YEGOYAN, V.L. [translator]; ZHABREV, I.P. [translator]; KOLCHANOV, V.P.
[translator]; MOISEYEVA, V.M.[translator]; PETRENKO, V.S.
[translator]; PETRENKO, I.M. [translator]; STRUKOV, N.D.
[translator]; TITOVA, N.A. [translator]; KHAIN, V.Ye., red.;
ROMANOVICH, G.P., red.; REZOUKHOVA, A.G., tekhn.red.

[Present-day studies of the tectonics of foreign countries]
Voprosy sovremennoi zarubezhnoi tektoniki; sbornik statei.
Moskva, Izd-vo inostr.lit-ry, 1960. 498 p. Translated articles.
(MIRA 13:12)
(Geology, Structural)

GROSSGEYM, V.A.; YEGOYAN, V.L.; ZHABREV, I.P.; SHARDANOV, A.N.

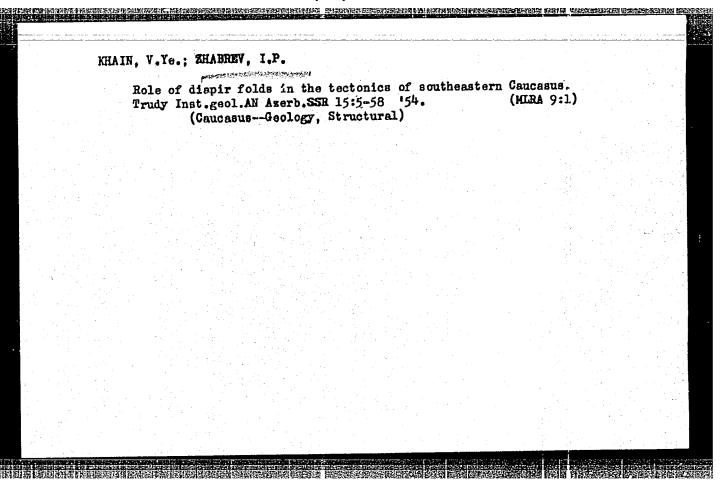"Structural geology" by G.D.Azhgirei. Reviewed by V.A.
Grossgeim and others. Izv.vys.ucheb.zav.; geol.i razv.
no.3:136-139 My '60.   (MIRA 13:7)

1. Krasnodarskiy filial Vsesoyuznogo nauchno-issledovatel'-
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                    (Geology, Structural)
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ZHABREV, I.P.

ZHABREV, I.P.

Oil and gas-bearing prospects in the eastern part of the Azov region.
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1. Krasnodarskiy filial Vsesoyuznogo neftyanogo nauchno-issledovatel'skogo
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(Azov region--Petroleum geology) (Azov region--Gas, Natural--Geology)

KHAIN, V.Ye.; ZHABREV, I.P.

Role of diapir folds in the tectonics of southeastern Caucasus.
Trudy Inst.geol.AN Azerb.SSR 15:5-58 '54.   (MLRA 9:1)
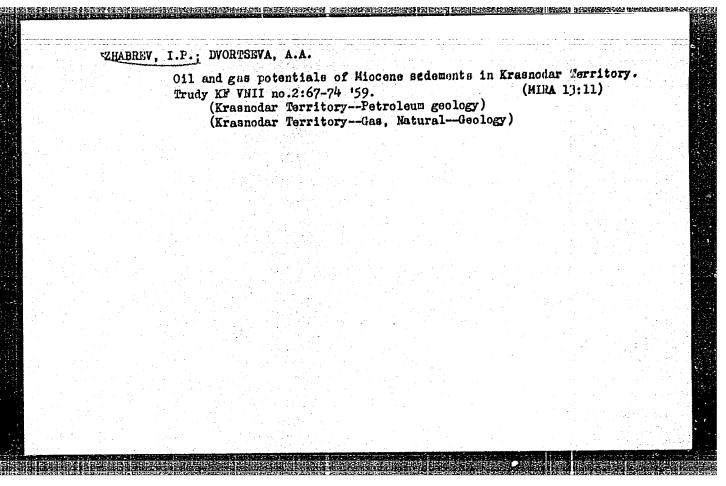   (Caucasus--Geology, Structural)

ZHABREV, I. P.

"Characteristics of the Tectonics of the Central Part of
Eastern Kobystan Northwest Apsheron." Cand Geol-Min Sci, Inst of
Geology imeni I. M. Gubkin, Acad Sci Azerbaydzhan SSR, 13 Nov 54.
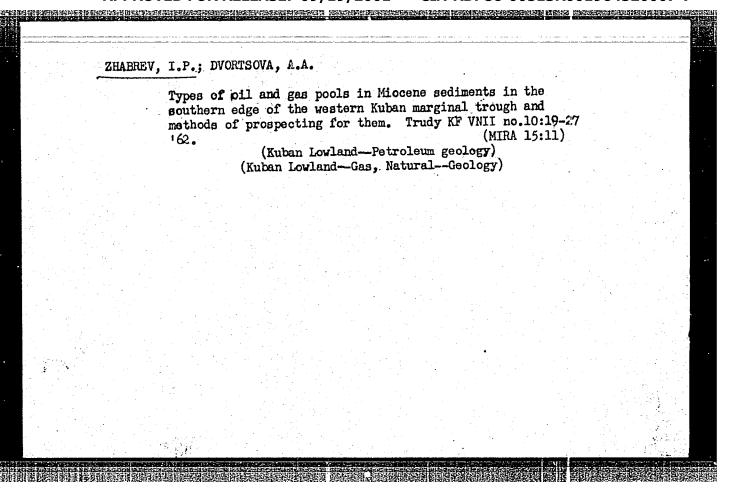(BR, 3 Nov 54)

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ZHABREV, I.P.; DVORTSEVA, A.A.

Oil and gas potentials of Miocene sedements in Krasnodar Territory.
Trudy KF VNII no.2:67-74 '59.   (MIRA 13:11)
    (Krasnodar Territory--Petroleum geology)
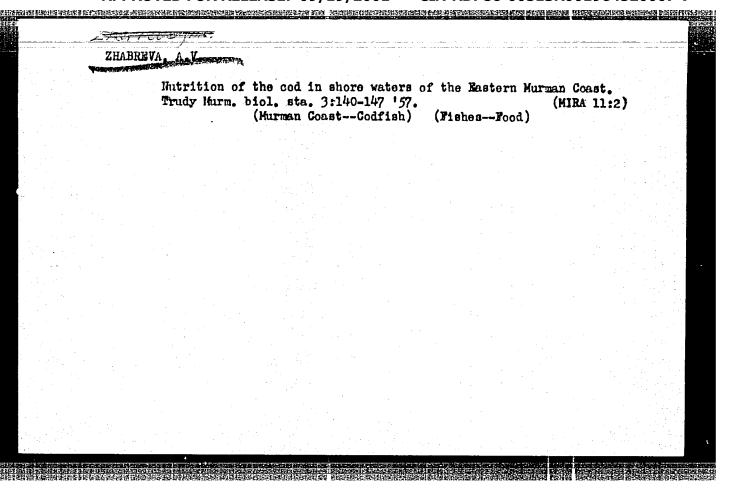   (Krasnodar Territory--Gas, Natural--Geology)

ZHABREV, I.P.

Some problems of the history of the geological development
of Ciscaucasia in the Mezozoic and Cenozoic. Trudy KF
VNII no.10:177-184 '62.   (MIRA 15:11)
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ZHABREV, I.P.; DVORTSOVA, A.A.

