

KATSOBASHVILI, Ya.R.; KURKOVA, N.S.; LEVITSKIY, N.A.

Sublimation of molybdenum oxide from aluminum-molybdenum
catalysts. Zhur.prikl.khim. 33 no.3:734-736 Mr '60.
(MIRA 13:6)
(Molybdenum oxide) (Aluminum oxide) (Catalysts)

S/149/61/000/002/004/017
A006/A001

AUTHORS: Levitskiy, E.A., Shchepachev, B.M.

TITLE: Developing a Method of Preparing Basic Salt of 5/6 Aluminum Oxychloride

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Tsvetnaya metallurgiya, 1961, No. 2, pp. 71 - 75

TEXT: To prepare aluminum oxide or hydroxide with required properties, reprecipitation of aluminum hydroxide is employed where aluminum hydroxide is converted into a soluble neutral salt by treatment with acid. This water-soluble product is subjected to reprecipitation by adding alkali which neutralizes the solvent. Since this process consumes large amounts of expensive reactive agents, reprecipitation would be improved by using a soluble aluminum compound which is closer to the hydroxide itself in respect to the chemical composition. E.A. Levitskiy proposed a method of precipitation aluminum hydroxide from a solution of basic salt - the 5/6 aluminum oxychloride ($Al_2(OH)_5Cl$). This method reduces the consumption of reactive agents for the reprecipitation of one ton of oxide by

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A005/A001

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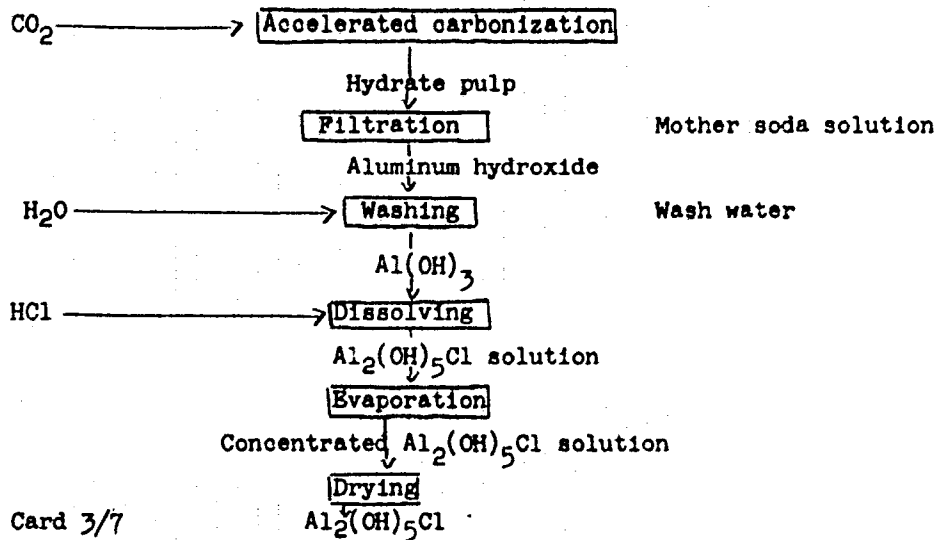
Developing a Method of Preparing Basic Salt of 5/6 Aluminum Oxychloride

a factor of 4 - 6; the technology is simple and economical. $Al_2(OH)_5Cl$ is well soluble in water and offers a series of properties which make it extremely suitable for large-scale industrial use. This compound was studied by various authors, including Academician V.A. Kargin (Ref. 2 - 4), M.Ye. Shishniashvili and E.D. Uznadze (Ref. 5). Various investigations were made with 5/6 oxychloride of aluminum using synthetic methods (Ref. 4, 6 - 10), although none of the methods can be employed as a basis for an efficient industrial process. The authors developed a method of producing 5/6 aluminum oxychloride from semi-products of alumina industry by accelerated carbonization process, conducted according to the following scheme:

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Developing a Method of Preparing Basic Salt of 5/6 Aluminum Oxychloride
Desilicificated aluminate solution of alumina production



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Developing a Method of Preparing Basic Salt of 5/6 Aluminum Oxychloride

The aluminate solution intended for carbonization should not contain over 60-70 g/l Al_2O_3 at a 1.5 caustic ratio. The product is washed in distilled water. Filtration is recommended to be carried out in a vacuum-filter drum with subsequent repulping and repeated filtration. Dissolving of $Al(OH)_3$ in hydrochloric acid with the formation of 5/6 aluminum oxychloride does not depend on the concentration of the acid as stated by E.D. Uznadze and M.Ye. Shishniashvili (Ref. 5). The use of freshly precipitated aluminum hydroxide permits the use of hydrochloric acid of any concentration since this precipitate is able to interact with lower oxychlorides. The method of obtaining 5/6 aluminum oxychloride from $Al(OH)_3$ and hydrochloric acid is based on the conclusions made by V.A. Kargin and L.K. Lepin' (Ref. 4, 6) that each of the basic chlorides is stable within a certain pH range of the medium in the solution. The optimum pH value for 5/6 aluminum oxychloride is 4 - 4.5. Two methods of dissolving aluminum hydroxide in hydrochloric acid are suggested: 1) at a constant pH of the medium, mixing and heating (the pH value is maintained by adding HCl at a level of 4 - 4.5 (Ref. 16); 2) by adding the whole stoichiometric amount of HCl for the formation of $Al_2(OH)_5Cl$ with subsequent heating up to boiling and intensive stirring. Both methods may be combined. When dissolving $Al(OH)_3$ in HCl, solutions of $Al_2(OH)_5Cl$ with 80 - 140 g/l Al_2O_3 concentration are

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obtained. The density and viscosity of the solution, depending on Al_2O_3 concentration, are shown in Figures 2 and 3. When evaporated to a concentration of about 250 g/l of Al_2O_3 , the solution is gelled. The gel is dried to powder (Figures 4, 5). The weight of $Al_2(OH)_5Cl$ powder is 0.95 - 0.97 g/cm², at an average size of the particles of 1 - 2 mm. This product is well soluble in water and can be easily stored and transported.

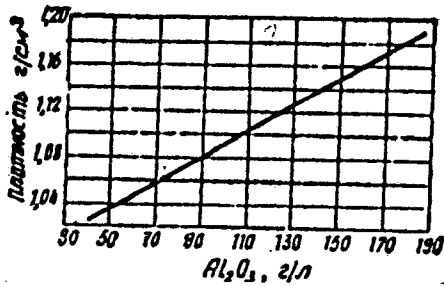


Figure 2:

Dependence of density of the $Al_2(OH)_5Cl$ solution on the concentration of Al_2O_3 at 20°C.

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Developing a Method of Preparing Basic Salt of 5/6 Aluminum Oxychloride

Figure 3:

The dependence of viscosity of the $Al_2(OH)_5Cl$ solution on concentration of Al_2O_3 at 20°C

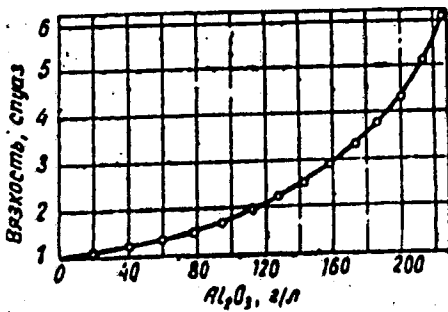
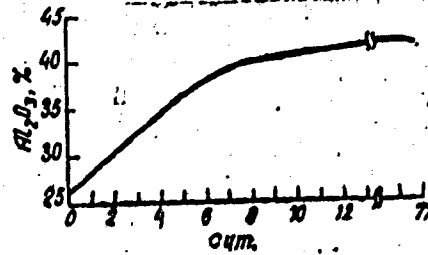


Figure 4:

Natural drying of $Al_2(OH)_5Cl$ gel at 20°C



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Developing a Method of Preparing Basic Salt of 5/6 Aluminum Oxychloride

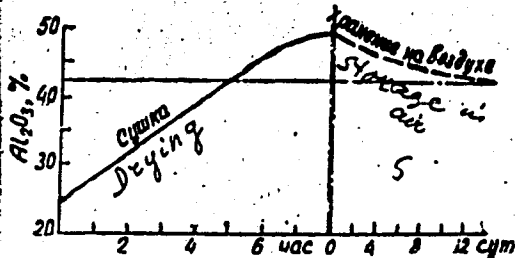


Figure 5:

Drying of Al(OH)₂Cl gel at 95°C and storage of dried powder in air at 20°C

There are 5 figures and 16 references: 12 Soviet and 4 non-Soviet.

