MINACHEV, Kh.M.; KONDRAT'YEV, D.A.

Effect of pressure, temperature, and thiphene concentration on the depth of dehydrogenation and isomerization of cyclohexane in the presence of platinum catalysts. Izv.AN SSSR.Otd.khim.nauk no.5: 877-882 My '61. (MIRA 14:5)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.
(Cyclohexane) (Dehydrogenation)

MINACHEV, Kh.M.; MARKOV, M.A.; KHODAKOV, Yu.S.

Effect of gamma rays on the catalytic activity of platinized aluminosilicate. Izv. AN SSSR. Otd.khim.nauk no.7:1227-1230 Jl '61. (MIRA 14:7)

1. Institut organicheskoy khimii im. N.D. Zelinskogo AN SSSR.
(Aluminosilicates) (Catalysis) (Gamma rays)

MINACHEV, Kh.M.; RYASHENTSEVA, M.A.; PETUKHOV, V.A.

Reforming of the gasoline fraction of the Volga - Ural petroleums on a rhenium-silica catalyst treated with hydrogen sulfide. Izv. AN SSSR. Otd.khim.nauk no.7:1307-1310 Jl '61. (MIRA 14:7)

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

SHUYKIN, N.I.; MINACHEV, Kh.M.; RYASHENTSEVA, M.A.; AFANAS'YEVA, Yu.A.

Transformations of cyclohexand on a palladium humbrin catalyst under hydrogen pressure. Izv. AN SSSR. Otd.khim.nauk no.7: 1315-1319 Jl '61. (MIRA 14:7)

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

MINACHEV, Kh.M.; KHODAKOV, Yu.S.

Effect of gamma rays on the activity of platinum-containing catalysts. Izv. AN SSSR. Otd.khim.nauk no.8:1430-1432 Ag '61.
(MIRA 14:8)

1. Institut organicheskoy khimii im. N.D. Zelinskogo AN SSSR.
(Gamma rays) (Catalysis) (Platinum)

S/062/61/000/008/008/010
B117/B206

AUTHORS: Minachev, Kh. M., Markov, M. A., and Shchukina, O. K.

TITLE: Investigation of the catalytic properties of rare earths

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye khimicheskikh nauk, no. 8, 1961, 1507-1511

TEXT: The authors investigated the catalytic properties of erbium oxide and a mixed catalyst from 15 % erbium oxide and 85 % aluminum oxide. The specific surface of the catalysts used, determined according to the dynamic method by A. M. Rubinshteyn and V. A. Afanas'yev (Ref. 5: Izv. AN SSSR. Otd. khim. n., 1956, 1295) amounted to 22.5 m^2/g for Er_2O_3 and 190 m^2/g for Er_2O_3/Al_2O_3. The properties of the hydrocarbons used are listed in Table 1. The experiments were made in a continuous-flow unit at temperatures from 545°-590°C and atmospheric pressure in a hydrogen current. The volume rate of the supplied substances always amounted to 0.25 hr^{-1}. Before each experiment the catalysts were activated for 6 hr with hydrogen at 550°C. After the experiments, they were regenerated at

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500°-520°C with air, which was diluted with nitrogen to an oxygen content of 5-7 %. During the regeneration the amount of coke accumulated on the catalyst was determined. The experiments usually lasted 4 to 6 hr. The liquid catalysis products were analyzed in a gas-liquid chromatograph (Ref. 8: D. A. Kondrat'yev, M. A. Markov and Kh.M. Minachev, Zavodsk. laboratoriya 25, 1301 (1959)). The iodine number was determined according to the method by G. P. Kaufman (Ref. 9: Issledovaniye v oblasti khimii zhirov, M. - L., 1937). An adsorption chromatograph with thermal-conductivity detector was used for the analysis of gaseous catalysis products. The experiments showed that the yield of catalysis products during the conversion of cyclohexane on Er_2O_3/Al_2O_3 drops from 80 % to 59 % at a temperature increase from 545° to 590°C. Simultaneously the yield of gaseous products increases from 14.5 % to 38.1 %, and that of coke from 0.5 % to 1.2 %. During the conversion of cyclohexane on pure Er_2O_3, the yield of liquid catalysates amounted to 88 % at 545°C and 78.1 % at 590°C. The yield of gaseous products increased from 8.5 % to 15.9 % at suitable temperatures. The amount of coke accumulated on the catalyst was about equal in both cases. During the conversion on the other two hydrocarbons, the yield of liquid catalysates on pure Er_2O_3 was much higher than on Er_2O_3/Al_2O_3. However, due to the lower stability of n-heptane and ethyl cyclopentane it was not so big as for cyclohexane. Pure Er_2O_3 thus has a much weaker cracking effect than Er_2O_3/Al_2O_3. The analysis of gaseous catalysis products showed that at any rate the gas obtained on Er_2O_3/Al_2O_3 is richer in hydrocarbons than that obtained on Er_2O_3. During the conversion of cyclohexane and n-heptane, the amount of saturated and unsaturated hydrocarbon is about equal. In the catalysis of ethyl cyclopentane, the gas produced on Er_2O_3/Al_2O_3 contains 19.6 % unsaturated and 10.4 % saturated hydrocarbons. The analysis of the liquid catalysis products showed that the product obtained during the conversion of cyclohexane consists of unchanged hydrocarbon, benzene, methyl cyclopentane and cyclohexane. The benzene content in the product obtained on Er_2O_3/Al_2O_3 amounted to 4.1 % at 545°C and 28.6 % at 590°C. On pure Er_2O_3, the benzene content at 545°C was 1.7 % and at 590°C 13.1 %. The

Investigation of the catalytic...

