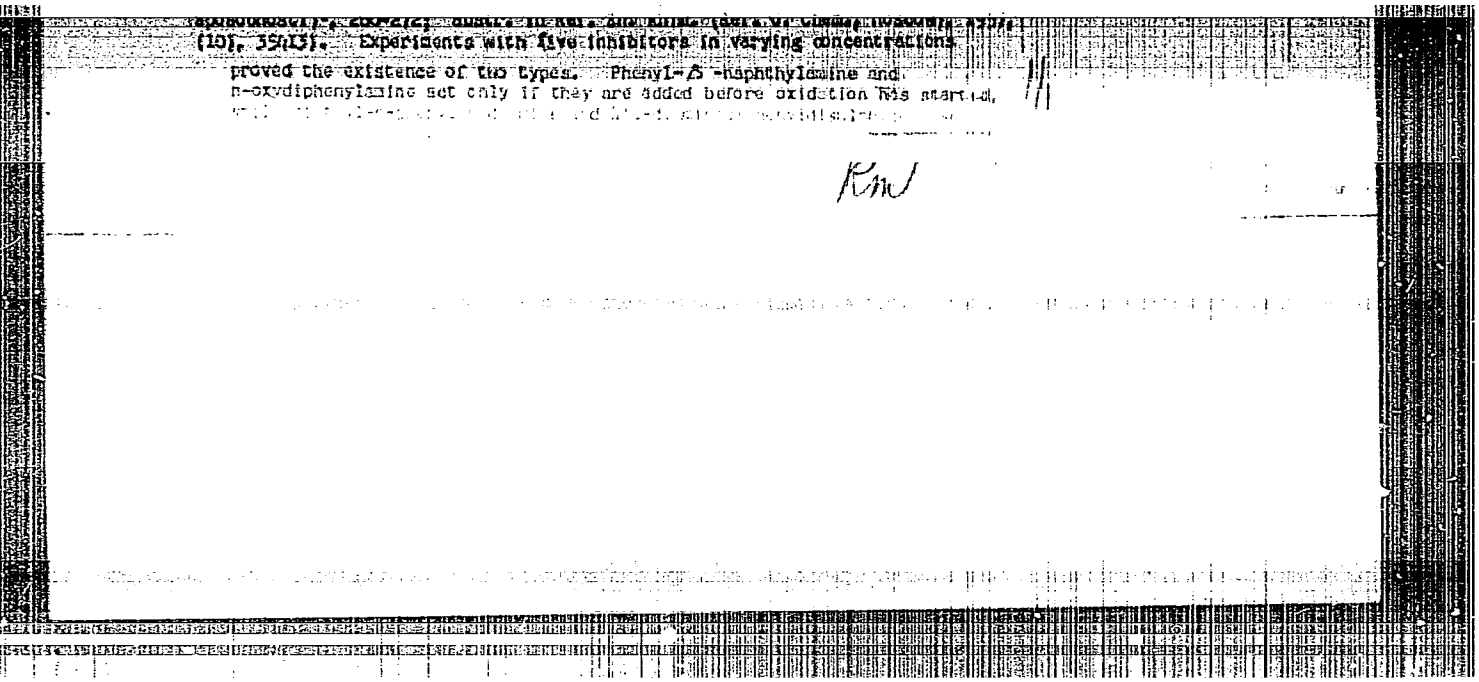
Ivanov, K. I.

2

Reaction of hydroperoxides formed in autoxidation of hydrocarbons with antioxidants. K. I. Ivanov and V. K. Savinova. *Voprosy Khim. Kinetiki, Kataliza i Reaktsionnoi Sposobnosti, Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1955, 250–9.—It was established that $(C_6H_{13})_2S$ (I) reacts vigorously with hydroperoxides of hydrocarbons, yielding apparently the sulfoxide and the HO deriv., resp. $(C_6H_{13}S)_2$ is less reactive in this respect than is the sulfide. PhCHMeSH attacks hydroperoxides at least as actively as does I, while PhSH and 1-C_8H_{17}SH are decidedly less reactive; 2-decylthiophene is inert. The active S derivs. listed above are, however, ineffective antioxidants in respect to petroleum-like substances. Furthermore, *p*-hydroxydiphenylamine, a very effective antioxidant, does not attack hydroperoxides. Hence the 2 types of activity are not necessarily related (cf. Denison and Condit, *C.A.* 40, 7051[4]).

G. M. Kosolapoff





(10), 3513). Experiments with five inhibitors in varying concentrations proved the existence of two types. Phenyl-β-naphthylamine and p-oxydiphenylamine act only if they are added before oxidation has started,

USSR/ Chemistry - Physical chemistry

Card 1/1 Pub. 22 - 35/62

Authors : Ivanov, K. I., and Vilyanskaya, Ye. D.