ASSOCIATIONS: Krasnoyarskiy institut tsvetnykh metallov (Krasnoyarsk Institute of Non-Ferrous Metals); Kafedra metallurgii legkikh metallov (Department of Metallurgy of Light Metals)

SUBMITTED: May 17, 1960

Card 7/7

KATSOBASHVILI, Ya.R.; KURKOVA, N.S.; LIKHOBABENKO, V.S.; LEVITSKIY, E.A.;
KUZ'MINA, T.N.; KUKHTICHEVA, V.F.; MASOLOVA, F.A.

Effect of the conditions under which the hydroxide precipitates on
the mechanical durability of aluminum oxide. Izv. AN SSSR, Otd.
khim. nauk no.2:245-250 F '61. (MIRA 14:2)

1. Institut neftekhimicheskogo sinteza AN SSSR.
(Alumina)

LEVITSKIY, E.A.; MAKSIMOV, V.N.; MARCHENKO, I.Yu.

Polymeric character of $5/6$ basic aluminum chloride and the possibility of a higher basicity of aluminum hydroxychlorides.
Dokl. AN SSSR 139 no.4:884-887 Ag '61. (MIRA 14:7)

1. Predstavleno akademikom V.A. Karginym.
(Aluminum chloride)

LEVITSKIY, E.A.; MAKSIMOV, V.N.

Composition of hydrolysis products in aluminum chloride solutions.
Dokl. AN SSSR 141 no.4:865-868 D '61. (MIRA 14:11)

1. Predstavleno akademikom I.V. Tananayevym.
(Aluminum chloride) (Hydrolysis)

KATSOBASHVILI, Ya.R.; KURKOVA, N.S.; LEVITSKIY, E.A.; ROMANOVSKIY, B.V.

Preparation of active spherical aluminum oxide. Khim.prom. no.1:
26-30 Ja '62. (MIRA 15:1)

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(Aluminum oxide)

MAKARENKO, I.I.; LEVITSKIY, E.R.

Resochin in clinical internal medicine and its possible side effects.
Sov. med. 27 no.3:72-78 Mr '64. (MIRA 17:11)

1. Kafedra propedevticheskoy terapii i professional'nykh zabolevaniy sanitarno-gigiyenicheskogo fakul'teta (zav. - deystvitel'nyy chlen A'N SSSR prof. Ye.M. Tareyev) I Moskovskogo ordena Lenina meditsinskogo instituta imeni Sechenova i 24-ya Moskovskaya gorodskaya bol'nitsa (glavnyy vrach V.P. Uspenskiy).

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Characteristics of the phonocardiogram in extrasystole and cardiac fibrillation. Sov. med. 27 no.1:14-19 Ja '64.

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1. Kafedra terapii (zav.- deystvitel'nyy chlen AMN SSSR prof. Ye.M. Tarsyev) sanitarno-gigiyenicheskogo fakul'teta I Moskovskogo ordena Lenina meditsinskogo instituta imeni I.M. Sechenova i 24-y Gorodskoy klinicheskoy bol'nitsy (glavnyy vrach V.P. Uspenskiy).

LEVITSKIY, E. R. (Moskva)

Rheumatic and nonspecific infectious (rheumatoid) arthritis.
Fel'd. 1 akush. 27 no.5:3-8 My '62. (MIRA 15:7)

(ARTHRITIS, RHEUMATOID) (RHEUMATISM)

ANDROSOVA, S.O.; APROSINA, Z.G.; BEZRODNYKH, A.A.; VERMEL', A.Ye.;
VINOGRADOVA, O.M.; ~~LEVITSKIY, E.B.~~; MAKARENKO, I.I.;
MAKSEANOV, D.A.; POLYANTSEVA, L.R.; SUMAROKOV, A.V.;
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red.; MEL'NIKOV, Ye.B., red.

[Occupational diseases] Professional'nye bolezni; ucheb-
noe posobie dlia studentov sanitarno-gigienicheskikh fa-
kul'tetov. Pod red. E.M.Tareeva. Moskva, 1963 p. 223 p.
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Fractures of the shinbone malleoli in miners. Trudy Ukr.
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1. Iz kafedry gosital'noy khirurgii (zav.kafedroy - prof.
R.V. Bogoslavskiy) Stalinskogo meditsinskogo instituta (dir.
dotsent A.M. Ganichkin).

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A rare case of bilateral hernia of the anterior tibial muscle. Ortop.
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vrach - F.G. Dobrova) i Stalinskogo nauchno-issledovatel'skogo
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Mikhail Vasil'evich Khovenko; on his 60th birthday. Ortop. travm.
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gists and Orthopedists. Ortop., travm.i protez. 22 no.4:91-92
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Reports on meetings of societies of traumatologists and orthopedists. Ortop. travm. i protez, 21 no. 7:78-95 J1 '60.
(MIRA 13:10)

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Extrusion press for porcelain insulators. Patent U.S.S.R. 76,469, Dec.31,
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(CA 47 no.19:10194 '53)

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Studying the compressive properties of an auger mechanism.
Stek. 1 ker. 21 no.10:26-31 0 '64.

(MIRA 18:11)

1. Gosudarstvennyy issledovatel'skiy elektrokeramicheskiy
institut.

LEVITSKIY, G. D.

USSR / Plant Diseases. Diseases of Cultivated Plants

N-3

Abs Jour : Ref Zhur - Biol., No 6, March 1957, No 23001

Author : Levitskiy, G.D.

Inst : Not Given

Title : New Fungicides in Controlling Grape Mildew

Orig Pub : Vinodelie i vinogradarstvo SSSR, 1956, No 4, 39-40

Abstract : Experiments of the Kabardin fruit-berry experimental station (Nal'chik) on the Galan variety proved that in grape mildew a 1 and 2% solution of fuclazin (a 20% preparation of ferrous dithiophenol) is equally as toxic as Bordeaux liquid. The grapes were sprayed on June 4 and 24 and July 15. The advantage of fuclazin consists in the simplicity of preparing a working solution and in the fact that it does not disrupt the assimilating function of the leaf. Dinitrothiocyanogenbenzol in concentrations of 1 and 1.5% also produces a positive effect in controlling grape mildew, although a somewhat weaker one than fuclazin. No burns were observed in treating plants with either fuclazin or dinitrothiocyanogenbenzol.

Card : 1/1

EULAVIN, Ivan Anisimovich, doktor tekhn. nauk; LEVITSKIY, G.D., inzh.,
retsenzent; USPENSKIY, K.G., red.izd-va; MODEL', B.I.; tekhn.
red.

[Machinery for the manufacture of fine ceramic articles] Ma-
shiny dlia proizvodstva tonkoi keramiki. Izd.2., dop. i perer.
Moskva, Mashgiz, 1962. 410 p. (MIRA 15:3)
(Ceramic industries—Equipment and supplies)

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Mathematical analysis of the operation of the screw in a vacuum press. Stek. i ker. 20 no.8:31-38 Ag '63.