S/062/61/000/008/008/010
B117/B206

unchanged n-heptane, toluene and benzene was identified during the conversion of n-heptane. The content of aromatic hydrocarbons was about equal in the liquid catalysate in the presence of both catalysts. The yield of liquid catalysate, however, was much higher on pure Er_2O_3 than on Er_2O_3/Al_2O_3. More aromatic hydrocarbons are thus obtained on Er_2O_3 per hydrocarbon used than on Er_2O_3. The presence of benzene in the catalysis products of n-heptane points towards the demethylation process. When passing through ethyl cyclopentane, no toluene was established on Er_2O_3. In the product obtained on Er_2O_3/Al_2O_3, however, 8.3 % toluene were found. The iodine numbers of the products obtained during the conversion of cyclohexane and n-heptane on both catalysts were usually not higher than 15. The iodine number of the product obtained from cyclohexane on the mixed catalyst at 590°C, i.e. 29, was an exception. During catalysis of ethyl cyclopentane, the iodine numbers of the catalysates were 29 on Er_2O_3 and 52 on Er_2O_3/Al_2O_3. There are 3 figures, 4 tables, and 10 references: 6 Soviet-bloc and 4 non-Soviet-bloc. The three

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references to English-language publications read as follows: R. A. Briggs, H. S. Taylor, J. Amer. Chem. Soc. 63, 2500 (1941); V. I. Komarevsky, Industr. and Engng. Chem. 49, 264 (1957); g. E. Green, Nature 180, N 4580, 295 (1957).

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

SUBMITTED: December 13, 1960

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27493
S/062/61/000/009/008/014
B117/B101

5.1190 2209, 1274 1273

AUTHORS: Minachev, Kh. M., Markov, M. A., and Shchukina, O. K.

TITLE: Study of the catalytic properties of rare earth oxides. 2. Transformation of cyclohexene, 1-methyl cyclohexene-1, and n-heptene-1 on erbium oxide

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye khimicheskikh nauk, no. 9, 1961, 1665-1669

TEXT: The present work which continues the studies on the catalytic properties of rare earth oxides was undertaken with a view to investigating the behavior of several cycloalkenes on pure erbium oxide and a mixed catalyst (15% erbium oxide, 85% aluminum oxide) at 510°-515°C. Catalyst preparation, reaction conditions and method of analyzing the catalyst have been described previously (Ref. 1: Izv. AN SSSR. Otd. khim. n. 1961, no. 8). The following hydrocarbons were used: cyclohexene; 1-methyl cyclohexene-1, n-heptene-1; the yields of liquid catalysis products obtained by passing the two first-mentioned cycloalkenes over Er_2O_3 were independent of time and amounted to 80.7% and 83.4%, respectively. They contained no hydro-

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carbons of molecular weight higher than that of the initial substance. Chromatographic analysis showed that the gas formed simultaneously is made up of 90-96% hydrogen and 4-10% C_1 to C_4 hydrocarbons. Carbonization on Er_2O_3 was insignificant. The product obtained from cyclohexene over Er_2O_3 consisted of benzene (20-23%) and cyclohexene. In experiments using 1-methyl cyclohexene-1 and the same catalyst, 1-methyl cyclohexene-1, a mixture of 1-methyl cyclohexene-2 and 1-methyl cyclohexene-3, and toluene were identified in the reaction product. The results obtained in the conversion of 1-methyl cyclohexene-1 on Er_2O_3 are given in Table 2. The tests with cyclohexene and 1-methyl cyclohexene-1 over Er_2O_3/Al_2O_3 showed that the yield of liquid products increases with time. The gases analyzed consisted of 85%-93% hydrogen and 7-15% C_1 to C_4 hydrocarbons. As in the case of Er_2O_3, the gas was richer in hydrocarbons towards the beginning of the experiments. Carbonization on Er_2O_3/Al_2O_3 was higher than on pure erbium oxide. The composition of the catalyzate obtained from cyclohexene over Er_2O_3/Al_2O_3 is represented in Table 3. The composition of the

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catalyzate obtained from 1-methyl cyclohexene-1 was only partially clarified, since the chromatogram was greatly complicated by the formation of dimethyl cyclopentenes. A sample drawn within the first two hours was found to contain 63% toluene. The total yield of catalysis products in tests with n-heptene-1 over Er_2O_3 was 74.5% and over Er_2O_3/Al_2O_3 68.3%. The gas formed over Er_2O_3/Al_2O_3 contained double the quantity of hydrocarbons that was obtained over Er_2O_3. The liquid catalysis products contained 6% toluene in the case of Er_2O_3 and 8.5% in the case of Er_2O_3/Al_2O_3. The chromatogram of the product obtained over Er_2O_3/Al_2O_3 exhibited six peaks in the C_7 hydrocarbons region, apart from toluene, as compared to two peaks in the case of Er_2O_3. Er_2O_3 catalysis yielded products containing 91.8% unsaturated hydrocarbons and Er_2O_3/Al_2O_3 47.0%. In conclusion, the investigation of these two catalysts yielded the following results: They differ inasmuch as the mixed catalysts produced isomerization of the 6-membered ring to a 5-membered ring, whereas this isomeriza-

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Study of the catalytic properties ... S/062/61/000/009/008/014
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[illegible]on does not occur with pure erbium oxide. Both catalysts dehydrogenate the tested cycloalkenes to corresponding aromatic hydrocarbons and cause shifting of the double bond in the ring. There are 3 figures, 3 tables, and 5 references: 3 Soviet and 2 non-Soviet. The two references to English-language publications read as follows: F. G. Rossini, K. S. Pitzer, R. L. Arnett, R. M. Braun, G. C. Pimentd, Selected values of physical and thermodynamic properties of hydrocarbons and related compounds, Carnegi Press, 1953; E. Gil-Av, J. Herling, J. Shabtai, Chem. and chem. Ind. no. 9, 1483 (1957).