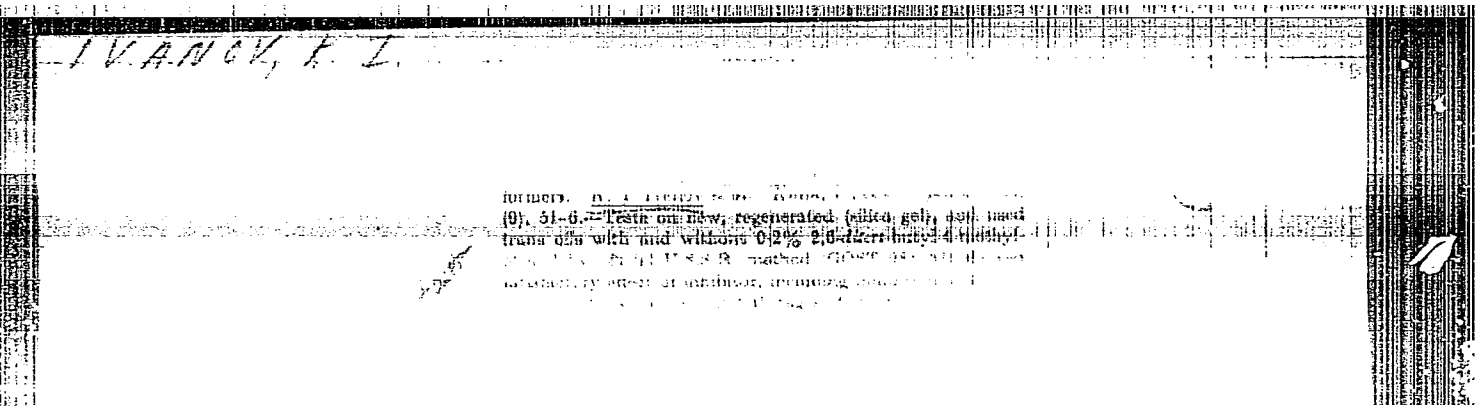
Title : Effect of inhibitors on the autooxidation of petroleum hydrocarbons

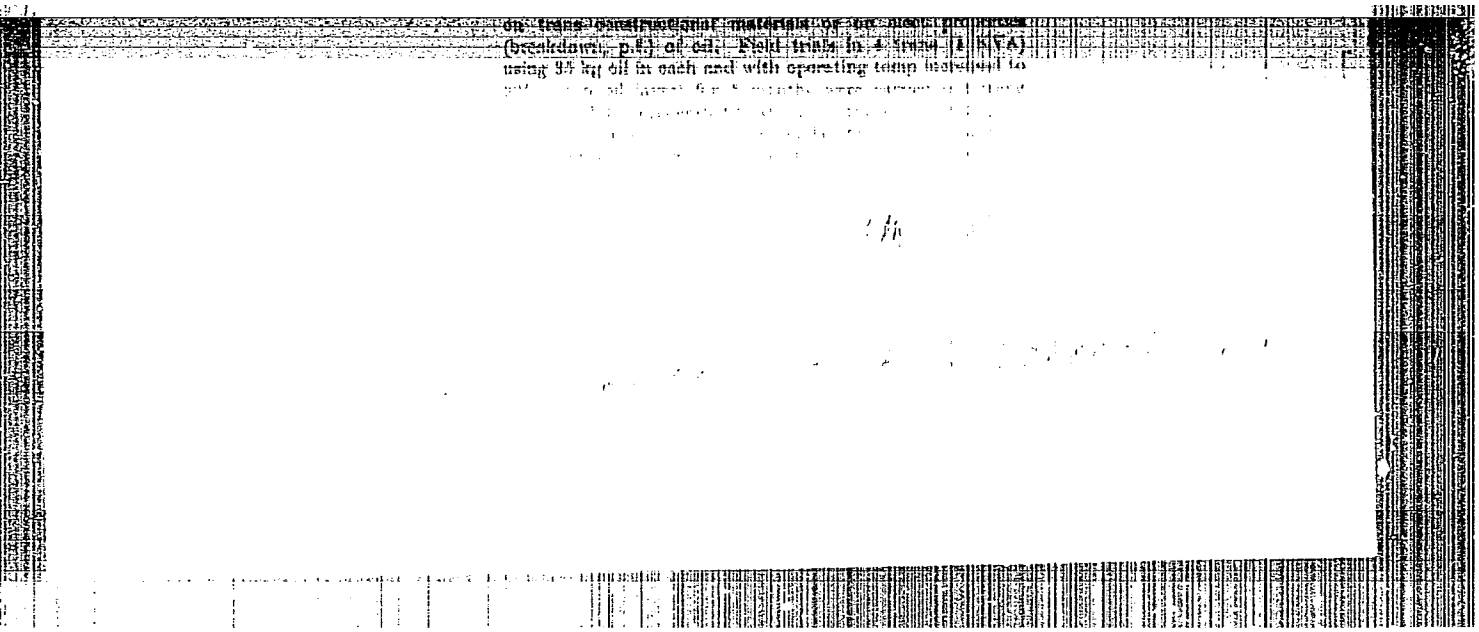
Periodical : Dok. AN SSSR 102/3, 551 - 554, May 21, 1955