Types of oil and gas pools in Miocene sediments in the southern edge of the western Kuban marginal trough and methods of prospecting for them.   Trudy KF VNII no.10:19-27 '62.   (MIRA 15:11)
            (Kuban Lowland—Petroleum geology)
          (Kuban Lowland—Gas, Natural—Geology)

L 46944-66   EWT(d)/EWT(l)/T   IJP(c)   GW

ACC NR: AP6029745   SOURCE CODE: UR/0210/66/000/005/0021/0029

41

B

AUTHOR: Zhabrev, I. P.

ORG: Krasnodar Branch, All-Union Oil and Gas Scientific Research Institute
(Krasnodarskiy filial   Vsesoyuznogo neftegazovogo nauchno-issledovatel'skogo
instituta)

TITLE: Some problems in the use of mathematics in geology

SOURCE: Geologiya i geofizika, no. 5, 1966, 21-29

TOPIC TAGS: mathematical modeling, geological model, stochastic model, information
theory

ABSTRACT: Using logical and mathematical methods, possible stochastic models are
developed for the quantitative description of the boundaries of geological bodies
and objects. These models are based on analogous ones of material objects described
by I. A. Achkurin [Teoriya elementarnykh chastits i teoriya informatsiya - Sb. Filo-
sofskiye probl. fiziki elementarnykh chastits. M. IL, 1963] as created in informa-
tion theory, programming, and automation. The applications of the simplest models,
those associated with information theory, to geology are described. Computations
are made to determine the information required for one atom in different rock types,
and ways are explored to eliminate unnecessary information. The possibilities of
correlating geological sections on the basis of the information theory and of

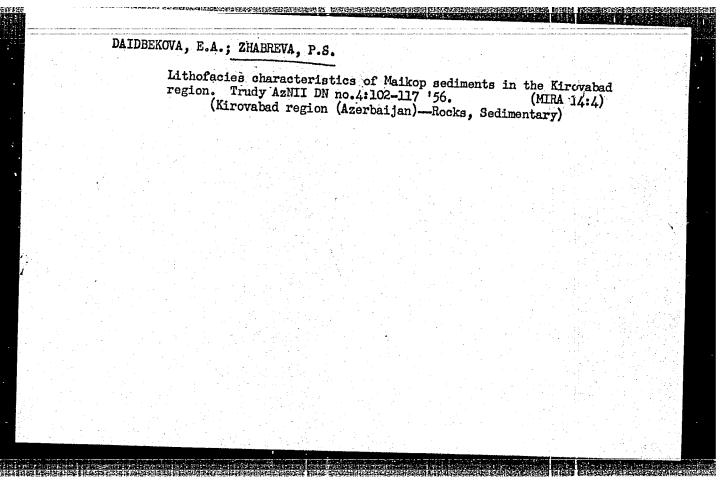Card   1/2   UDC: 553.98:519.22

J. 46944-66

ACC NR: AP6029745

employing computers in these operations are examined. Orig. art. has: 2 tables and
3 formulas.   [DM]

SUB CODE: 08/ SUBM DATE: 23Mar64/ ORIG REF: 009/ OTH REF: 003/

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Card 2/2

ZHABREVA, A. V.

Nutrition of the cod in shore waters of the Eastern Murman Coast.
Trudy Murm. biol. sta. 3:140-147 '57.   (MIRA 11:2)
          (Murman Coast--Codfish)   (Fishes--Food)

ZHABREVA, P.S.

Composition and structure of arenaceous rocks of the Fanar series
(lower Barremian) in the northwestern Caucasus. Trudy KF VNII no.3:
221-226 '60.   (MIRA 13:11)
          (Caucasus, Northern--Rocks, Sedimentary)

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Lithologic and petrographic characteristics of Albian
sediments in western Ciscaucasia. Trudy KF VNII
no.10:195-206 '62.   (MIRA 15:11)
            (Caucasus, Northern—Rocks, Sedimentary)

DAIDBEKOVA, E.A.; ZHABREVA, P.S.

Lithofacies characteristics of Maikop sediments in the Kirovabad region. Trudy AzNII DN no.4:102-117 '56.   (MIRA 14:4)
     (Kirovabad region (Azerbaijan)—Rocks, Sedimentary)

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Cone-in-cone structures in Lower Cretaceous sediments of the north-western Caucasus. Trudy KF VNII no.1:237-242 '59. (MIRA 16:9)
(Caucasus, Northern—Petrology)

ZHABREVA, P.S.; ISMAYLOVA, R.S.; POKIDIN, A.K.

Division of the section of the producing formation in southeastern
Kobystan based on the results of the combined studies of clays.
Trudy AzNII DN no.4:131-138 '56.   (MIRA 14:4)
        (Kobystan—Geology, Stratigraphic)

ZHABREVA, P.S,

Lower Cretaceous titaniferous minerals (anatase, brookite) in the
northwestern Caucasus. Trudy KF VNII no.3:237-240 '60. (MIRA 13:11)
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sus. Trudy KF VNII no.6:222-233 '61.   (MIRA 15:2)
              (Caucasus, Northern--Rocks, Carbonate)

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Lithology and petrography of lower Cretaceous sediments in the northwestern Caucasus (west of the Pshekha River). Trudy KF VNII no.6:234-252 '61.   (MIRA 15:2)

(Caucasus, Northern--Petrology)

VASIL'YEVA, V.Ya., otv.red.; GUBER, A.A., otv.red.; UZYANOV, A.N., otv.red.;
ZHABREYEV, A.F., red.; VASIL'YEV, V.F., red.; EPSHTEYN, V.O., red.
karty; LIVSHITS, Ya.L., red.izd-va; FRENKEL', M.Yu., red.izd-va;
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[Union of Burma; a collection of articles] Birmanskii Soiuz;
sbornik statei. Moskva, Izd-vo vostochnoi lit-ry, 1958. 291 p.
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1. Akademiya nauk SSSR. Institut vostokovedeniya. 2. Nauchnyy
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(Burma)

MIKHEYEVA, O.N.; ZHABRONOVA, Z.A.; POPOVA, L.A.; KAMENSKIY, I.N. [deceased];
    BEL'KIND, M.G.; TSVELEVA, I.A.; SMOL'NAYA, L.M.; KADYKOVA, N.F.;
    KASHITSYNA, A.D.

    Biosynthesis of tetracycline on enriched media. Med.prom. 14
    no.1:31-34 Ja '60.   (MIRA 13:5)

    1. Moskovskiy zavod meditsinskikh preparatov No.1 i Vsesoyuznyy
    nauchno-issledovatel'skiy institut antibiotikov.
                        (TETRACYCLINE)

ZHABROV A.

PA 1OT88

USSR/Jet Propulsion   Feb 1947
        Aircraft - Propulsion

"Jet Propelled Aviation," A. Zhabrov, 2 pp

"Za Oboronu" Vol XXIII, No 3

Discusses subject on popular level. Principle of
operation explained. Types of jet propulsion engines
discussed. "Shooting Star" and "Air Comet" perfor-
mance discussed (with photographs). American-British
conference on jet propulsion and gas turbines in
1945 is mentioned.

                                        1OT88

ZHABROV, A.A.; MIKIRTUMOV, E., redaktor; BELYAKOV, A., tekhnicheskiy re-
daktor.

[Airplanes, gliders, autogiros, helicopters] Samolet, planer,
avtozhir, gelikopter. Moskva, Redizdat TsS Soiuza osoaviakhim
SSSR, 1948. 192 p. [Microfilm]   (MIRA 8:1)
       (Airplanes) (Gliders (Aeronautics)) (Autogiros) (Heli-
                                               copters)

PANKOV, M.I.; ZHABROV, A., redaktor; BELYAKOV, A., tekhnicheskiy redaktor

[Work of the model airplane club] Rabota aviamodel'nogo kruzhka.
Moskva, Redizdat TsS Soiuza osoaviakhim SSSR, 1947. 125 p.
[Microfilm]   (MLRA 9:11)
        (Airplanes--Models)

Zhabrov, Aleksei Aleksandrovich.