ASSOCIATION: Insitut 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 13, 1960

Card 4/6

S/062/61/000/009/009/014
B117/B101

AUTHORS: Minachev, Kh. M., Smirnov, V. S., Kondrat'vev. D. A., and Loginov, G. A.

TITLE: Effect of thiophene on the catalytic activity of industrial aluminomolybdenum catalyst

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye khimicheskikh nauk, no. 9, 1961, 1669-1672

TEXT: The activity of an aluminomolybdenum catalyst for pure hydrocarbons and hydrocarbons containing varying amounts of thiophene was studied, for the purpose of determining the deactivation rate of this catalyst and comparing the data found with data on poisoning of platinum catalysts. The sulfur content on the catalyst was determined by means of S^{35} tagged thiophene according to the method given in Ref. 3 (Kh. M. Minachev, G. V. Isagulyants, and D. A. Kondrat'yev, Izv. AN SSSR. Otd. khim. n. 1960, 902). All tests were carried out in an ordinary catalytic plant at normal pressure and in a hydrogen streat. Hydrocarbon purity was tested by gas-liquid chromatography. Cyclohexane and n-hexane, the hydrocarbons used for

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the tests, were passed thru at a volume velocity of 0.2 hr^{-1}, at a molar ratio H_2 : HC = 5 : 1 (HC denoting the hydrocarbons). The tests lasted 6 to 45 hr. Data obtained in dehydrogenation of cyclohexane at 488°C and in dehydrocyclization of n-hexane at 500°C on the same catalyst have been reported in Ref. 5 (Izv. AN SSSR. Otd. khim. n. 1961, 724) and are used for comparison in the present work. Data obtained on dehydrogenation of cyclohexane containing 1.0, 1.5, 2.0, 3.0, and 5.0% by wt. thiophene show that the aromatizing effect of the catalyst decreases rapidly during the first few hours. After this, the deactivation rate slowly decreases. The degree of catalyst deactivation increases with increasing thiophene concentration. It was found that catalyst deactivation by the products of a radical degradation of cyclohexane is a much slower process than the decrease in aromatizing activity caused by thiophene. By comparison with platinum/alumina catalyst it was seen that the curves of catalyst poisoning and the dependence of catalyst activity on the thiophene concentration possess similar characteristics for both catalysts. In a test with cyclohexane containing 1.5% S^{35}-thiophene it was observed that increasing amounts of sulfur were deposited on the catalyst in the course of the process. After 20 hr work the catalyst had accumulated 1.6% of its own weight in sulfur, that is 28.1% of the sulfur introduced into the system. The liquid portion of the catalyzate contained 7.9% sulfur and ~62.5% of the initial sulfur was liberated in the form of hydrogen sulfide. During dehydrocyclization of n-hexane containing 2.0% and 5.0% thiophene the aromatizing activity of molybdenum-alumina catalyst changes in the same manner as during dehydrogenation of cyclohexane containing thiophene. In the presence of thiophene the decrease in the yield of alkylated aromatic substances runs parallel to the decrease in benzene yield. The qualitative composition of the products obtained from cyclohexane and n-hexane in the presence of thiophene is practically the same as that of the products formed from the pure hydrocarbons under the same conditions and with the same catalyst. There are 4 figures, 2 tables, and 5 references: 4 Soviet and 1 non-Soviet. The reference to the English-language publication reads as follows: R. W. Hummer, H. S. Taylor, J. Amer. Chem. Soc., 63, 2804 (1941).

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: January 2, 1961

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27494

5.1190 2209, 1297, 1273 S/062/61/000/009/010/014
B117/B101

AUTHORS: Minachev, Kh. M., Ryashentseva, M. A., and Afanas'yeva, Yu. A.

TITLE: Catalytic properties of rhenium sulfide/alumina catalysts in dehydrogenation of cyclohexane under pressure

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye khimicheskikh nauk, no. 9, 1961, 1673-1676

TEXT: The present work continues the study of catalytic properties of rhenium sulfide/alumina catalysts. The rhenium content was 1, 5, 10, and 15% as against 20% used in previous experiments (Ref. 1: Kh. M. Minachev, M. A. Ryashentseva, Izv. AN SSSR. Otd. khim. n. 1961, 103). The catalytic properties of the four catalysts containing different amounts of rhenium were tested in dehydrogenation of cyclohexane at 500°C. The tests were carried out in a continuous plant at a hydrogen pressure of 5 atm and a more carefully controlled rate of hydrocarbon introduction than had been the case previously (Ref. 4: N. I. Shuykin, Ye. D. Tulupova, Z. P. Polyakova, Izv. AN SSSR. Otd. khim. n. 1958, 1476). Cyclohexane was introduced in a ratio of $H_2 : C_6H_{12} = 5 : 1$ at a volume velocity of 1.0 hr^{-1}.

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S/062/61/000/009/010/014
B117/B101

Catalytic properties of ...

The reaction time was 5 to 6 hr. The catalyzate was analyzed by gas-liquid chromatography. In comparison to the device used in Ref. 2 (Kh. M. Minachev, M. A. Ryashentseva, B. A. Rudenko, Izv. AN SSSR, Otd. khim. n. 1960, 185) and Ref. 5 (D. A. Kondrat'yev, M. A. Markov, Kh. M. Minachev, Zavodsk. laboratoriya, 25, 11, 1301, (1959)) the gas-liquid chromatograph used in the present study contained the following alterations: thermal conductivity detector, diatomite as sorbent, tricresyl phosphate and dioctyl phthalate as stationary phase, nitrogen as carrier gas in the combustion of hydrocarbons to hydrogen. This device enabled the separation of gaseous C_1 to C_5 hydrocarbons. The analytical accuracy attained with this modified device was ±1.2%. The gaseous products of catalysis composed of C_1 to C_4 compounds were separated on Al_2O_3 at various temperatures. H_2 and CH_4 were separated on БАУ (BAU) carbon at room temperature. The various parts of the device have been described previously (Ref. 7: T. K. Lavrovskaya, I. V. Matveyeva, Peredovoy nauchno-tekhnicheskiy i proizvodstvennyy opyt, no. 7, p. 17, tema 35, N-n-60-64/7, 1960). The rhenium content of the catalysts was determined by a newly developed photometric method. In this, the metal