(MIRA 16:11)

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TARASENKO, G.T. [Tarasenko, H.T.], kand.med.nauk; MAKARENKO, V.A., nauchnyy sotrudnik; LEVITSKIY, G.M. [Levyts'kiy, H.M.], nauchnyy sotrudnik

Case of perforation of an ovarian cyst in a woman in the eighth month of pregnancy. Ped., akush. i gin. 23 no.4:3 of cover '61.

(MIRA 17:1)

1. Akushersko-ginekologicheskoye otdeleniye (zav. - prof.S.P.Vinogradova [Vynogradova, S.P.] Ukrainskogo nauchno-issledovatel'skogo instituta okhrany materinstva i detstva im. Geroya Sovetskogo Soyuza prof.P.M.Buyka (direktor - kand.med.nauk A.G.Pap [Pap, A.H.]).

PROCESSES AND PROPERTIES INDEX

CHERVITSKIY, G. S. 4

✓Electrolytic apparatus. G. S. Chervitskiy. Russ. Zh. Khim., April 30, 1960. Constructional details are given of electrolytic cells with equipments for the transfer of the materials from one cell to the other, etc.

ASB-964 METALLURGICAL LITERATURE CLASSIFICATION

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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Khromirovaniye Detaley Mashin i Instrumenta (Chrome Plating of
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225 p. Illus., Diagrns., Tables.
"Literatura": p. 222-(224)

LEVITSHYI, G. S.

KOSTYUKOV, V.A.; GONCHARENKO, K.S.; LEVITSKIY, G.S., inshener, retsenzent.

[Reconditioning automobile and tractor parts] Vosstanovlenie avto-
traktornykh detalei. Kiev, Gos. nauchno-tekhn. izd-vo mashinostroit.
i sudostroim. lit-ry [Ukr. otd-nie] 1953. 94 p. (MIRA 7:7)
(Tractors--Repairing) (Automobiles--Repairing)

LEVITSKIY, G. S.

PHASE I TREASURE ISLAND BIBLIOGRAPHICAL REPORT AID 447 - I

BOOK Call No.: AF638691

Author: LEVITSKIY, G. S.

Full Title: INCREASING EFFICIENCY IN ELECTROPLATING PROCESSES

Transliterated Title: Uskoreniye protsessov gal'vanicheskikh pokrytiy

Publishing Data

Originating Agency: None

Publishing House: State Scientific and Technical Publishing House of
Literature on Machine Building and Shipbuilding ["Mashgiz"]
Ukrainian Division, Kiev

Date: 1954 No. pp.: 158

No. of copies: 4,000

Editorial Staff:

The author expresses acknowledgement to Barmashenko, Nadezhdin,
Edigoryan, Chichel'nitskaya, Bondarenko, Solovey, Fel'dman,
Zazimko, Antonov, Berlyant and others.

Text Data

Coverage: In this monograph the present stage of electroplating pro-
duction is examined and means of improving the quality of coating and
of increasing productivity are indicated. The author characterizes
the present stage as a transition from an average-quality coating-
the same for all plated articles - to better qualities differentiated
for each specific group of articles in relation to their purpose. The
changes in mechanical, physical and chemical properties of plating

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Uskoreniye protsessov gal'vanicheskikh pokrytiy

AID 447 - I

depending on the conditions of production are discussed. They are illustrated with examples from nickel, copper, and chrome-plating. Examples of increased efficiency in processing are analyzed. Special attention is given to problems of the distribution of current on electrodes and in the electrolyte. The effect of the current density on the required quality of plating is demonstrated. The equipment and the organization of production are described. In Ch. I., a brief history of electroplating from its origins, based on the works of the Russian Academician B. S. Yakobi, to contemporary Soviet investigations is given. Many names of Soviet scientists are cited. Electroplating shops in some Soviet plants are mentioned. The monograph is written on the basis of Soviet theoretical and experimental investigations. Only the problems of particular interest for Soviet engineers and technicians are dealt with in detail. The author refers to his earlier work "Chrome Plating of Machine Elements and Tools" (Mashgiz, 1951) which describes the technique of the process according to principles exposed in this monograph. The book is provided with illustrations, tables and diagrams.

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Uskoreniye protsessov gal'vanicheskikh pokrytiy

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PAGES

Ch. II Principles of Electroplating Deposition of Metals, 21-121

Corrosion-resisting plating; Wear-resisting plating; Protective decorative plating; Properties of electrolytes; Electrocrystallization of the deposit; Dependence of the properties of electrolytic deposits on the conditions of their production; Nickel plating; Copper plating; Distribution of the direct current in the electrolyte and electrodes; Principles of uniform coating; Increasing efficiency in electroplating processes.

Ch. III Equipment 122-141

Ch. IV Organization of Production 142-156

Purpose: The book is intended for engineers and technicians working in the field of electroplating

Facilities: Kiev Regional Division of the All-Union Scientific and Technical Society of Mechanical Engineers (VNITOMASH); Division of the Technology of Electrochemical Productions of the Order of Lenin Polytechnic. Kiev

No. of Russian and Slavic References: 19 Russian

Available: A.I.D., Library of Congress.

3/3

GONCHARENKO, Konstantin Semenovich; LEVITSKIY, G.S., inzhener, retsensent;
LAVORKO, P.K., inzhener, redaktor; SOROKA, M.S., redaktor;
HUDENSKIY, Ya.V., tekhnicheskii redaktor.

[Concise electroplating manual] Kratkii spravochnik gal'vanotekhnika.
Kiev, Gos.nauchno-tekhn.izd-vo mashinostroitel'noi lit-ry, 1955. 223 p.
(Electroplating)

LEVITSKIY, Georgiy Sergeyevich; SEMENYUK, I.M.; SERDYUK, V.K., inzhener,
redaktor; RUDENSKIY, Ya.V., tekhnicheskiy redaktor.

[Chrome plating of machine parts and tools] Khromirovanie detalei
mashin i instrumenta. Kiev, Gos. izd-vo mashinostroitel'noi lit-ry,
1956. 265 p. (Chromium plating) (MLRA 9:5)

AUTHORS: Dimbitskiy, I.N. and Levitskiy, G.S.

97-5-8/13

TITLE: Frame for transporting large reinforced concrete panels on a lorry without trailer. (Ferma dlya perevozki krupnykh zhelezobetonnykh paneley na avtomashine bez pritsepa).

PERIODICAL: "Beton i Zhelezobeton" (Concrete and Reinforced Concrete) 1957, No.5, p.213. (USSR).

ABSTRACT: The size of the transported panels is 4.8 m (wide) x 6.4 m (long). It was found impossible to transport them on ordinary lorries. The use of trailers was found to be unsatisfactory. The illustrated construction solves this problem. It was designed by I.N. Dimbitskiy of the Stalinskpromstroy factory. It comprises an "L"-shaped frame with 2 inclined platforms pivoted onto the ends of the frame. These platforms are kept in the inclined position by 2 cables tightly stretched by a spring coupling and screw. This construction is mounted on the lorry chassis ZIL - 151 (3W - 151). The weight of this construction is 500 kg. This lorry was tested by transporting long reinforced concrete units weighing 4.5 t. of 4.8 - 6.4 m length and of 1.8 m width. The tests were carried out on unconsolidated roads for 2 months, in double-shifts. The lorry proved to be satisfactory and no breakage of panels occurred. The advantage of arrange-

Card 1/2

LEVITSKIY, I. I.