The theory and practice of flight. Moskva, Redaktsionno-iz-datel'skii otdel
Aeroflota, 1948. 483 p. (49-15782)

TL570.Z3

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"Books About Jet-Propelled Engines and Airplanes,"
A. Zhabrov, 1½ pp

"Za Oboronu" Vol XXIV, No 2

Reviews six recent books on jet propulsion, first
three for popular consumption: "Faster than Sound
for popular consumption," G. M. Il'yashenko, 1947;
"Jet-Propelled Engines," B. T. Gorosh-
"Modern Aviation and Its Future,"
chenko, 1947; and "Certain Characteristics of Jet-
Propelled Airplanes," V. I. Bolotnikov, 1946.
Three other books, for more advanced readers, give
detailed scientific explanation of development and

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USSR/Jet-Propelled Aircraft 2302.0112 Feb 1948
(Contd)

operation of jet engines, excluding recent develop-
ments still held secret: "Jet-Propelled Engines in
Aviation," N. V. Inozemtsev, 1946; "Jet-Propelled
Engines and Airplanes of England," M. M. Pashinin,
1946; "Jet-Propelled Engines, Their Development and
Application," A. Ye. Primenko, 1947.

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ZHABROV, ALEKSEI ALEKSANDROVICH.

Teoriia i tekhnika poleta; prakticheskaia aerodinamika. Chast'I. Osnovy
poleta samoleta. Moskva, Izd-vo Dosarm, 1950. 191 p., illus., orts.

Title tr.: Theory and technique of flying. Applied aerodynamics. Part I.
Fundamentals of flying of aircraft.
                               TL570.Z32

SO. Aeronautical Science and Aviation in the Soviet Union. Library of
     Congress, 1955.

ZHABROV, A. A.

"The Airplane Glider, Autogiro and Helicopter," p. 314, 1952.

ZHABROV, A.

Gyroscopic effect of the propeller. Kryl.rod. 2 no.10:
21-22 O '51.   (MLRA 8:8)
              (Propellers, Aerial)

PHASE I BOOK EXPLOITATION   SOV/3782

Zhabrov, Aleksey Aleksandrovich

Teoriya poleta i pilotirovaniya samoleta (Theory of Flight and Piloting of Airplanes) Moscow, Izd-vo DOSAAF, 1959. 411 p. Errata slip inserted. 10,200 copies printed.

Eds.: A.A. Vasil'yev, and V.I. Fedorov; Tech. Ed.: M.S. Karyakina.

PURPOSE: This is a textbook for self-instruction of students and young pilots.

COVERAGE: The textbook conforms with the program of USSR aeroclubs for teaching the theory of flight and piloting of propeller aircraft. The book also gives a brief outline of the theory of flight and piloting of jet planes. Basic aerodynamics, aerodynamic characteristics of aircraft, power plants, various regimes of aircraft flight, stability and maneuverability, acrobatic flight, and maneuvering characteristics of the Mig-15 bis airplane are discussed. The author used material from books by V.S. Pyshnov, I.V. Ostoslavskiy, V.F. Bolotnikov, B.T. Goroshchenko, P.M. Shirmanov, B.N. Yur'yev, N.A. Zaks, A.K. Martynov, and Ya.I. Levinson; and also from official publications on the aerodynamics and piloting of the Yak-18, Yak-11, and Mig-15 bis airplanes. There are no references .

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Theory of Flight and Piloting of Airplanes   SOV/3782

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Theory of Flight and Piloting of Airplanes   SOV/3782

PART II. SPECIAL FEATURES OF THEORY OF FLIGHT AND PILOTING OF JET AIRCRAFT

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ZHABROV, ALEKSEI ALEKSANDROVICH.

   Annotirovannyi ukazatel' literatury na russkom iazyke po aviatsii
i vozdukhoplavaniiu za 50 let, 1881-1931. Teoriia. Tekhnika. Stroitel'stvo.
Ekonomika. Statistika. Istoriia. Mirnoe primenenie. Moskva, ONTI,
NKTP SSSR, Gos. aviat. i avtotrakt izd-vo, 1933. 312 p.
   Title tr.: Annotated bibliography of literature in the Russian
language on aviation and aeronautics for 50 years, 1881-1931. Theory.
Technology. Construction. Economics. Statistics. History. Peace-
time aviation.

Z5065.R926

SO: Aeronautical Sciences and Aviation in the Soviet Union, Library of
     Congress, 1955.

ZHABROV, ALEKSEĬ ALEKSANDROVICH.

   Pochemu i kak letaet avtozhir. Moskva, Glav. red. nauchno-popul.
i iunosh. lit-ry, 1936. 174 p., illus., diagrs.
   Bibliography: p. 172.
   Titletr.: How and why an autogiro flies.

                              TL715.Z5

SO: Aeronautical Sciences and Aviation in the Soviet Union, Library of
     Congress, 1955.

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Kak i pochemu letaet planer. 2. izd., inspr. i dop. Moskva,
Glav. red. nauchno-popul. i iunosh. lit-ry, 1938. 203 p., illus.,
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Title tr.: How and why a glider flies.

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Moskva, Izd-vo Dosarm, 1950. 191 p., illus., ports.

Title tr.: Theory and technique of flying. Applied aerodynamics. Part I. Fundamentals
of flying of aircraft.

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SO: Aeronautical Sciences and Aviation in the Soviet Union, Library of Congress,
     1955

ZHABROV, Aleksey Aleksandrovich; KATRENKO, D.A., redaktor; GAVRILOV, S.S.
Tekhnicheskiy redaktor

[Why and how an airplane flies] Pochemu i kak letaet samolet.
Moskva, Gos. izd-vo tekhniko-teoret. lit-ry, 1956. 54 p. (Nauchno-
populiarnaia biblioteka, no. 91)   (MLRA 10:4)
             (Airplanes--Aerodynamics)

ZHABROV, Aleksey Aleksandrovich; VASIL'YEV, A.A.,red.; FEDOROV, V.I.,
red.; KARYAKINA, M.S., tekhn.red.

[Theory of the flight and piloting of an airplane] Teoriia
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411 p.   (MIRA 13:2)
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ZHABROV, A.B., inzh.

Investigating rotary throwers. Mekh.i elek.sots.sel'khoz. 19
no.5:54-55 '61.   (MIRA 14:10)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut gidrotekhniki i
melioratsii.
                    (Agricultural machinery)

ZHABROV, A.B., inzh.