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is extracted from the catalyst by a mixture of HNO_3 and H_2O_2, and not, as is the case in a similar method described in detail in Ref. 8 (M. A. Ryashentseva, Yu. A. Afanas'yeva, Zh. analit. khimii, 15, 777 (1960)) by HNO_3 alone. The properties of the products obtained from cyclohexane on the rhenium sulfide/alumina catalysts under investigation are listed in Table 2. From this it may be seen that these catalysts possess isomerizing as well as dehydrogenating properties. These properties are greatly affected by the rhenium concentration. At higher rhenium contents, both dehydrogenation of cyclohexane to benzene and its isomerization to methyl cyclopentane proceed to a higher extent. In 1% rhenium catalyst these properties are only weakly developed. It was found that rhenium sulfide/alumina catalysts are much more active in cyclohexane dehydrogenation than rhenium/alumina catalysts containing the same rhenium quantities under the same conditions of catalysis. Tests of the latter catalysts showed (Ref. 2: see above) that they only cause cyclohexane cracking. There are 2 tables and 8 references: 7 Soviet and 1 non-Soviet. The reference to the English-language publication reads as follows: G. E. Green, Nature, 180, N 4580, 295 (1957).

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Catalytic properties of ...

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ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo (Institute of Organic Chemistry imeni N. D. Zelinskiy)

SUBMITTED: January 3, 1961

Table 2. Properties of the catalysis products of cyclohexane obtained on rhenium sulfide/alumina catalysts.

Legend: (1) properties of the catalysis products; (2) rhenium content of the catalysts, %; (3) refractive index n_D^{20}; (4) density d_4^{20}; (5) composition, % by wt.; (6) ethane; (7) propane; (8) isobutane; (9) n-butane; (10) isopentane; (11) n-pentane; (12) 2,2-dimethyl butane; (13) 2-methyl pentane;

① Свойства катализатов	② Содержание рения в катализаторе, вес. %			
	1	5	10	15
③ Показатель преломления n_D^{20}	1,4300	1,4345	1,4370	1,4400
④ Удельный вес d_4^{20}	0,7800	0,7834	0,7845	0,7875
⑤ Состав, вес. %:				
⑥ этан	—	Следы	Следы	0,2
⑦ пропан	—	»	0,2	0,6
⑧ изобутан	—	0,3	0,2	0,6
⑨ н.Бутан	—	—	—	—
⑩ изопентан	—	~0,1	0,5	1,4
⑪ н.пентан	—	~0,1	0,3	0,6
⑫ 2,2-диметилбутан	—	Следы	Следы	0,2
⑬ 2-метилпентан	—	2,0	3,3	5,8

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SHUYKIN, N.I.; MINACHEV, Kh.M.; ALIYEV, V.S.; SIDORCHUK, I.I.; RYASHENTSEVA, M.A.

Reforming of the 60-140° gasoline fraction and of standard gasoline B-70 from Baku crudes on a platinum catalyst. Zhur. prikl. khim. 34 no.2:461-464 F '61. (MIRA 14:2)

(Gasoline)

S/204/62/002/001/003/007
I032/I232

AUTHORS: Ryashentseva, M. A., Minachev, Kh. M., Afanas'yeva, anb Yu., A.

TITLE: Catalytic properties of rhenium-alumina-palladium catalysts for transformations of hydrocarbons and their mixtures

PERIODICAL: Neftekhimiya, v. 2, no. 1, 1962, 37-40

TEXT: Experiments on aromatization over rhenium-alumina-palladium catalysts (1% Pd, 1% Re, 98% Al_2O_3) were carried out with several individual hydrocarbons (cyclohexane, methylcyclopentane and methylcyclohexane) and with a mixture of hydrocarbons (containing mainly *n*-hexane, *n*-heptane, methyl-cyclohexane and cyclohexane). Transformation of two benzine fractions over the same catalysts were also studied. The experiments were carried out at 480°C under 10 atm hydrogen pressure. Two types of catalyst were used, one activated in a current of hydrogen, the other one treated with hydrogen sulfide. The end products in experiments with hydrocarbons were analysed by the method of gas-liquid chromatography. It was found that the catalyst treated with hydrogen sulfide shows a higher activity than that activated in a current of hydrogen. The yield of benzene from cyclohexane and methyl-cyclopentane (over H_2S treated catalyst) was 87% and 61.2% respectively, while the yield of toluene from methyl-cyclohexane was 90%. From the experi-

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Catalytic properties of rhenium-alumina-palladium... S/204/62/002/001/003/007
I032/I232

ments with Baku benzine B–70 it is concluded that the addition of 1% rhenium to an alumina-palladium catalyst leads to a considerable stabilization of the catalyst. There is 1 figure and 2 tables.

ASSOCIATION: Institut organicheskoi khimii AN SSSR im. N. D. Zelinskogo (Institute of Organic Chemistry, AS USSR, im. N. D. Zelinskiy)

SUBMITTED: December 22, 1961

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S/204/62/002/001/004/007
I032/I232

AUTHORS: Ryashentseva, M. A., Minachev, Kh. M., Afanas'yeva, Yu. A.