LEVITSKIY, I. I. - "Catalytic Dehydrogenation of Ethylcyclohexane
and the Ethylcyclohexane Fraction of Gasolines of Direct Distillation."
Sub 19 Jun 52, Inst of Organic Chemistry, Acad Sci USSR. (Dissertation
for the Degree of Candidate in Chemical Sciences).

SO: Vechernaya Moskva January-December 1952

DA LEVITSKIY, I I.

Petrolium

Preparation of styrene by catalytic dehydrogenation of ethylcyclohexane fraction of Maitop gasoline. N. I. Mbulkin and I. I. Levitskiy. *Izv. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1952, 484-504. The stock consisted of a fraction of Maitop gasoline b. 127-34° with d_4^{20} 0.7702, n_D^{20} 1.4341, 26% aromatic compds. Passage over Pt-C at 300° and space velocity 0.3 gave a catalyzate with 47% aromatic compds., n_D^{20} 1.4470, d_4^{20} 0.7668; 2nd passage gave about no change. Oxidation of the product with 5% alk. KMnO₄ gave the aromatic distribution of 33.5% ethylbenzene, 28.4% *p*-xylene, and 38% *m,p*-xylenes. Azeotropic distn. with H₂O and washing of the fraction with H₂O gave purely aromatic ethylbenzene-xylene concentrate, b. 136-46°, n_D^{20} 1.4970, d_4^{20} 0.8712, consisting of 33.5% ethylbenzene and 64.5% xylenes. This fraction was dehydrogenated over V-alumina catalyst best at 300°, yielding a catalyzate with 22.3% styrene. The catalyzate from the Pt-C dehydrogenation at 300° contained only 11.14% styrene. Dehydrogenation of the original 127-34° fraction (contg. 10.7% ethylcyclohexane) showed that the preliminary aromatization did not have any appreciable effect on the results of the high-temp. dehydrogenation, yielding 11.14% styrene in either case. G. M. Koshopoff

Inst. Org. Chem, Acad Sci USSR

CA LEVITSKIY, I. I.

General & Physical
Chem. 20

Rate of inert diluents in the catalytic dehydrogenation of ethylbenzene. N. I. Shafik and I. I. Levitskiy (Inst. Org. Chem. Acad. Sci. U.S.S.R., Moscow). *Dokl. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1952, 869-872.—The well-known increase of the yield of PhEt:CH₂ (I) produced in the catalytic dehydrogenation of PhEt, with increasing diln. of I by inert diluents, is not the result of secondary factors such as suppression of polymerization or, as is often assumed, due to kinetic factors, but simply the result of thermodynamic displacement of the equil. PhEt ⇌ I + H₂ in favor of I, brought about by inert diln. The proof of this is supplied by flow expts. on a V₂O₅ catalyst (50 ml.), at 575°, showing that the conversion actually comes very close to equil. With undiln. PhEt, passed at different space velocities v from 0.25 to 2.40 l./l. catalyst/hr. (2.4 to 19.8 moles/l. catalyst/hr.), the yield of catalyzed levels off to about 95% from about $v = 1.2$ up, and the content of I in the catalyzed level off at around 25%. Consequently, the reaction does reach thermodynamic equil. Taking 25.0% as the equil. const. $K = x^2/(1-x)$, where $x =$ moles I formed in the dehydrogenation of 1 mole I, $K = 0.0257$. The shift of the equil. on diln. with m moles H₂/mole PhEt is given by the equation $(1+K)x^2 + (m+Kx)x - K(1+m) = 0$. This equation was tested in expts. with mixts. PhEt + H₂ const. 20-90 mole % H₂; the exptl. degrees of dehydrogenation α , roughly, 3-4% above the calcd. curve. This discrepancy is attributed to a suppression of the polymerization side-reaction through diln. with H₂. The yields of I relative to PhEt passed are slightly higher than without diln. For the case of diln. with m moles of an inert diluent/mole PhEt, the equil. equation is $(K+1)x^2 + Kx -$

$K(x+1) = 0$. Expts. with 35-80 mole % N₂ agree with this equation within 1.3%. Clearly, the increase of the yield of I through diln. with N₂ is due not to a suppression of undesirable side reactions, but to a shift of the equil. in favor of I. Whereas in the presence of H₂, polymerization is always depressed, it remains approx. unchanged on diln. with N₂, owing to mutual compensation of the effects of diln. and of the increased yield. With increasing amt. of N₂, the yield of the catalyzed decreases from 91 to 65%. On diln. with PhMe, the same degree of dehydrogenation as at the same degree of diln. with N₂ should be expected. This is fairly well confirmed in expts. using up to 20 mole % PhMe, but in the range of 20-85 mole % PhMe, the exptl. degrees of hydrogenation are lower by about 1.2% than the calcd. figures. This discrepancy is attributed to a deactivation of the catalyst by large amts. of PhMe, probably by its conversion to pinakol, thus, PhMe is not altogether an indifferent diluent. Nor are C₂H₆ and H₂O inert diluents. The former can react according to $C_2H_6 + C \rightarrow 2CO$ and $C_2H_6 + H_2 \rightarrow CO + H_2O$, and H₂O reacts according to $H_2O + C \rightarrow CO + H_2$. At equal degrees of diln., the yield of I with H₂O are 0.4 to 0.5 the yield with C₂H₆. N. Thon

LEVITSKIY, I.I.

3 4

Theoretical and experimental yields of styrene in the catalytic dehydrogenation of ethylbenzene. N. I. Shulkin and I. I. Levitskiy. *Izv. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk*, 1953, 403-8.—The exptl. dehydrogenation of EtPh over Al-Cr-Mo and Al-V catalysts was compared with the data by previous workers (cf. Wenner and Dybdal, *C.A.* 47, 3722f). On the basis of thermodynamic data the equil. dehydrogenation of EtPh can be estd. The theoretical yield of styrene rises from 5.7% at 427° to 52.4% at 627°. Over an Al-Cr-Mo catalyst the yield actually rises from 3.7% at 424° to 30.8% at 627°, while the theoretical and the exptl. yields differ correspondingly by 1.9 and 21.6% under these conditions. The activity of an Al-V catalyst remains low even at 525°, but the results obtained almost do not differ from those obtained under similar conditions (525-76°) over an Al-Cr-Mo catalyst. Expts. in which the equil. character has been established (cf. *C.A.* 46, 10818f) show independence of the actual yields of styrene on the space velocity of the reaction mass (cf. W. and D., *C.A.* 42, 3722f). The deviation observed between the exptl. and theoretical yields can be directly ascribed to the loss of catalyzate caused by side reactions and cannot be ascribed merely to lack of equil. G. M. Kosolapoff

INST. ORGANIC CHEMISTRY ACADEMY OF SCIENCES USSR

LE/IT/SI, 1-1

High-temperature contact catalytic dehydrogenation of ethylcyclohexane. General direction of the reaction of ethylcyclohexane and ethylcyclohexane with ethylcyclohexane. *Tr. Akad. Nauk SSSR, Ser. Khim. Nauk, 1961, No. 11, 2174-2176.*

Reaction of ethylcyclohexane on AlCl₃-MnCl₂ or AlCl₃-VCl₃ catalyst at 400°C with and without ethylcyclohexane. The principal products of dehydrogenation were Ethyl and styrene, along with small amounts of ethylcyclohexane, probably ethylcyclohexane. The amount of Ethyl in the ethylcyclohexane depends on the amount of ethylcyclohexane, indicating strong adsorption of ethylcyclohexane on the catalyst. The rate of dehydrogenation is independent of the concentration of the starting material. The concentration of ethylcyclohexane with Ethyl dehydrogenation does not change with variation of the activity and greatly exceeds the concentration of unreacted ethylcyclohexane. It is thus suggested that the dehydrogenation of ethylcyclohexane proceeds in 2 steps: formation of Ethyl and dehydrogenation of this to styrene. Data with 1:2 parts of CO₂ gives a 0.33-fold increase of the yield of

ethylcyclohexane from ethylcyclohexane. The results indicate that dehydrogenation of ethylcyclohexane to styrene under the conditions of the study is in a dynamic equilibrium of ethylcyclohexane and styrene. *Strokan, Izv. Akad. Nauk SSSR, Ser. Khim. Nauk, 1961, No. 11, 2174-2176.*

Previously derived equation for the rate of dehydrogenation of Ethyl in its formation at 400°C. The results of the equilibrium study of ethylcyclohexane and styrene are in agreement with the previously derived equation. The equilibrium constant of the reaction is 0.33. Hence equilibrium is shifted in the direction of Ethyl.