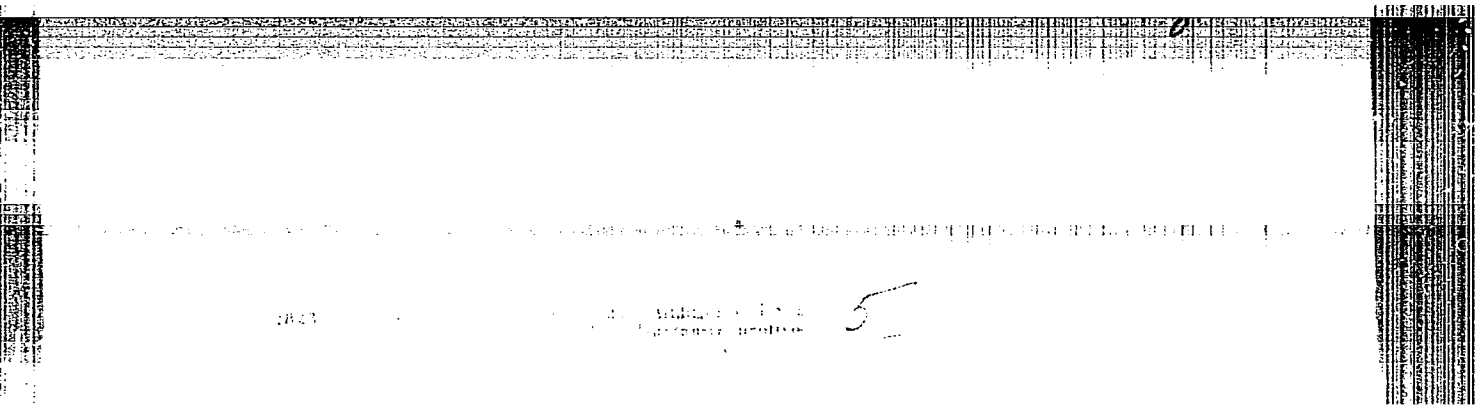
Abstract : The effect of numerous substances, known from their oxidation inhibiting characteristics, on the oxidizability of highly purified (white) petroleum oil (vaseline) was investigated. Results showed that all inhibitors - phenyl-beta-naphthylamine, p-hydroxydiphenylamine, diethyl-p-phenylenediamine and 4,4'-diaminodiphenyldisulfide - when introduced prior to the start of the oxidation reaction had a more or less uniformly active oxidation-inhibiting effect. The inhibiting effects were entirely different for each inhibitor when introduced during the oxidizing stages of the oil. Thirteen references: 4 USSR, 1 French, 4 USA, 2 English and 2 Japanese (1923-1954). Table; graphs.

Institution : The F. E. Dzerzhinskiy Heat Engineering Sc. Techn. Inst.

Presented by: Academician N. N. Semenov, December 6, 1954







AUTHOR: Ivanov, K.I. and Vilyanskaya. 65-4-3/12

TITLE: On some special features of action of inhibitors on the kinetics of auto-oxidation of hydrocarbons. (Ob osobennostyakh devstviya samedliteley na kinetiku avtookisleniya ug' levodorov.)

PERIODICAL: "Khimiya i Tekhnologiya Topliva i Masel"(Chemistry and Technology of Fuels and Lubricants)1957,No.4,pp.11-21(U.S.S.R)

ABSTRACT: The previous observations of the authors (1) on the existence of two groups of inhibitors of auto-oxidation of hydrocarbons in petroleum oils was confirmed. Inhibitors of the 1st group retard oxidation of a white oil (highly refined) only when added before the beginning of an oxidation experiment. Substances belonging to the 2nd group can inhibit an oxidation process already in progress, even when the process is well developed. The above properties are also valid for an ordinary transformer oil. A new large group of anti-oxidants was found occupying an intermediate position between Groups I and II. Inhibitors of this Group III, similarly to inhibitors of the first two groups, are able to retard oxidation of oil when added before the start of the process, but unlike inhibitors of Group II can inhibit an already [illegible] in its auto-catalytic stage. It was shown that the above

Card 1/2