TITLE: Dehydrogenation of cyclohexane in the presence of alumina-palladium catalysts containing neodymium oxide

PERIODICAL: Neftekhimiya, v. 2, no. 1, 1962, 41-43

TEXT: The effect of neodymium oxide addition on the activity and stability of alumina-palladium catalyst was investigated. The activity of the catalyst was studied for the reaction of dehydrogenation of cyclohexane at 480°C at atmospheric and elevated pressure of hydrogen. Different methods of preparation of the catalyst are described and the stabilities of these varieties of the catalyst are discussed. Catalysts containing 4.5%, 10%, 15% and 20% Nd_2O_3 were investigated. The activity of the catalyst increases with Nd_2O_3 content until a maximum activity is reached at 10% Nd_2O_3 content. A catalyst containing 10% of Nd_2O_3 on Al_2O_3 causes practically no dehydrogenation of cyclohexane, while a 1% Pd-Al_2O_3 catalyst causes only a low degree of dehydrogenation. Neodymium oxide containing catalysts cause almost no isomerisation of cyclohexane into methyl-cyclopentane. There are 2 figures and 2 tables.

ASSOCIATION: Institut organicheskoi khimii AN SSSR im. N. D. Zelinskogo. (Institute of Organic Chemistry, AS USSR, im. N. D. Zelinskiy)

SUBMITTED: September 3, 1961

Card 1/1

S/204/62/002/002/001/007
I060/I242

AUTHORS: Minachev, Kh.M., Markov, M.A., and Bogomolov, V.I.

TITLE: Conversion of cyclohexane and n alkanes on rare earth oxides

PERIODICAL: Neftekhimiya, v.2, no.2, 1962, 144-149

TEXT: This work is a continuation of the investigation of the catalytic effect of oxides of rare earth elements on dehydrogenation and dehydrocyclization of hydrocarbons. Neodymium, holmium, and yttrium oxides on activated carbon have shown a high activity in the dehydrogenation of cyclohexane and in dehydrocyclization of n alkanes. When the concentration of Nd_2O_3 in the catalyst increases from 0.5 to 5%, the output of benzene from cyclohexane at 500° grows from 19.6 to 49.4%, while higher concentrations of oxide up to 15% do not produce

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S/204/62/002/002/001/007
I060/I242

Conversion of cyclohexane...

any noticeable increase of output of benzene. The gaseous products of catalysis wer analyzed in a XT-2M (KhT-2M) unit; the liquid products were analyzed by gas-liquid chromatography. There are 4 figures and 4 tables.

ASSOCIATION: Institut organicheskoy khimii AN SSSR im. N.D. Zelinskogo (Institute of Organic Chemistry im. N.D. Zelinskiy, AS USSR)

SUBMITTED: January 25, 1961

Card 2/2

MINACHEV, Kh.M.; KONDRAT'YEV, D.A.; SLYUNYAYEV, P.I.

Effect of thiophene on an aluminum-molybdenum catalyst under conditions of cyclohexane dehydrogenation under hydrogen pressure. Izv. AN SSSR. Otd.khim.nauk no.5:806-809 My '62. (MIRA 15:6)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.
(Catalysts) (Dehydrogenation) (Cyclohexane) (Thiophene)

MINACHEV, Kh.M.; VAKK, E.G.; DMITRIYEV, R.V.

Isotopic exchange of hydrogen in hydrocarbons on rare earth oxides. Report No.1: Deuterium exchange reaction on neodymium oxide between cyclohexane and deuterium. Izv.AN SSSR.Otd.khim.nauk no.6:1086-1093 '62. (MIRA 15:8)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.
(Deuterium) (Cyclohexane) (Neodymium oxide)

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 Jl '62. (MIRA 15:7)

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

RYASHENTSEVA, M.A.; AFANAS'YEVA, Yu.A.; MINACHEV, Kh.M.

Conversions of hydrocarbons on rhenium-palladium-aluminosilicate catalysts under conditions of reforming. Neftekhimiia 3 no.1:55-59 Ja-F '63. (MIRA 16:2)

1. Institut organicheskoy khimii AN SSSR imeni Zelinskogo.
(Hydrocarbons) (Cracking process)
(Catalysts)

MINACHEV, Kh.M.; GARANIN, V.I.

Dehydrogenation of cyclohexane and hydrogenation of benzene in a fluidised bed of an alumina-palladium catalyst. Izv.AN SSSR.Otd.khim.nauk no.3:528-531 Mr '63. (MIRA 16:4)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.
(Cyclohexane) (Benzene) (Fluidization)

MINACHEV, Kh.M.; LOGINOV, G.A.

Conversions of alkyl cyclopentenes and allylcyclopentane on erbium oxide. Neftekhimiia 3 no.2:181-187 Mr-Ap '63. (MIRA 16:5)

1. Institut organicheskiy khimii AN SSSR imeni N.D.Zelinskogo.
(Cyclopentene) (Cyclopentane) (Erbium oxide)

MINACHEV, Kh. M.

"Die Katalytische Isomerisation von alkanen" with Dipl. Chem. M.A. Ryashentseva, Cand. Sci.

Report presented at Petroleum Conference, Budapest, 10-13 Apr. 62

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

Water-promoted alumina-platinum catalysts. Report No.2:
Dehydrogenation of cyclohexane. Izv.AN SSSR Otd.khim.nauk
no.5:798-801 My '63. (MIRA 16:8)

1. Institut organicheskoy khimii AN SSSR.
(Cyclohexane) (Dehydrogenation) (Platinum catalysts)

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

Effect of water on the activity of alumina-platinum catalysts 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.

KHODAKOV, Yu.S.; MINACHEV, Kh.M.

Kinetic relations of hydrogen peroxide decomposition o[illegible] γ-irradiated and nonirradiated lanthanum hydroxide. Zhur. fiz. khim. 37 no.11:2445-2450 N'63. (MIRA 17:2)

1. Institut organicheskoy khimii imeni Zelinskogo, AN SSSR.

MINACHEV, Kh. M.; ISAGULYANTS, G. V.