LEVITSKIY, I.I.; SHUYKIN, N.I.

High temperature contact-catalytic dehydrogenation of ethylcyclohexane.
Report no.2. Thermodynamic equilibrium of the dehydrogenation of ethyl
benzene produced from ethylcyclohexane. Izv.AN SSSR. Otd.khim.nauk
no.6:1012-1016 N-D '53. (MLRA 6:12)

1. Institut organicheskoy khimii Akademii nauk SSSR,
(Dehydrogenation) (Ethyl benzene) (Cyclohexane)

Specific character of action of water vapor in catalytic dehydrogenation of ethylbenzene. I. I. Levitski and N. I. Shulkin (Inst. Org. Chem., Acad. Sci. U.S.S.R., Moscow). *Doklady Akad. Nauk S.S.S.R.* 92: 971 #1973; cf. *Weiner and Ditsdal, C. I.* 42: 1722; 46: 108187. The dehydrogenation catalyst for EtPh must possess not only a high order of selectivity, activity and ability to initiate the water reaction with coke, but must also have a low adsorption coeff. for H₂O vapors. Dehydrogenation of EtPh-H₂O vapor mixts. at 600° over aluminovanadate or aluminochromomolybdate catalysts was examined. The yield of styrene is about 31% at the R₂ m 0.048. Change of the molar ratio (H₂O: PhEt) from 2:1 to 1:8 increases the yield of styrene to 37% over aluminovanadate, while over the aluminochromomolybdate catalyst, changing the molar ratio from 2:1 to 1:8 only increases the yield to 42% over the yield when no diluent was used. Results on other catalysts and other active adsorbents of H₂O are being reported. M. A. Gougal.

5(4),5(3)
AUTHOR:

Levitskiy, I. I.

SOV/62-59-3-7/37

TITLE:

Some Regularities in the Yield of Olefins During Catalytic Aromatization of Paraffin Hydrocarbons (O zakonomernostyakh v vykhodakh olefinov pri kataliticheskoy aromatizatsii parafinovykh uglevodorodov)

PERIODICAL:

Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1959, Nr 3, pp 425-432 (USSR)

ABSTRACT:

On the basis of the data given in reference 7 the equilibrium constants of the dehydrogenation of n-alkanes and the corresponding yields of olefins were calculated (Table 1). It may be seen from them that the values of the equilibrium constants considerably increase on the transition of butenes to the corresponding pentenes, but less on the transition of pentenes to hexenes. It is believed that the values of the equilibrium constants of the corresponding cis- and trans-hexenes will less differ from those of cis- and trans-heptenes. For this reason it was assumed in approximate calculations that the equilibrium constants of the dehydrogenation of hexane and heptane to the corresponding hexenes and heptenes are the same. On the basis of experimental data obtained by

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Some Regularities in the Yield of Olefins During
Catalytic Aromatization of Paraffin Hydrocarbons

SOV/62-59-3-7/37

various authors by the catalytic aromatization of n-heptane (Refs 8,9) the experimental values of the ratio

$\frac{P_{C_7H_{14}} P_{H_2}}{P_{C_7H_{16}}}$ were compared with the equilibrium constants.

From these data the yield of unchanged heptane and reaction products in mol% of the heptane transmitted and the ratio of partial pressure were computed (Table 2). It may be seen from this comparison that the degree of dehydrogenation of heptane to heptene is such a considerable one that the yield of the latter is not only determined by the rate of direct reaction but also by the rate of counter-reaction. The regularities known from publications in the yield of olefins during the catalytic aromatization of paraffin hydrocarbons may be derived from the thermodynamic calculations of the equilibrium yields of the olefins. These regularities may thus be due to the dependence of the olefin yield both on direct and counter reaction. The modern concepts of the mechanism

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Some Regularities in the Yield of Olefins During
Catalytic Aromatization of Paraffin Hydrocarbons

SOV/62-59-3-7/37

of catalytic aromatization of paraffin hydrocarbons were developed without considering the dependence of the yield on the rate of counterreaction (hydrogenation of olefins). For this reason these concepts ought to be checked. There are 4 tables and 15 references, 8 of which are Soviet.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry imeni N. D. Zelinskiy of the Academy of Sciences, USSR)

SUBMITTED: July 2, 1957

Card 3/3

5(4)

AUTHORS:

Gonikberg, M. G., Levitskiy, I. I., Kazanskiy, B. A.

SOV/62-59-4-7/42

TITLE:

Investigation of the Influence of the Hydrogen Pressure on the Rate of the Heterogeneous Catalytic Isomerization of Cyclohexane (Issledovaniye vliyaniya davleniya vodoroda na skorost' geterogenno-kataliticheskoy izomerizatsii tsiklogeksana). Communication 1. Kinetics of the Isomerization of Cyclohexane Over a Tungsten Sulfide Catalyst (Soobshcheniye 1. Kinetika izomerizatsii tsiklogeksana na vol'fram-sul'fidnom katalizatore)

PERIODICAL:

Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1959, Nr 4, pp 611-616 (USSR)

ABSTRACT:

In the present work the isomerization of cyclohexane and methyl cyclopentane on the industrial WS_2 catalyst under hydrogen pressure has been investigated. The first series of experiments was conducted at a degree of dilution of 19-24 $\left(\delta = \frac{H_2}{C_6H_{12}} \right)$ and at temperatures of 320° , 340° , 370° , 400° , and 430° (Table 1). This shows that the isomerization at 320° and 340° becomes weaker

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SOV/62-59-4-7/42

Investigation of the Influence of the Hydrogen Pressure on the Rate of the Heterogeneous Catalytic Isomerization of Cyclohexane. Communication 1. Kinetics of the Isomerization of Cyclohexane Over a Tungsten Sulfide Catalyst

when the total pressure is increased from 50 to 250 atmospheres. At 370° the yield of products changed only slightly. At 400° and 430° the yields increased strongly. The selectivity of the process showed only a small change with temperature but decreased upon an increase in pressure. To clarify the observed effect another series of experiments was conducted in which the action of the hydrogen and cyclohexane partial pressures on the conversion of cyclohexane was observed. Results obtained during experiments carried out at 430° and 340° with constant contact time, partial pressure, and cyclohexane feed rate but with different hydrogen partial pressures are given in table 2. It is seen that the increase in hydrogen partial pressure has only a small influence on the intensity of isomerization at 430°, whereas this intensity is strongly reduced at 340°. It has been found that the kinetic order of the reaction with cyclohexane in the range investigated equals 0.4. Table 3 gives the results of the series of experiments conducted with cyclohexane at 340° and constant hydrogen pressure. It has been found that the rate con-

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SOV/62-59-4-7/42
Investigation of the Influence of the Hydrogen Pressure on the Rate of the
Heterogeneous Catalytic Isomerization of Cyclohexane. Communication 1. Kinetics
of the Isomerization of Cyclohexane Over a Tungsten Sulfide Catalyst

stant of the reaction at 430° does not depend on the hydrogen partial pressure. The intensification of the isomerization observed at this temperature upon an increase in total pressure is due to the longer contact time. It has been found that the logarithm of the rate constant of the reaction at 340° decreases linearly upon an increase in hydrogen partial pressure. There are 2 figures, 3 tables, and 4 references, 3 of which are Soviet.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry imeni N. D. Zelinskiy of the Academy of Sciences, USSR)

SUBMITTED: July 2, 1957

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S/062/60/000/006/016/025/XX
B020/B060

AUTHORS: Levitskiy, I. I., Gonikberg, M. G.