Effect of some factors on the dumping range of rotary earth
throwers. Trudy VNIIGiM 42:133-137 '63.   (MIRA 17:6)

PROCESSES AND PROPERTIES INDEX

2

Mechanism of the catalytic hydrogenation of ethylene on nickel. I. Kinetics of the process. S. Yu. Klovich and G. M. Zhabrova. *J. Phys. Chem.* (U. S. S. R.) 13, 1761-74(1939). II. Role of the activated adsorption of ethylene and hydrogen in the hydrogenation process. General scheme of the process. *Ibid.* 1775-86.—Within the temp. region in which hydrogenation occurs, both H and C_2H_4 undergo activated adsorption on a nickel catalyst prepd. by reduction of NiO. The equation $dq/dt = a_1 - a_2$ holds for all three processes. The energy of activation for the activated adsorption for H is 16 ± 1 Cal.; for C_2H_4, 9 Cal. The initial hydrogenation velocity is 40-60 times as great as the rate of activated adsorption. When the reaction is carried out stepwise, i. e., adsorption of H and then of C_2H_4, or the reverse, no hydrogenation takes place. The exptl. results can be explained by the following mechanism: $H_2 + Ni = H_2Ni$ (mol. adsorption); $C_2H_4 + Ni = C_2H_4Ni$ (mol. adsorption); $C_2H_4Ni = C_2H_4Ni^*$ (active state); $C_2H_4Ni^* = C_2H_4Ni$ (activated adsorption); $C_2H_4Ni^* + H_2Ni = C_2H_6 + Ni$ (reaction). As the temp. rises, the rate of activated adsorption of C_2H_4 increases relatively more rapidly than the rate of hydrogenation until finally its abs. rate is also greater; poisoning of the surface results, and above a certain temp. of max. rate of hydrogenation the latter decreases. The temp. for this max. rate of hydrogenation is lower the more active the catalyst with respect to activated adsorption, and is characteristic for the given catalyst.   P. H. R.

A S R . S L A   METALLURGICAL LITERATURE CLASSIFICATION

Determination of hydrogen number of hardened oil.
G. Zhukova. — *Maslobolno Zhirovoe Delo* 15, No. 5, 31-7 -
(1939). — In the detn. of the degree of unsatn. in hardened
fat mixts. by the method of Kaufmann and Baltes (*C. A.*
32, 1958⁸), more consistent results are obtained with the
use of Pt pptd. on BaSO₄. Detailed procedure and s
diagrams of app. are given.   Chas. Blanc

ZHABROVA, G. M.

"The Activity of Nickel Hydrogenation Catalysts and Their Properties."

Zhur. Fiz. Khim., Vol. 14, No. 9-10, 1940.

Kinetics of catalytic oil hydrogenation and paths to increased production in the hydrogenated fat industry. S. Elovich and G. Zhabrova. *Masloboino-Zhirovaya Prom.* 16, No. 5/6, 24-8(1940).—High-speed mixing (stirrer speeds up to 18,500 r. p. m.) indicates the possibility of improvements in the kinetics of hydrogenation. Reaction-velocity curves are shown for sunflower-seed oil in low-temp. (150-170°) and high-temp. (170-200°) hydrogenation over Ni catalysts. Effects of varying speed of the H₂ current from 0.5 to 5 l. per min. were also studied. Conditions can be provided in which low-activity catalysts are favorably influenced as to selectivity (between linolenic and oleic acids) and the kinetic field of the catalysis is extended over a wider temp. range by raising the reaction temp.

Julian F. Smith

CA

PROCESSES AND PROPERTIES INDEX

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Catalytic hydrogenation of organic compounds in the liquid phase. I. Kinetics of hydrogenation of styrene. S. Yu. Elovich and O. M. Zhabrova. J. Phys. Chem. (U.S.S.R.) 19, 229-49(1945).—The rate v of uptake of hydrogen by a soln. of styrene in glacial AcOH in the presence of Pt pptd. on $BaSO_4$ is independent of time and of the styrene concn. (0.005-0.05 g./cc.) if the H_2 pressure is kept const. It is proportional to this pressure (550-960 mm. Hg) and to the Pt concn. (0.003-0.036 g. in 15 cc.). It increases with the frequency of shaking up to 400 movements per min. and is independent of the frequency for 400-700 movements. It is concluded that v at high frequencies is the real rate of reaction not affected by diffusion. From the temp. coeff. of v between 20° and 100° the energy of activation is 4000-6000 cal./mole. Addn. of PhEt does not affect v. — J. J. Bikerman

METALLURGICAL LITERATURE CLASSIFICATION

PROCESSES AND PROPERTIES INDEX

The promotion of contacts by means of metal-organic compounds. G. M. Zhabrova, S. Z. Roginskii, and E. A. Pokina. Compt. rend. acad. sci. U.R.S.S. 32, 313-16 (1946) (in English); Survey Petroleum Literature No. 645,

3 pp. (Oct. 11-18, 1946); cf. C.A. 36, 320⁴. A copper chromite catalyst, prepd. by the pyrolysis of CuCrO. and corresponding closely to the formula CuCr₂O₄ after removal of excess CuO with 10% CH₃COOH, was treated with pure PbEt₄. Its activity was investigated for the decompn. of H₂O₂ (static system), the oxidation of H₂ (static system), and the oxidation of isoöctane (dynamic system). The friable, porous, cryst. catalyst was soaked in solns. of PbEt₄ in hydrocarbons and heated in air; or the PbEt₄ was decompd. photochemically after soaking; or a stream of air contg. PbEt₄ vapor was passed through a heated, mobile layer of catalyst, the last method yielding uniform promoter distribution. About ¹⁄₂ of the Pb used was taken up by the catalyst. The decompn. of 1.7 M H₂O₂ reached a max. with about 3% PbO₂ in the catalyst. The kinetics over the promoted catalyst corresponded fairly well to a first-order reaction and were different from those for the unpromoted catalyst, whereas the activation energy (about 20,000 cal./mol.) changed comparatively little. The oxidation of H₂ was studied between 160 and 240°, found to be a first-order reaction, and reached max. activity with a promoter content of 0.03-0.09% PbO₂. Three % PbO₂ poisoned the oxidation. The reaction rate was highly dependent on the mode of PbEt₄ introduction into the catalyst. The activation energy (about 17,000 cal./mol.) was unchanged. The effect of the promoter on the oxidation of isoöctane was shown by an increase in the reaction rate, and by a change in the preëxponential factor and in the activation energy which increased or decreased according to the mode of PbEt₄ introduction into the catalyst. Ernst M. Cohn

A.S.O.-S.L.A   METALLURGICAL LITERATURE CLASSIFICATION

PROCESSES AND PROPERTIES INDEX

2

Laws underlying the selection of catalysts for complete oxidation of organic compounds. S. Ya. Eilovich, G. M. Zhabrova, L. Ya. Margolis, and S. Z. Roginskii. *Compt. rend. acad. sci. U.R.S.S.* 52, 421–3(1946).—The catalytic activity and stability of a no. of metals, oxides, and combinations of oxides were detd. Nontransitional elements and colorless oxides of transitional elements failed to show appreciable activity. Cr_2O_3, MnO_2, and NiO were quite active at first but soon lost their activity. Binary systems contg. at least one transitional element capable of forming colored compds. displayed high catalytic activity and were quite stable. I. E. Campbell

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Aiovich, S., and Zhabrova, O. M.: Teoreticheskie
osnovy gidrirovaniya zhirov. Moscow: Acad. Sci.
S.S.S.R. 1948. 193 pp.