"Investigation of catalyst poisoning and hydrocarbons conversion mechanism in reforming process."

report submitted to 3rd Intl Cong on Catalysis, Amsterdam, 20-25 Jul 64.

MINACHEV, Kh.M.; MARKOV, M.A.; BOGOMOLOV, V.I.; ENGLINA, F.E.

Transformation of cyclic alcohols on neodymium oxide. Izv.AN SSSR. Ser.khim. no.1:13-17 Ja '64. (MIRA 17:4)

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

MINACHEV, Kh.M.; VAKK, E.G.; DMITRIYEV, R.V.; NASEDKIN, Ye.A.

Isotopic exchange of hydrogen in hydrocarbons on rare-earth oxides. Report No.2: Deuterium exchange in cyclohexane on neodymium, gadolinium, aluminum oxides, cerium dioxide, and neodymium [illegible] oxide on aluminum oxide. Izv. AN SSSR. Ser.khim. no.3:421-426 Mr '64. (MIRA 17:4)

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

DERBENTSEV, Yu.I.; MARKOV, M.A.; ISAGULYANTS, G.V.; MINACHEV, Kh.M.;
BALANDIN, A.A., akademik; Prinimala uchastiye SHCHUKINA, O.K.

Mechanism of cyclohexane dehydrogenation over holmium oxide studied with the use of radiocarbon C^{14}. Dokl. AN SSSR 155 no.1:128-131 Mr '64. (MIRA 17:4)

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

ISAGULYANTS, G.V.; RYASHENTSEVA, M.A.; DERBENTSEV, Yu.I.; MINACHEV, Kh.M.; BALANDIN, A.A.

Mechanism of cyclane isomerization on bifunctional catalysts. Izv. AN SSSR. Ser. khim. no.8:1555-1556 Ag '64. (MIRA 17:9)

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

L 14458-65 EWG(j)/EWT(m)/EPF(c)/EPR/EWP(b) Pr-4/Ps-4 BSD/AFWL/ASD(a)-5/SSD(a)/
ASD(m)-3/AS(mp)-2 JW/JD
ACCESSION NR: AP4045802 S/0062/64/000/009/1715/1717

AUTHORS: Minachev, Kh.M.; Antoshin, G.V.; Nasedkin, Ye.A.

B

TITLE: Isotopic exchange reaction of oxygen in the O_2-Nd_2O_3 and O_2-Er_2O_3 systems

SOURCE: AN SSSR. Izv. Seriya khimicheskaya, no. 9, 1964, 1715-1717

TOPIC TAGS: isotope exchange reaction, O_2-Nd_2O_3 system, O_2-Er_2O_3 system, reaction kinetics, molecular oxygen exchange, homomolecular oxygen exchange, energy of activation, x ray analysis

oxygen exchange, energy of activation, x ray analysis

ABSTRACT: The kinetics of the isotopic exchange between molecular oxygen and neodymium and erbium oxides and of the reaction $O_2^{16} + O_2^{18} = 2O^{16}O^{18}$ on the surface of these typical rare earth sesquioxides were studied. The oxygen was obtained by electrolysis of water, enrichment with O^{18} and purification; a non-equilibrium mixture of O_2^{16} and O_2^{18} was prepared by mixing gases with 7 and 37 wt.% O^{18}. The oxides were activated by heating for 6 hours at 500C under vacuum down to 10^{-5} mm Hg. Isotope exchange between molecular oxygen and the Nd and Er oxides was carried out at 250-350C under oxygen pressure of 40 mm Hg. This reaction rate did not comply to that of

Card 1/3

L 14458-65
ACCESSION NR: AP4045802

a first order reaction. Homomolecular exchange of oxygen on Nd_2O_3 and Er_2O_3 at 200-300C (oxygen pressure of 40 mm Hg) showed that with a constant O^{18} content in the gas the kinetics of the reaction could be described by a first order equation. The energies of activation for the O_2-Me_2O_3 and the isotopic exchange reactions were calculated. Increasing the temperature for conditioning the Nd_2O_3 from 500 to 700C did not affect its catalytic properties with respect to the isotopic oxygen exchange reaction: according to x-ray analysis its surface did not change; IR spectra showed the intensity of the 3450 cm^{-1} band, characteristic of the OH-group was only slightly reduced in the sample treated at the higher temperature; the energies of activation for the exchange reactions were independend of temperature. It was concluded that both exchange reactions (O_2-Me_2O_3 and $O_2^{16} + O_2^{18} = 2O^{16}O^{18}$) have a general limiting stage.

"The authors thank V.Yu. Levin for x-ray structural and IR analysis of the samples." Orig. art. has: 2 figures and 1 table.

Card 2/3

L 14458-65
ACCESSION NR: AP4045802 /

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

SUBMITTED: 03Feb64 ENCL: 00

SUB CODE: NP NR REF SOV: 003 OTHER: 000

Card 3/3

BK

S/0000/63/000/000/0125/0130

ACCESSION NR: AT4035162

AUTHOR: Minachev, Kh. M.; Markov, M. A.