TITLE: Study of the Effect of Hydrogen Pressure on the Rate of Heterogeneous Catalytic Isomerization of Cyclohexane. Communication 2. Dependence of the Cyclohexane Isomerization Rate on Partial Hydrogen Pressure, Temperature, and WS₂ Grain Size

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk. 1960, No. 6, pp. 996-1000

TEXT: The authors' previous paper had brought the results of a study of isomerization of cyclohexane to methyl cyclopentane in the presence of WS₂ in a continuous system under hydrogen pressure. These results showed the effect of hydrogen pressure on the isomerization rate of cyclohexane to be dependent on temperature. Variations in the character of the dependence of the isomerization rate constant of cyclohexane on the partial hydrogen pressure at temperatures from 320° to 430°C may be caused by the passage of reaction from the kinetic into the diffusion region, and this

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Study of the Effect of Hydrogen Pressure
 on the Rate of Heterogeneous Catalytic
 Isomerization of Cyclohexane. Communication 2.
 Dependence of the Cyclohexane Isomerization
 Rate on Partial Hydrogen Pressure, Temperature,
 and WS_2 Grain Size

S/062/60/000/006/016/025/XX
 B020/B060

is the problem studied in the article under consideration. The said passage can be established from variations of the apparent activation energy with temperature, and experiments were made to this effect at 320° , 340° , 380° , 410° , and $430^\circ C$, for different partial hydrogen pressures (Table 1). Logarithms ($\log k_{pH_2}$) of the rate constants are given as a function of the hydrogen partial pressures (Fig. 1). The dependence of the logarithm of the reaction rate constant on temperature is shown in Fig. 2. The values of $\log k_0$ from equation (1) $\log k_{pH_2} = \log k_0 - cp_{H_2}$ where k_0 is the value of the reaction rate constant extrapolated for $p_{H_2} = 0$, and c is a temperature-dependent empirical constant as well as the values for d from equation (2) of the reaction rate

$\omega = k_0 p_{C_6H_{12}}^{c.4} e^{-dp_{H_2}}$ are given in Table 2. Data on the effect of the

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Study of the Effect of Hydrogen Pressure
on the Rate of Heterogeneous Catalytic
Isomerization of Cyclohexane. Communication 2.
Dependence of the Cyclohexane-Isomerization
Rate on Partial Hydrogen Pressure, Temperature,
and WS₂ Grain Size

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B020/B060

catalyst grain size on cyclohexane isomerization at 340° and 50 at., are indicated in Table 3. Constants a and b from the empirical equation (3)

$k_{pH_2} = a + b \cdot p_{H_2}^{-0.5}$ are given in Table 4. Results obtained show that the

reaction in the temperature range 320° to 390° takes place in the empirical region, and above 380° passes over into the diffusion region. The apparent activation energy in the kinetic region amounts to about 30 kcal/mole. The retardation of cyclohexane isomerization with increasing partial hydrogen pressure is not due to diffusion factors but is characteristic of the kinetic region of the reaction course. Ye. A. Udal'tsova, laboratory assistant, and Yu. I. Ryzhov, mechanic, took part in the investigation. There are 3 figures, 4 tables, and 2 Soviet references.

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Study of the Effect of Hydrogen Pressure
on the Rate of Heterogeneous Catalytic
Isomerization of Cyclohexane. Communication 2.
Dependence of the Cyclohexane Isomerization
Rate on Partial Hydrogen Pressure, Temperature
and WS₂ Grain Size

S/062/60/000/006/016/025/XX
B020/B060

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii
nauk SSSR (Institute of Organic Chemistry imeni N. D.
Zelinskiy of the Academy of Sciences USSR)

SUBMITTED: December 22, 1958

Card 4/4

S/062/60/000/007/009/017/XX
B004/B064

AUTHORS: Gonikberg, M. G., and Levitskiy, I. I.

TITLE: Study of the Influence of Hydrogen Pressure on the Rate of the Heterogeneous-catalytic Isomerization of Cyclohexane. Communication 3. Analysis of the Reasons for the Inhibition of Cyclohexane Isomerization When Increasing the Hydrogen Pressure

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1960, No. 7, pp. 1170 - 1177

TEXT: The study of the isomerization of cyclohexane to methyl cyclopentane in the presence of WS_2 (Refs. 1,2) resulted in a considerable reduction of the rate constant when increasing the partial pressure of H_2 from 50 to 250 atm. This effect became smaller when the temperature was increased from 320° to $380^\circ C$. The authors aimed at finding the reasons for this effect and

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Study of the Influence of Hydrogen
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of Cyclohexane. Communication 3. Analysis of the Reasons for the
Inhibition of Cyclohexane Isomerization When Increasing the
Hydrogen Pressure

S/062/60/000/007/009/0:7/XX
B004/B064

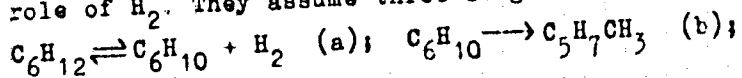
made three assumptions for this purpose: 1) The adsorption equilibrium of cyclohexane is shifted under the action of the hydrostatic pressure. 2) Cyclohexane adsorption is reduced by covering the surface of the catalyst with adsorbed H_2 . 3) Hydrogen exerts a specific influence upon the isomerization process. In the course of four test series at $340^\circ C$ with a hydrogen - nitrogen mixture or pure hydrogen and pressures between 50 and 200 atm, it was found that at constant partial pressure of hydrogen, the rate of isomerization is independent of the total pressure. This, assumption 1) was disproved. The study of adsorption as a function of temperature and pressure showed the following result: there is no basic difference between the adsorption of H_2 and of N_2 between 300° and $400^\circ C$ and 10 - 100 atm. Thus, assumption 2) became improbable.

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Study of the Influence of Hydrogen Pressure on the Rate of the Heterogeneous-catalytic Isomerization of Cyclohexane. Communication 3. Analysis of the Reasons for the Inhibition of Cyclohexane Isomerization When Increasing the Hydrogen Pressure

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B004/B064

Therefore, the authors discussed the third assumption of a specific role of H₂. They assume three stages of the process:



$C_5H_7CH_3 + H_2 \rightleftharpoons C_5H_9CH_3$ (c). On the assumption of an equilibrium in the stage (a) and an activating action of the adsorbed hydrogen, they arrive at the equation

$$w = kKf(\alpha + \beta/P_{H_2}^{0.5})^{0.5} P_{C_6H_{12}}$$

which gives a good representation of the experimental data. w denotes the reaction rate, k the rate constant of the stage (b), K the

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Study of the Influence of Hydrogen Pressure on the Rate of the Heterogeneous-catalytic Isomerization of Cyclohexane. Communication 3. Analysis of the Reasons for the Inhibition of Cyclohexane Isomerization When Increasing the Hydrogen Pressure

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B004/B064

equilibrium constant of the stage (a), f , a proportionality coefficient α and β are empirical coefficients. The ratio α/β could be determined only approximatively. It was about 0.1 at 300°C, and 0.2 at 400°C. The authors mention L. R. Krichevskiy, R. S. Kal'varskaya, M. I. Temkin, N. D. Zelinskiy, M. B. Turova-Polyak, and R. D. Obolentsev. The laboratory assistant Ye. A. Udal'tsova and the mechanic Yu. I. Ryzhov took part in the work. There are 2 figures, 1 table, and 18 references: 12 Soviet, 5 US, and 1 French.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR
(Institute of Organic Chemistry imeni N. D. Zelinskiy of the Academy of Sciences USSR)

SUBMITTED: December 22, 1958

Card 4/4

A. W. COO

(T-3)
SOV/70-20-1-10/71

AUTHORS:

Belinson, A. A.; Marquardt, G. M.; Sorenson, R. D.;
Lorenzoni, L. K.; Levitsky, I. I.