Effect of promotion of catalysts by metallo-organic compounds. G. M. Zhabrova and E. A. Fokina. *Problemy Kinetiki i Kataliza, Akad. Nauk S.S.S.R.* 6, *Geterogennyi Kataliz*, 151-8(1949).—Solid catalysts were treated with Ph₃Hg, Ph-Sn (I), and Pb-Sb (II), as well as Me₄Pb and Et₄Pb (III) in the presence of air. The catalytic activity was detd. as a function of concn. of metal oxides introduced by prepn. Decompn. of 5.7% H₂O₂ soln. by MgO treated with I was of 1st order with respect to H₂O₂. Decompn. accelerated with increase of concn. of I in MgO up to 0.6-0.8% SnO₂, but the rate decreased with further increase in Sn content. The position of the rate max. on the Sn-concn. axis did not change with increase of temp. from 55 to 75°. Similar results were obtained with II. Pure SnO₂ and Sb₂O₃ were catalytically inactive. The x-ray diffraction patterns of the promoted catalysts showed, however, presence of these oxides. Catalytic oxidation of H₂ with O₂ at 200° by NiO also followed 1st-order kinetics. NiO promoted by treatment with III showed highest activity at 0.5-1.0% PbO. Above 5-6% PbO, deviations from the 1st-order kinetics were observed. Pb-promoted NiO increased in activity in decompn. of H₂O₂ up to 33% PbO. Promotion effects were observed, in decompn. of H₂O₂, also in ZnO treated with P₃Pb or Ph₃Hg, and MnO₂ treated with III. Thus, catalysts of low, as well as high, activities were promoted. Catalytic activity of Ni to decompn. N₂O₅ ... promoted by treatment with III, with an ... effect at ... concn. of ... Hg, at 1-2% Pb, the catalyst is a poison of ...   A. I.

5356.   CATALYTIC COMBUSTION COLUMN FOR GAS ANALYSIS APPARATUS.
Vasserberg, V. E. and Zhabrova, G. M. (Zavodskaya lab.
(Factory Lab.), Oct. 1949, vol. 15, 1256). A light
portable unit for heating the combustion tubes of gas
analysis apparatus is described. Heat is provided by the
catalytic combustion of methanol, and temperatures up to
400 °C. can be maintained.   I.S.I.

ZHABROVA, G. M.

USSR/Chemistry - Catalysts   Sep/Oct 51

"Catalytic Properties and Structure of Active Zinc
Oxide. Communication 4. Effect of Method of Prepara-
tion on Electron-Microscopic Structure of Zinc
Oxide," A. B. Shekhter, G. M. Zhabrova, Inst of Phys
Chem, Acad Sci USSR

PA 195T/   Sep/Oct 51

"Iz Ak Nauk SSSR, Otdel Khim Nauk" No 5, pp 500-504

Electron-microscopic investigation of Zn oxide speci-
mens prepd by thermal decompn of different Zn salts
and by oxidation of Zn vapors in elec arc showed
that method of prepn greatly affects structure of
oxide. Found electron microscope method satisfactory

195T4

USSR/Chemistry - Catalysts (Contd)   Sep/Oct 51

for ZnO oxide specimens with pores as small as 200-
1,000 A in diam. Discusses formation of oxides.

195T4

ZHABROVA, G. M.   191T4

USSR/Chemistry - Catalysts   Jul/Aug 51

"Effect of Small Quantities of Additives on the Ac-
tivity of Catalysts," G. M. Zhabrova, Moscow

"Uspekh Khim" Vol XX, No 4, pp 450-472

On the basis of 50% USSR and 50% foreign publica-
tions, discusses general concepts of the action
exerted by catalysts, laws governing promoter ac-
tion, catalyst poisoning, modification of catalysts
(effect of the concn of additive on the activity of
catalyst at constant temp; effect of temp on this
activity at const concn of additive), electronic
theory of modification.

191T4

ZHABROVA, G. M.

"USSR Work on Electronic Phenomena in Catalysis and Adsorption," Priroda,
42, No.2, pp 88-92, 1953

Translation W-26265, 26 May 53

Inst. Phys. Chem., AS USSR

ZHABROVA, G. M.

Chemical Abstracts
May 25, 1954
General and Physical
Chemistry

Factors that determine the dehydrogenating and dehydrative properties of zinc oxide. The effect of the method of preparation on the catalytic decomposition of isopropyl alcohol. G. M. Zhabrova, L. N. Kutseva, and S. Z. Roginskii. Doklady Akad. Nauk S.S.S.R. 92, 569-72 (1953).—A difference in the method of prepn. of ZnO can produce a considerable difference in its catalytic activity with iso-PrOH. ZnO prepd. by pyrolytic method (from hydroxide, oxalate, carbonate, or nitrate) shows approx. the same activation energy of decompn. of iso-PrOH: 23,000-26,000 cal./mole; the specimens prepd. by direct oxidation of Zn vapor, however, give activation energy 48,000 cal./mole. The sp. surface values of the specimens differ: The prepn. from $Zn(NO_3)_2$ has 1.6 sq.m./g., that from $Zn(OH)_2$ 19.6; that from Zn metal 15.46; that from $ZnCO_3$ 10.4; that from ZnC_2O_4 14.2. At 296° the most active specimen is that derived from the oxalate, whereas that from metallic Zn is least active. At 366° the differences are less pronounced, at 400° they are all nearly alike and at 450° the specimen from Zn is 2.8 times as active as the oxalate-derived one.   G. M. Kosolapoff

ZHABOVA, G.M.

USSR/ Chemistry - Catalysts

Card 1/1   Pub. 151 - 2/36

Authors   : Zhabrova, G. M.; Roginskiy, S. Z.; and Fokina, E. A.

Title   : Hydrogen peroxide decomposition catalysts

Periodical   : Zhur. ob. khim. 24/1, 10-18, Jan 1954

Abstract   : The catalytic activity of various oxides and salts, with respect to the de-
composition of H_2O_2 in aqueous solutions, was investigated. The essential
role of the homogeneous catalytic action of the dissolved catalyst in the
H_2O_2 decomposition was established. It was found that the catalyst activity
depends upon the orientation of the elements and their components in the D.I.
Mendeleyev's periodical system of elements and upon the chemical properties
of the solid compound. Catalysts containing transition elements and possess-
ing intensive coloration were observed to be more active than noncolored cat-
alysts having no transition elements. The effect of free electrons on H_2O_2
decomposition is explained. Thirty-two references: 29-USSR; 1-USA; 1-Eng-
lish and 1-German (1852-1952). Table; graphs.

Institution :   ...
Submitted   : July 13, 1953

ZHABROVA, G.M.   (2)

Battelle Technical Review
July, 1954
Chemistry Physical

9374*   Catalysis in Decomposition of Hydrogen Peroxide.
(Russian.) G. M. Zhabrova, S. Z. Roginskii, and E. A. Fokina.
Zhurnal Obshchei Khimii, v. 24, no. 1, Jan. 1954, p. 10-18.
Catalytic activity of a number of oxides and salts. Graphs,
table. 32 ref.   10-12-54
                                           mil

ZHABROVA, G. M.

USSR/ Chemistry   Physical chemistry

Card   : 1/1   Pub. 151 - 8/35

Authors   : Zhabrova, G. M., and Kadenatsi, B. M.

Title   : Experimental determination of the equilibrium constant of magnesium hydroxide decomposition reaction

Periodical   : Zhur. ob. khim. 24, Ed. 7, 1135 - 1137, July 1954

Abstract   : The reaction pressure equilibrium-constant and the equilibrium constant of $Mg(OH_2)$ decomposition reaction were determined at a temperature range of 380 - 650°. The value of the thermal-reaction effect (11 000 cal/mol) was established on the basis of experimental data obtained by equating the isochore curve. The installation used in determining the water-vapor pressure equilibrium, is shown in drawing. Four German and 1 USSR reference. Table, graphs, drawing.

Institution   : ....

Submitted   : January 9, 1954

ZHABROVA, G. M., ROGINSKIY, S. Z. and FOKINA, E. A.

"Catalysts of the Decomposition of Hydrogen Peroxide," Zhur. Obshch. Khim.,
25, No.9, 1954

Comment B-87001, 27 Jul 55

Zhabrova, G. M.

USSR .