TITLE: Investigation of the catalytic properties of the rare-earth elements in the transformation of hydrocarbons

SOURCE: AN SSSR. Institut geokhimii i analiticheskoy khimii. Redkozemel'ny*ye elementy* (Rare-earth elements). Moscow, Izd-vo AN SSSR, 1963, 125-130

TOPIC TAGS: rare earth, catalytic dehydrogenation, rare earth oxide, cyclohexane, n-heptane, ethylcyclopentane, methyl-cyclopentene, methylcyclohexene, n-heptene, dehydrogenation

ABSTRACT: In a series of experiments on the catalytic activity of the rare earth oxides, oxides of La, Nd, Sm, Gd, Ho, Er, Tu, Yb and Y were used as catalysts in the dehydrogenation of cyclohexane, n-heptane, ethylcyclopentane, 1-methylcyclopentene-1, 1-methylcyclohexene-1 and n-heptene-1. The dehydrogenation of cyclohexane was first investigated at 515-580C. Determination of the specific surface of the investigated oxides made it possible to compare their specific catalytic activity and specific coke-forming power during the reaction. Calculation showed that the activation energy for Nd_2O_3, Gd_2O_3 and Ho_2O_3 are close to the values of typical oxide catalysts, while for other oxides the values exceed 50 kcal/mole. Similar

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ACCESSION NR: AT4035162

results were obtained with n-heptane and cycloolefins. The isomerization of 1-methylcyclopenten-1 and 1-methylcyclohexen-1 is plotted against temperature, and the production of benzene from the latter is compared with different catalysts. Finally, the reduction of cyclohexane and n-heptane is studied over oxides of the rare-earth elements adsorbed onto activated charcoal. Such catalysts were found to be significantly more effective than the oxides alone. Orig. art. has: 7 figures and 2 tables.

ASSOCIATION: Institut geokhimii i analiticheskoy khimii AN SSSR (Institute of Geochemistry and Analytical Chemistry, AN SSSR)

SUBMITTED: 31Oct63 DATE ACQ: 30Apr64 ENCL: 00

SUB CODE: IC, OC NO REF SOV: 008 OTHER: 003

Card 2/2

ISAGULYANTS, G.V.: RYASHENTSEVA, M.A.; DERBENTSEV, Yu.I.; MINACHEV, Kh.M.;
BALANDIN, A.A.

Role of cyclohexene in the dehydrogenation and isomerization
of cyclohexane under conditions of reforming. Neftekhimiia 4
no.2:229-235 Mr-Ap'64 (MIRA 17:8)

1. Institut organicheskoy khimii AN SSSR imeni Zelinskogo.

MINACHEV, Kh.M.; GARANIN, V.I.; ISAKOV, Ya.I.

Dehydration of alcohols on synthetic zeolite of Y-structure. Izv. AN SSSR.Ser.khim. no.9:1722-1724 S '64. (MIRA 17:10)

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

EWT(m)/EPF(c)/EWP(j)/EWP(t)/EWP(b) Pc-4/Pr-4 IJP(c)

L 48581-65
JD/JG/RM

S/0195/65/006/001/0089/0094

31
39
B

ACCESSION NR: AP5006775

AUTHOR: Minachev, Kh. M.; Khodakov, Yu. S.

21

TITLE: Study of the catalytic properties of the rare earth elements in the reaction of the transformation of normal butane

7

SOURCE: Kinetika i kataliz, v. 6, no. 1, 1965, 89-94

TOPIC TAGS: rare earth element, butane, transformation, lanthanum, cerium, praseodymium, neodymium, samarium, homium, erbium, dysprosium, ytterbium, thulium, terbium

ABSTRACT: Circulation-flow and static methods were used to investigate the catalytic properties of the oxides of lanthanum, cerium, praseodymium, neodymium, samarium, holmium, erbium, dysprosium, ytterbium, thulium, and terbium in the reaction of the of normal butane at 400-550°. The catalytic properties of erbium of propylene, ethane, and ethylene. The tests

Prepared cataly both with a flow-circu in all cases we-
were conducted The kinetics of the reaction
2 of the Enclosure).

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L 48581-65

ACCESSION NR: AP5006775

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an equation of the first order. Specific rates, preexponential factors, and energies of activation were determined for all the oxides studied. It was found that the slopes of the curves for magnetic and catalytic properties differ in the rare earth oxide series. "The authors express their gratitude to V. A. Kozlovskaya for participating in the experimental work." Orig. art. has: 6 figures, 3 tables, 1 equation.

ASSOCIATION: Institut organicheskoy khimii imeni N. D. Zelinskogo AN SSSR (Institute of Organic Chemistry, AN SSSR)

SUBMITTED: 26Jul63 ENCL: 02 SUB CODE: IC, OC

NO REF SOV: 005 OTHER: 005

Card 2/4

MINACHEV, Kh.M.; ANTOSHIN, G.V.

Isotope exchange between molecular oxygen and rare-earth oxides.
Dokl. AN SSSR 161 no.1:122-124 Mr '65. (MIRA 18:3)

1. Institut organicheskoy khimii im. N.D. Zelinskogo AN SSSR.
Submitted July 30, 1964.

MINACHEV, Kh.M.; VAKK, E.G.; DMITRIYEV, R.V.; NASEDKIN, Ye.A.; FEDYUNIN, Yu.A.

Isotopic exchange of hydrogen in hydrocarbons on rare-earth oxides. Report No.3: Deuterium exchange in hydrocarbons on gadolinium oxide. Izv. AN SSSR. Ser. khim. no.4:618-625 '65. (MIRA 18:5)

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

MINACHEV, Kh.M.; KONDRAT'YEV, D.A.; SLYUNYAYEV, P.I.

Effect of thiophene on the properties of Pd-, Rh-, Ru-, and Pt-Al_2O_3 catalysts under conditions of cyclohexane dehydrogenation. Izv. AN SSSR. Ser. khim. no.6:999-1003 '65. (MIRA 18:6)

1. Institut organicheskoy khimii imeni Zelinskogo AN SSSR.

RYASHENTSEVA, M.A.; MINACHEV, Kh.M.; KALINOVSKIY, O.A.; GOL'DFARB, Ya.L.