TITLES:

Catalytic Denitrogenation of α -Ethylchlorobenzene

PERIODICAL:

Chemical Abstracts, 1970, Vol. 70, No. 1, pp. 211-213
(1970)

REMARKS:

Catalytic denitrogenation of α -ethylchlorobenzene at 400-
600°C over copper-chromium oxide, copper-chromium-iron
and copper-iron nitrates forms 2-ethylchlorobenzene
in accordance with the multiplet theory. Catalytic denitrogenation
of the ethyl group can be represented by the following:

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LEVITSKY, I. I.

Card 2/3

where the reacting atoms, in contact with the catalyst,
are within the square. The reaction was conducted in a
flow system (at the space velocity of 0.15-0.18 hr⁻¹) at
the dynamic pressure in presence of water vapor and air.
The product was collected in absence of these elements. The
catalyst was analyzed by the receiver provided with a con-
densation trap for bromination of the aromatic ring. A
correction for bromination of the aromatic ring was made
in the Orsat apparatus. Some α -ethylchlorobenzene was analyzed
15.0-15.50 (741.5 mm); n_D^{20} 1.5100; d_4^{20} 0.9290 (lit
submitted by Ya. L. Gol'dfarb). Best results were ob-
tained by denitrogenation at 500°C. The results were con-
firmed as catalysis. Under these conditions, the denitrogenation
was not accompanied by side reactions, such as breaking off of the side chain (only 0.1-0.1%
of unreacted hydrocarbon-catalyzed hydrocarbons were
not determined) were found in the gaseous products, and
yielded 5000% of vinylchlorobenzene. Addition of CO₂

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ASSOCIATION:

M. D. Kalitvskiy Institute of Organic Chemistry (Institut
Organicheskoy Khimii Imeni N. D. Zelinskogo)

DATE:

December 27, 1963

S/020/61/137/003/020/030
B103/B208

AUTHORS: Levitskiy, I. I. and Gonikberg, M. G.

TITLE: Effect of oxygen and water on hydrogenation and isomerization activity of the tungsten - sulfide catalyst

PERIODICAL: Doklady Akademii nauk SSSR, v. 137, no. 3, 1961, 609-611

TEXT: The objective of the present study is to explain the influence of a) oxygen- and b) water traces upon the activity of the industrial WS_2 catalyst. For this purpose, the authors have studied (Ref. 2: Izv. AN SSSR, OKhN, 1959, 611) 1) the hydrogenation of benzene, and 2) the isomerization of cyclohexane under hydrogen pressure by applying the continuous method. They used commercial electrolytic H_2 with an O_2 content up to 0.1% in unpurified state, or freed from O_2 by means of granulated copper. All experiments were conducted on one single catalyst sample (28 g, 12 ml, grain size 3-5 mm, mixed with 60 ml porcelain scrap of equal size). Ad 1): Hydrogenation temperature was $310^{\circ}C$ (according to

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Effect of oxygen and water on ...

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ГОСТ (GOST) no. 3022-45), pressure 250 atm. Ad 2): The temperature was 370°C, the pressure 150 atm. Tables 1 (benzene hydrogenation) and 2 (cyclohexane isomerization) present the results. The authors conclude from them that: A) the catalyst is considerably activated by using purified H₂ in case 1); B) the effect of purified H₂ is reverse in case 2), although not to such a high extent as in case 1); C) the above effect is reversible in both cases if purified and unpurified H₂ are used alternately. Further experiments of the authors permit the assumption that the hydrogenation activity of the catalyst is not suppressed by the water formed from O₂, but by O₂ itself. Water, on the other hand, induced no change of the isomerization intensity of cyclohexane. The authors explain the results in case 1) as follows: 1) The water possibly blocks the catalytic surface, in spite of its negligible concentration in H₂. In this case, the adsorption of water had to be much greater than that of benzene; 2) the semiconductor properties of WS₂ are changed by water which is known to have either acceptor or donor properties,

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Effect of oxygen and water on ...

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depending on the kind of adsorbent. The authors believe that the concentration of free electrons on the catalyst surface is reduced by adsorption of water, and the hydrogenation of benzene is thus retarded; 3) the inhibitory effect of O_2 is hardly due to surface blocking. The semiconductor properties of the catalyst are more likely to be changed by O_2 which is known to be an acceptor of free electrons on various semiconductors; 4) H_2 with traces of water (or O_2 which are transformed to water) accelerates the reactions proceeding according to the ionic mechanism. The increasing activity of isomerization in case 2) is thus explicable. The authors conclude from their results that reactions 1) and 2) may be "regulated" with respect to the selectivity of the catalyst. They assume that this "regulation" may also be effective in the hydrogenation of other compounds on other sulfide catalysts. Ye. A. Udal'tsova and Yu. I. Ryzhov took part in this study. A paper by I. A. Makarov is mentioned. There are 2 tables and 6 Soviet-bloc references.

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Effect of oxygen and water on ...

S/020/61/137/003/020/030
B103/B208

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo
Akademii nauk SSSR (Institute of Organic Chemistry imeni
N. D. Zelinskiy of the Academy of Sciences USSR)

PRESENTED: November 11, 1960, by B. A. Kazanskiy, Academician

SUBMITTED: November 4, 1960

Card 4/6

LEVITSKIY, I.I.; UDAL'TSOVA, Ye.A.; GONIKBERG, M.G.

Production of pure cyclohexane by the catalytic hydrogenation of benzene containing thiophene. Zhur.prikl.khim. 35 no.1:204-206 Ja '62. (MIRA 15:1)

1. Institut organicheskoy khimii imeni N.D.Zelinskogo AN SSSR.
(Cyclohexane) (Benzene) (Hydrogenation)

LEVITSKIY, I.I.; GONIKBERG, M.G.; MINACHEV, Kh.M.; KONDRAT'YEV, D.A.

Water promoted platinum-alumina catalyst. Report No.1:
Hydrogenation of benzene. Izv.AN SSSR.Otd.khim.nauk no.7:1169-
1174 JI '62. (MIRA 15:7)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.
(Benzene) (Hydrogenation) (Catalysts)

LEVITSKIY, I.I.; GONIKBERG, M.G.; MINACHEV, Kh.M.; KONDRATIYEV, D.A.

Water-promoted alumina-platinum catalysts. Report No.2:
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no.5:798-801 My '63. (MIRA 16:8)

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(Cyclohexane) (Dehydrogenation) (Platinum catalysts)

LEVITSKIY, I.I.; GONIKBERG, M.G.; MINACHEV, Kh.M.; KONDRAT'YEV, D.A.