Factors that determine the dehydration and dehydrogenation properties of zinc oxide. The effect of adding acids, bases, and salts on the catalytic decomposition of isopropyl alcohol. G. M. Zhabrova, L. N. Kuzmin, and S. Z. Roginskii. Doklady Akad. Nauk S.S.S.R. 94, 73-6(1954); cf. C.A. 48, 5617d.—The effect was detd. of adding H_2SO_4, H_3PO_4, H_3BO_3, NaOH, $NaHSO_4$, Na_2SO_4, $MgSO_4$, $Al_2(SO_4)_3$, $ZnSO_4$, or $CuSO_4$ on the catalytic activity of a ZnO contact in the decompn. of iso-PrOH. The addn. of acids increases the dehydrating action, whereas alkalies decrease it. The effect of salts on the dehydrating action depends on their acid-base properties. The sulfates have the greatest pos. effect. The effect of $NaHSO_4$ has a pos. effect on the dehydration reaction, but a neg. effect on the dehydrogenation reaction. Pure ZnO is primarily a dehydrogenation catalyst but the addn. of compds. can affect its characteristics so that it will act as a dehydration catalyst.
I. Rovtar Leach

ZHABROVA, G. M. (Institute of Physical Chemistry, Akademii Nauk USSR)
RADIOKHIMICHESKOYE ISSLEDOVANIYE MIKROKHIMII POVERKHNOSTI
OKISNOTSINKOVOGO KATALIZATORA (Radiochemical study of the micro-
chemistry of the surface of the zinc oxide catalyst). In
Problemy kinetiki i kataliza (Problems of Kinetics and Catalysis),
vol. 8. Izdatel'stvo Akademii Nauk SSSR, 1955. Section IV: Nature
of the active surface. p. 209-217.

The nature of the active surface of catalysts is determined by
their "microchemistry", i.e., the very small quantities of chemical
substances found on the surface of the catalyst. They are capable
of changing the electron levels of semiconductors, the concentration
of electron-and hole gas, and the activity and selectivity of the
catalyst. The study of the adsorbed "micro-admixtures" is done by
the isotopic method. This paper discusses the decomposition of
isopropyl alcohol over ZnO. Fig. 1 (p. 211) shows the kinetic
curve of decomposition of isopropyl alcohol over ZnO.

Chemically pure substances were used in these experiments in
order to diminish the effect of "micro-admixtures".

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ZHABROVA, G. M., Radiokhimicheskoye . . .

The classification of catalysts proposed by S. Z. Roginskiy was
used in order to change the "microchemistry" of the surface of
ZnO, and thus modify the selectivity of the catalyst and cause
dehydration.

Classification of processes proposed by S. Z. Roginskiy:
1) Processes involving transfer of electrons (oxidation, hydro-
genation, dehydrogenation), and 2) processes which do not involve
transfer of electrons (cracking, isomerization, dehydration).
The chemical-electronic concept of the active surface of catalysts
served as a basis for the formulation of the classification of
admixtures. Classification of admixtures proposed by S. Z.
Roginskiy: 1) Modifying admixtures (for oxidation-reduction
reactions); they may possess donor-acceptor properties and change
the catalytic activity by adsorption or formation of new chemical
compounds on the surfaces of the catalyst); 2) Structure-forming
admixtures which regulate the rate of physical macroscopic stages
of the transfer of the substance and of heat during the catalytic
process; 3) Stabilizing admixtures which increase the mechanical
and chemical resistance of the catalyst; 4) Contact poisons which
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ZHABROVA, G. M. , Radiokhimicheskoye . . .   AID 831 - S

cover part of the surface and inhibit the reagents access to the surface.

The decomposition of isopropyl alcohol may proceed as dehydrogenation which is an oxidation-reduction process, and as dehydration, which is an acid base process. The effect of added sulfuric, phosphoric, and boric acids, (1.8-14.7%) on the dehydration of isopropyl alcohol has been investigated. Phosphoric and boric acid showed a slight dehydrating effect; sulfuric acid, a marked one. The alkalies exerted a contrary effect, for example, NaOH decreased the dehydration action of ZnO. The effect of acid and neutral salts and their adsorption by ZnO has been also investigated with the use of Na^{24}, S^{35}, and Zn^{65}. The experimental data are compiled in Table 1 (p. 212).

Kinetic curves showing the dehydrogenation and dehydration of isopropyl alcohol on pure ZnO and on ZnO containing small amounts of $ZnSO_4$ (0.3% $ZnSO_4$) are shown in Fig. 21 (p. 213).

The adsorption of $NaHSO_4$ by ZnO is appreciable. NaOH is also easily adsorbed by ZnO, and it is possible that sodium zincate is formed. The adsorption isotherm of NaOH is shown in Fig. 5 (p. 215). For the modifying effect of admixtures on the catalyst

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ZHABROVA, G.M.

Radiochemical investigation of the microchemistry of the surface of a zinc oxide catalyst. G. M. Zhabrova (Inst. Phys. Chem., Moscow). Problemy Kinetiki i Kataliza. Akad. Nauk S.S.S.R. 8, 330 17(1955) — The radioactive tracers used in the present work were Na⁴⁴, S³⁵, or Zn⁶⁵. With ZnO, prepd. at 600° from ZnCO₃, the kinetics of the dehydration and dehydrogenation of iso-PrOH were investigated at 380°, with pure ZnO, and with catalyst mixts., i.e. ZnO that contained an admixt. of 0.001 to 0.6% of either NaHPO₄, Na₂SO₄, MgSO₄, Al₂(SO₄)₃, ZnSO₄, or CuSO₄. The rates of the formation of C₃H₆ or H₂, resp., which are presented, are not of interest in themselves; but by using in these admixts. either a radioactive anion (S) or a radioactive cation (Na, Zn), or both, the migration of the S, Na, or Zn can be followed. The hypothesis of the electron mechanism is entirely suitable to explain the parallelism between the chem. character of adsorption at the surface of an oxide semiconductor catalyst and modifications of its properties.   Werner Jacobson

ZHABROVA, G. M.

AID P - 3170

Subject   : USSR/Chemistry

Card 1/1   Pub. 119 - 5/8

Author   : Zhabrova, G. M. (Moscow)

Title   : Use of isotopic methods in the study of catalysts

Periodical : Usp. khim., 24, 5, 598-612, 1955

Abstract   : The literature on establishing the nature of the catalyst
              surface by the use of radioisotopes is reviewed. The effect
              of the adsorption of several substances (Na_2SO_4, $NaHSO_4$ and
              $ZnSO_4$) on the selective action of ZnO is indicated. Methods
              for studying the surface of catalysts and the distribution
              of active centers are discussed. One table, 10 diagrams,
              76 references, 37 Russian (1936-1955).

Institution : None

Submitted   : No date

ZHABROVA, G.M.; FOKINA, Ye.A.

Effect of the method of introducing modifying additives on the
properties of oxide catalysts. Izv.AN SSSR.Otd.khim.nauk: 86
no.6:963-971 My '55.   (MLRA 9:4)

1.Institut fizicheskey khimii Akademii nauk SSSR.
                    (Catalysts)

Zhabrova G.M.

RUMANIA/Physical Chemistry - Kinetics. Combustion.   B-9
              Explosives. Topochemistry. Catalysis.

Abs Jour   : Zhabrova G.M.
Title   : Use of Isotope Methods in the Study of Catalysts

Orig Pub   : An. Rom.-Sov. Ser. chim., 1956, 10, No 1, 56-72

Abstract   : A translation. See RZhKhim, 1956, 6443.

Card 1/1   - 142 -

ZHABROVA, G. M., KADERATSI, B. M.

"Study of the Coke Formation and Divinyl Polymerization on the Catalyst of
S. V. Lebedev."