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with various metal content. Izv. AN SSSR. Ser. khim. no.11:
2065-2066 N '63. (MIRA 17:1)

1. Institut organicheskoy khimii imeni N.D. Zelinskogo AN SSSR.

"APPROVED FOR RELEASE: 07/12/2001

CIA-RDP86-00513R000929630002-0

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CIA-RDP86-00513R000929630002-0"

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Tekst. prom. 17 no.7:48-50 J1 '57. (MLRA 10:9)
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VLADIMIROV, Boris Mikhaylovich, doktor tekhn.nauk; LEVITSKIY, I.K., inzh.,
retsensent; SVIATOSLAVOV, N.I., kand.tekhn.nauk, retsensent;
KOPHELVICH, Ye.I., red.; KOGAN, V.V., tekhn.red.

[Analysis of operation processes on opener-picker machines]
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gata. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po legkoi pro-
myshl., 1959. 175 p. (MIRA 12:10)
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Mechanical drive for the RP-5 presser. Obm. tekhn. opyt. [MLP]
no.4:18-21 '56. (MIRA 11:10)
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zav.; tekhn. tekst. prom. no. 3:70-74 '58. (MIRA 11:7)

1. Kostromskiy tekstil'nyy institut.
(Textile machinery)
(Flax)

SUSLOV, Nikolay Nikolayevich; LEVITSKIY, Igor' Nikolayevich; MAKEYEVA,
V.S., red.; SEGAL', N.M., red.; MEDVEDEV, L.Ya., tekhn.red.

[Equipment assembly and repair in enterprises for the primary
processing of bast fibers] Montash i remont oborudovaniia
zavodov pervichnoi obrabotki lubianykh volokon. Moskva, Gos.
nauchno-tekhn.izd-vo lit-ry po legkoi promyshl., 1959. ^{287 p.} (MIRA 13:4)

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1. Kostromskoy tekstil'noy institut.
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(Steam engines)

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C.H.

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Dependence of the amount of adsorbed cation on the weight of the adsorbent. A. T. Davydov and I. Ya. Levitskiy (A. M. Gor'kiy State Univ., Kharkov). *Zhur. Obshch. Khim. (J. Gen. Chem.)* 20, 1778-9(1930). — The exchange-adsorption isotherm equation of Capon (C.A. 28, 4310) calls for a linear relation between $y = g/T$ and $x = (F/vo)^{1/n} / [C_0 - (F/vo)^{1/n}]^{1/n}$, where $g = wt. of adsorbent in g.$, $T = amt. adsorbed$, $v = vol. of soln./g. adsorbent$, $C_0 = initial concn.$, n and $s = valencies of the ions exchanged.$ The validity of this relation is confirmed by exper. data for the exchange of $Ca^{++} + Na^+$, $Ca^{++} + K^+$, $Br^{--} + Na^+$, $Br^{--} + K^+$, $Be^{++} + Na^+$, and $Be^{++} + K^+$ on glauconite.

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Dependence of the amount of cation adsorbed on the
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LEVITSKIY, I. Ya.

Polycationic exchange adsorption. I. Investigation of exchange of calcium, magnesium, and barium cations by using solutions saturated with their mixtures for Na⁺ and K⁺ as affected by the concentration of the displacing cations. A. I. Derzhev and I. Ya. Levitskiy. *Trudy Nauch.-Issled. Inst. Khim. Akad. Nauk SSSR*, 10, 221-31(1957); *cf. C.A.B. 48, 6771a; preceding paper, ibid., The exchange of Ca⁺⁺,*

Mg⁺⁺, and Ba⁺⁺ for Na⁺ and K⁺ was studied on Wofatit-P. The Wofatit was satd. with a mixt. of 0.5M CaCl₂ + MgCl₂ or MgCl₂ + BaCl₂, washed free of Cl⁻, dried, and screened through a 0.2-mm. sieve. 6.5g. samples of it were then covered with 100 ml. of K⁺ or Na⁺ soln. Equil. concns. were then detd. by the usual methods. The results were treated by the Gapon equation, the Fageler empirical equation, and the modified Nikol'skii equation. All equations were found applicable to the systems studied. In almost all cases a_n was equal to the sum of the max. exchange capacity obtained for each individual cation. In all cases Mg was desorbed to a smaller degree than were Ca and Ba. II. Investigation of the exchange of Ca⁺⁺, Mg⁺⁺, and Ba⁺⁺ cations from a mechanical mixture and an adsorbent saturated with each of these ions separately for Na⁺ and K⁺ as affected by the concentration of the displacing ions. *Ibid.*, 233-40.—Portions of Wofatit-P were satd. separately with Ca⁺⁺, Mg⁺⁺, or Ba⁺⁺ and equal quantities of each 2 were mixed together. The results were analogous to those previously quoted, but the following order of desorption was obtained: Ca > Mg > Ba. Through *Referat. Zhur., Khim.* 1954, Nos. 30715 and 37510.

M. Hoesch

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LEVITSKIY, I. Ya.

The exchange of iron and aluminum ions on a synthetic adsorbent as affected by the pH of the displacing cation solution. A. T. Davydov and I. Ya. Levitskiy. *Ukrain. Khim. Zhur.* 19, 331-6 (1953); *Russ. Zhur. Khim.* 1954, No. 10304. The exchange adsorption of Fe^{+++} and Al^{+++} from aq. solns. by Wofatit in H^+ and K^+ form was studied under static conditions at various pH values. Wofatit was satd. with Fe and Al separately or combined, 2% of 0.5N chloride soln. being used per 100 g. of the adsorbent. Five g. of Wofatit washed free of Cl ions and dried at 60° was covered with 100 ml. of 0.1N KCl (pH 1.97-10.90) or $MgCl_2$ (pH 1.01-5.96). The pH was controlled by adding HCl and KOH to the KCl soln. and HCl to the $MgCl_2$ soln. In equil. solns. the pH was lowered appreciably. Al and Fe in samples of the equil. solns. were detd. by usual methods. The adsorption capacity for Fe was 103.6 and for Al 64.3 mg-equiv./100 g. The desorption of Fe was 40-60 and of Al 50-70%. The adsorptions on Wofatit in the H^+ and K^+ forms were practically identical. The displacement of Al and Fe dropped with increasing pH of the KCl and $MgCl_2$ solns. The displacement of Fe by K and Mg was independent of the presence of Al on the adsorbent. In all cases of interaction between the adsorbent and $FeCl_3$ soln., a reduction of Fe^{+++} amounting up to 70% was observed.

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Khar'kov State Univ, in A.M. Gor'kuy

LEVITSKIĬ, I. Ya.

Many-cation exchange on "sulfo-carbon" and wofatite.
 A. T. Davydov and I. Ya. Levitskiĭ (State Univ. Kharkov).
 Kolloid. Zhur. 16, 13-16 (1954). — When an ion exchanger
 contg. cations B, C, and D is equilibrated with a soln. of a
 cation A, the equation $F_1^m/F_2^n = Kc_1^m/c_2^n$ holds if these
 cations are displaced independently from each other;
 F_1 , F_2 , and F_3 are the amts. remaining in the exchanger,
 c_1 , c_2 , and c_3 are the equil. concns., and $1/m$, $1/n$, and $1/s$
 are the valencies of B, C, and D, resp. This equation was
 confirmed by equilibrating "sulfo-carbon" contg. NH₄, Ca,
 and Fe with KCl, MgCl₂, or AlCl₃; in these expts. the
 const. K was 0.00245, 0.00230, and 0.00128, resp. When
 "wofatites" contg. NH₄, Ca, and Fe were treated with KCl,
 MgCl₂, and AlCl₃, resp., K was 0.00130, 0.00110, and
 0.00081, resp. In all instances, pH of the equil. soln. was
 less (e.g., 2.5 instead of 6) than that of the initial soln.
 The exchange capacities of the adsorbents for all ions in-
 volved were detd. J. J. Bikerman

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LEVITSKIY, K.A.

LEVITSKIY, K.A., inshener.

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