Problemy Kinetics and Catalysis, v. 9, Isotopes in Catalysis, Moscow, Izd-vo
AN SSSR, 1957, 442p.

Most of the papers in this collection were presented at the Conf. on
Isotopes in Catalysis which took place in Moscow, Mar 31- Apr 5, 1956.

ZHABROVA, G.M.; KADENATSI, B.M.

Coke formation and polymerization of divinyl on the S.V. Lebedeva
catalyst. Probl. kin. i kat. 9:187-200 '57.   (MIRA 11:3)
                (Butadiene)   (Polymerization)
          (Chemical reaction--Conditions and laws)

ZHABROVA, G.M.; SINITSYNA, M.D.; ROGINSKIY, S.Z.

Use of the emanation method in studying catalysts. Topochemical
decomposition of magnesium and zinc carbonates and hydroxides.
Dokl. AN SSSR 117 no.2:255-258 N '57.   (MIRA 11:3)

1. Institut fizicheskoy khimii Akademii nauk SSSR. 2. Chlen-
korrespondent AN SSSR (for Roginskiy).
                    (Magnesium salts)   (Zinc salts)

ZHABROVA, G. M.

5(4)   SOV/2o-121-4-28/54
AUTHORS: Roginskiy, S. Z. Corresponding Member, Academy of Sciences,
             USSR, Yanovskiy, M. I., Zhabrova, G. M., Vinogradova, O. M.,
             Kadenatsi, B. M., Markova, Z. A.

TITLE: A Catalytic Synthesis of Unsaturated Hydrocarbons of the Series
             C_4, Labelled by the Radioactive Carbon C^{14}, With the Use of
             Vapor Phase Distributive X-Ray Chromatography (Kataliticheskiy
             sintez nepredel'nykh uglevodorodov ryada C_4, mechennykh
             radiouglerodom C^{14}, s ispol'zovaniyem parofaznoy raspredelitel'-
             noy radiokhromatografii)

ABSTRACT: This paper reports on the results of the production of labelled
             unsaturated hydrocarbons on the basis of ethyl alcohol
             labelled by C^{14}. It is a peculiarity of this method that
             all the labelled molecules are produced simultaneously by
             the same catalytic process which develops under the influence
Card 1/4   of S. V. Lebedev's catalyst for the synthesis of divinyl.

A Catalytic Synthesis of Unsaturated Hydrocarbons of the Series C_4, Labelled by the Radioactive Carbon C^{14}, With the Use of Vapor Phase Distributive X-Ray Chromatography

SOV/20-121-4-28/54

This paper discusses a special case of the general principle of the synthesis of labelled molecules. This principle consists of the carrying out of a group synthesis (which gives a mixture of some substances with an unusual isotopic composition) and of the subsequent application of physical-chemical separation methods. Especially interesting is the separation of the labelled hydrocarbons of the C_4 series with various degrees of saturation and with various structural-isomeric shapes. Such hydrocarbons are butadiene (divinyl), α-butylene, β-butylene (cis-variant), β-butylene (trans-variant). The catalytic synthesis was carried out by means of S. V. Lebedev's catalyst at $390°$. A labelled ethyl alcohol $C^{14}H_3C^{14}H_2OH$ with the specific radioactivity 0.724 Curie/ml was used for the synthesis. The chromatographic separation of the marked gaseous labelled products is then discussed. A figure shows a typical chromatogram of the mixture of the gaseous radioactive products of the synthesis of divinyl from

Card 2/4

SOV/20-121-4-28/54

A Catalytic Synthesis of Unsaturated Hydrocarbons of the Series C_4, Labelled
by the Radioactive Carbon C^{14}, With the Use of Vapor Phase Distributive
X-Ray Chromatography

the labelled alcohol ($C_2^{14}H_5OH$). According to this chromato-
gram, the main gaseous product is divinyl (81,3 %). The per-
centage of butylene is not higher than 4.7 %. The composition
of the products may be changed by a heat treatment of the
catalyst. The specific activities of the hydrocarbons have
approximately the same values. In order to identify the in-
dividual fractions, their infrared absorption spectra were
taken; they are shown by a figure. The combination of chroma-
tography with rectification, extraction and with a counter-
flow distribution is very promising. These methods are very
productive and may be used for the preliminary group separa-
tion of a mixture into some fractions with a subsequent ex-
traction of the individual components. The catalytic exper-
iment takes 1 hour and the chromatographic separation
2 - 2,5 hours. There are 4 figures and 9 references, 7 of
Card 3/4   which are Soviet.

SOV/2o-121-4-28/54

A Catalytic Synthesis of Unsaturated Hydrocarbons of the Series C_4 , Labelled by ,the Radioactive Carbon C^{14}, With the Use of Vapor Phase Distributive X-Ray Chromatography

ASSOCIATION: Institute fizicheskoy khimii Akademii nauk SSSR
              (Institute of Physical Chemistry, AS USSR)

SUBMITTED: April 16, 1958

Card 4/4

SOV/62-59-1-35/38

5(4)

AUTHORS: Sinitsyna, M. D., Zhabrova, G. M., Roginskiy, S. Z.,
            Gordeyeva, V. A.

TITLE: Emanating Capacity in Topochemical Processes as a Typical
            Feature of the Specific Surface (Emaniruyushchaya sposobnost'
            pri topokhimicheskikh protsessakh kak kharakteristika
            udel'noy poverkhnosti)

ABSTRACT: In order to investigate the changes of the structure and
            specific surface in topochemical processes the authors
            applied the method of emanation. Radiothorium nitrate
            solution was used as emanation source. The advantage of
            radiothorium in comparison to the previously used radium
            (Ref 1) consists in the fact that it forms thoron in syste-
            matic transformation. Since thoron has only a short half-
            life measurements can be carried on without interruption
            (Refs 1 and 2). In the investigation of magnesium hydroxide
            and magnesium oxide samples it was found that there is a
Card 1/2   linear dependence of the emanation coefficient (measured

Emanating Capacity in Topochemical Processes as a   SOV/62-59-1-35/38
Typical Feature of the Specific Surface

at room temperature) on the size of the specific surface.
This dependence apparently holds also for other systems.
It indicates that the determination of the emanation
coefficient can be substituted for comparatively difficult
and complicated measurements of sorption. First a calibra-
tion curve would have to be plotted for each system, however,
according to several points determined by experiments:
emanation coefficient - specific surface. There are 1 figure
and 5 references, 2 of which are Soviet.

ASSOCIATION: Institut fizicheskoy khimii Akademii nauk SSSR (Institute
of Physical Chemistry of the Academy of Sciences, USSR)

SUBMITTED: June 28, 1958

Card 2/2

SOV/80-59-1-30/44

AUTHORS: Yelovich, S.Yu., Zhabrova, G.M., Krivenkova, P.G. and Semenovskaya, T.D.

TITLE: Hydrogenation of Fats in Foam (Gidrogenizatsiya zhirov v pene)

PERIODICAL: Zhurnal prikladnoy khimii, 1959, Nr 1, pp 187-193 (USSR)

ABSTRACT: The authors employed the method of hydrogenation of fats in foam which proved already to yield satisfactory results /Ref. 1 to 4_/. The present paper describes the results of the hydrogenation of cotton oil in the foam which is formed during the passing of hydrogen through the porous partitions in Schott's filters. This technique leads to a very selective course of the process. The ratio of the hydrogenation rate of olein radicals to that of the saturation of linoleic radicals is equal to 0.01 to 0.04. The analysis of experimental data leads to the conclusion that the foam process proceeded in the kinetic region by all the components of the heterogeneous reaction of catalytic hydration. The electronomicroscopic investigation, carried out by I.I. Tret'yakov and I.A. Bespalova, of the nickel catalyzer obtained from the nickel formate and used in the experiments, leads to the conclusion that the prevailing dimensions of the particles are

Card 1/2

Hydrogenation of Fats in Foam   SOV/8C-59-1-3C/44

                    0.1 to 0.2 microns.
                    There are 4 graphs, 1 diagram, 1 microphoto, 3 tables and
                    8 Soviet references.

SUBMITTED: April 3, 1957

Card 2/2

ZHABROVA, G.M.; YEGOROV, Ye.V.

Radiochemical study of the sorption of electrolytes and the chemical
interaction between electrolytes and zinc oxide. Radiokhimiia 1 no.5:
538-544 '59.   (MIRA 13:2)
            (Electrolytes) (Sorption) (zinc oxide)

5(4)   SOV/62-59-4-5/42
AUTHORS: Zhabrova, G. M., Gordeyeva, V. A.

TITLE: On Some Factors Determining the Onset   of the Induction
                Period During Topochemical Processes (O nekotorykh faktorakh,
                opredelyayushchikh poyavleniye induktsionnogo perioda v
                topokhimicheskikh protsessakh)

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk,
                1959, Nr 4, pp 596-599 (USSR)

ABSTRACT: It is typical of topochemical processes that an induction period
                occurs in most cases on the kinetic curves which represent the
                dependence of the quantity of the substance transformed on the
                duration of the process. In the present work the thermal decom-
                position of magnesium hydroxide, magnesium carbonate, zinc
                carbonate, and potassium bicarbonate has been investigated. To
                solve the question of the induction period kinetic measurements
                have been taken at different rates of temperature rise in the
                reaction apparatus. It has been found that the duration of the
                induction period and the position of the maximum on the auto-
                catalytic rate curve are determined by the heating conditions of
Card 1/3   the solids investigated. Figures 2 and 3 show the kinetic curves

On Some Factor:: Determining the Onset   SOV/62-59-4-5/42
Topochemical Processes   of the Induction Period During

of the dehydration of magnesium hydroxide at 320°, the heating
curves and the acceleration curves at a "normal" and "reduced"
heating rate. Although the kinetic curves of figures 2 and 3
might be related to different processes in view of their charac-
ter (Ref 1) they belong actually to one and the same process.
The only difference is in the heating rate of the initial mate-
rial. Similar phenomena have been observed with zinc hydroxide,
magnesium carbonate, potassium carbonate, and some other systems.
Figure 4 shows autocatalytic curves for potassium bicarbonate.
The peak rate is reached approximately at the same time as the
temperature. The peak amplitude and the form of the catalytic
curve are also determined by the rate of temperature rise. The
strong dependence of the induction period on the heating rate is
due to the supply of heat and the temperature rise of the solids.
There are 4 figures and 9 references, 5 of which are Soviet.

ASSOCIATION: Institut fizicheskoy khimii Akademii nauk SSSR (Institute of
                Physical Chemistry of the Academy of Sciences, USSR)

Card 2/3

S.1190
5(4)

66856

SOV/76-33-11-11/47

AUTHORS: Zhabrova, G. M., Vladimirova, V. I., Yegorov, Ye. V.

TITLE: Data From the Conference on Physics and Physical Chemistry of Catalysis (March 1958). Influence of Sorbed Impurities on the Catalytic Properties of Zinc Oxide

PERIODICAL: Zhurnal fizicheskoy khimii, 1959, Vol 33, Nr 11, pp 2442-2450 (USSR)

ABSTRACT: The sorption of ions may occur on oxide and hydroxide catalysts by dissolution of the catalyst itself. A typical catalyst of this type is zinc oxide. The authors investigated the dependence between the rules governing the sorption of impurities, their chemical character, the stability of the bond, the chemical nature of the impurities and their influence on the activity and selectivity of a zinc oxide catalyst. The investigations were carried out in the sorption of phosphoric acid, sulfuric acid, sodium hydroxide, sodium chloride, and zinc chloride. The quantity of sorbed ions was determined with the radio-isotopes Zn^{65}, Cl^{36}, S^{35}, P^{32}, and Na^{24}. The ion exchange was studied by means of zinc oxide by pH measurement after sorption

Card 1/3

66856

SOV/76-33-11-11/47

Data From the Conference on Physics and Physical Chemistry of Catalysis
(March 1958). Influence of Sorbed Impurities on the Catalytic Properties of
Zinc Oxide

equilibrium had been attained; a pH-meter of the type LP-5 was
used. The sorption of the sodium ions increases with the in-
crease of the pH of the solution, while the sorption of the
chloride ions increases with a decrease of the pH. It is as-
sumed that three types of sorption occur with the zinc ion:
an irreversible chemical reaction at pH < 6.5 (the formation
of a basic zinc sulfate in case of small pH-values from zinc
sulfate and sodium hydroxide was already observed by I. V.
Tananayev and N. V. Mzareulishvili (Ref 7)), a reversible
chemical sorption at pH > 9, and in the third case an ion ex-
change at pH 6.5-9.5. In analogy to the scheme recommended by
B. P. Nikol'skiy (Ref 9) for the sorption properties of
aluminum oxide, a corresponding scheme is recommended for zinc
oxide. The authors investigated zinc oxide samples, with sorbed
impurities, for their catalytic activity with respect to iso-
propanol decomposition at dynamic conditions and in adsorbed
layers (Table 1). Impurities of sodium- and chloride ions in-
crease the dehydrogenation capacity of the catalyst. The
sorption of "acid" impurities, such as zinc sulfate and phos-

Card 2/3

Chemistry,

5(4)

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TITLE: The Application of the Emanation Method in the Investigation of
                  Catalysts (Primeneniye emanatsionnogo metoda k issledovaniyu
                  katalizatorov)

ABSTRACT: The authors first mention some previous papers on this subject.
                  It is of interest to investigate one of the previously investi-
                  gated systems in detail by applying radioactive thorium. The
                  magnesium hydroxide used in these experiments was prepared by
                  precipitation from solutions of magnesium nitrate and alkali
                  followed by careful washing with distilled water. A solution of
                  0.36 g ThO_2/ml (radioactive thorium) in nitric acid was used as
                  a source of emanation. The authors determined the kinetic
                  curves for the time dependence of the emanating power in the
                  course of the dehydration of magnesium hydroxide at the tem-
                  peratures 320; 350; 400; 450; 550; 600; 700; 800; and 1080°. At

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the same time, the percentage of the conversion of hydroxide
into oxide was determined. A continuous increase of the emanat-
ing power with time is observed at the temperatures of 320°
and 350°. The liberation of thoron becomes much slower towards
the end of dehydration. The continuous character of the time
dependence of radioactivity is disturbed already at a de-
hydration temperature of 400°, i.e. there is a flat maximum
which corresponds to 75% of conversion. At 450° there is al-
ready a clear maximum which corresponds to 70-80% of conver-
sion. A further increase in dehydration temperature continues
to increase the sharpness of the maximum. The characteristic
shape of the kinetic curves for the time dependence of the
emanating power is caused by the simultaneous effect of de-
hydration and thermal sintering. The second diagram shows the
curves for the dependence of the emanation coefficient and of
the specific surface on the dehydration temperature of magnesi-
um hydroxide. Both these quantities have a maximum at 450°
after which they decrease. The emanating coefficient measured
at the temperature of the topochemical process must be describ-
ed by more complicated functions. The thoron generated seems to

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be eliminated only from the superficial layer of the samples of hydroxide and magnesium oxide investigated. There are 3 figures, 1 table, and 7 references, 4 of which are Soviet.

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