Reduction of azomethines of the thiophene series on rhenium heptasulfide. Zhur. org. khim. 1 no.6:1104-1108 Je '65. (MIRA 18:7)

1. Institut organicheskoy khimii imeni Zelinskogo AN SSSR.

MINACHEV, Kh.M.; KONDRAT'YEV, D.A.; SLYUNYAYEV, P.I.

Effect of thiophene on the properties of alumina-platinum catalysts under conditions of dehydroisomerization of methylcyclopentane. Izv. AN SSSR. Ser. khim. no.7:1169-1174 '65. (MIRA 18:7)

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

MINACHEV, Kh.M.; MARKOV, M.A.

Dehydrogenation of cyclohexane on rare-earth oxides deposited on high-ash coals. Izv. AN SSSR. Ser. khim. no.9:1680-1682 '65.
(MIRA 18:9)

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

LEVITSKIY, I.I.; GONIKBERG, M.G.; MINACHEV, Kh.M.; BOGOMOLOV, V.I.

Change of rate and direction of hydrogenolysis of methylcyclopentane in the high-temperature hydrogen treatment of an alumina-platinum catalyst. Dokl. AN SSSR 158 no.5:1123-1126 O '64. (MIRA 17:10)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR. Predstavleno akademikom B.A.Kazanskim.

L 27278-66 EWT(m)/T WE

ACC NR: AP6016885 SOURCE CODE: UR/0204/65/005/004/0498/0500

AUTHOR: Minachev, Kh. M.; Ryashentseva, M. A.; Garanin, V. I.; Afanas'yeva, Yu. A. 39 B

ORG: Institute of Organic Chemistry im. N. D. Zelenskiy, AN SSSR (Institut organicheskoy khimii AN SSSR)

TITLE: Reforming the 71-102 fraction of Kara-Dag gasoline in the presence of a fixed and a luidized bed catalyst

SOURCE: Neftekhimiya, v. 5, no. 4, 1965, 498-500

TOPIC TAGS: gasoline, catalyst reforming, catalysis, aromatic hydrocarbon, hydrogen sulfide, rhenium, aluminum, palladium/B-70 gasoline

ABSTRACT: Rhenium-aluminum-palladium catalyst treated with hydrogen sulfide possesses a high activity under reforming conditions for the Baku gasoline B-70 as well as in the conversion of hydrocarbons with C6 composition. The present study is devoted to the investigation of the activity and stability of this catalyst in fixed and fluidized beds in the reforming of the 71-102° fraction of the Kara-Dag gasoline. As a result of reforming it is possible to increase the contents of the aromatic hydrocarbons almost fivefold. Then the stability of the catalyst in the fluidized bed is four times higher than in the fixed bed. This is apparently due to the considerably greater macro-surface of the catalyst in the case of the fluidized bed in comparison with the fixed bed catalyst and isothermal conditions of the process. Catalyst activity analyses were conducted by V. I. Bogomolov. Orig. art. has: 1 table. [JPRS

SUB CODE: 11, 07 / SUBM DATE: 23Mar64 / ORIG REF: 005

UDC: 66.092.81: 66.097.32: 665.521.2

Card 1/1 CC

KHODAKOV, Yu.S.; MINACHEV, Kh.M.; STERLIGOV, O.D.

Kinetics of the catalytic dehydrogenation of butane to butylenes. Dokl. AN SSSR 165 no.2:344-346 N '65.
(MIRA 18:11)

1. Institut organicheskoy khimii im. N.D. Zelinskogo AN SSSR.
Submitted April 12, 1965.

MINACHEV, Kh.M.; ISAKOV, Ya.I.; GARANIN, V.I.

Alkylation of aromatic hydrocarbons on synthetic zeolites.
Dokl. AN SSSR 165 no.4:831-834 D '65.
(MIRA 18:12)

1. Institut organicheskoy khimii im. N.D. Zelinskogo AN SSSR.
Submitted April 29, 1965.

MINACHEV, Kh.M.; GARANIN, V.I.; PIGUZOVA, L.I.; VITUKHINA, A.S.

Isomerization of n-hexane on the Y-structure molecular sieves containing palladium. Izv.AN SSSR. Ser.khim. no.1:129-133 '66. (MIRA 19:1)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR. Submitted August 5, 1963.

L 42091-66 EWT(m)/EWP(j) IJP(c) JWD/RM

ACC NR: AP6029026 SOURCE CODE: UR/0413/66/000/014/0026/0026

INVENTOR: Ryashentseva, M. A.; Minachev, Kh. M.; Geydysh, L. S.; Kuz'minskiy, A. S.; Angert, L. G.

42
B

ORG: none

TITLE: Preparative method for stabilizers 15 of raw and vulcanized rubber. 15 Class 12, No. 183763 [announced by Institute of Organic Chemistry im. N. D. Zelinskiy, AN SSSR (Institut organicheskoy khimii AN SSSR); Scientific Research Institute of the Rubber Industry (Nauchno-issledovatel'skiy institut rezinovoy promyshlennosti)]

SOURCE: Izobret prom obraz tov zn, no. 14, 1966, 26

TOPIC TAGS: stabilizer, ~~raw~~ natural rubber, ~~vulcanized~~ synthetic rubber, ~~hydroquinone, paraphenylene-diamine, ketone alkylation~~, vulcanization

ABSTRACT: This Author Certificate presents a method for preparing stabilizers of raw and vulcanized rubber. The method involves alkylation of the hydroquinone—p-phenylene-diamine molecular compound at 150—180C and 110—160 atm. Such ketones as acetone or 2-butanone are used as alkylation agents. Alkylation is conducted in the presence of palladium sulfide and glacial acetic acid. [BO]

SUB CODE: 11/ SUBM DATE: 14Jun65/ ATD PRESS: 5062

Card 1/1 af UDC: 547.553.1'53'023.07

BUTMAN, L.A.; KHODASHOVA, T.S.; MINACHEVA, L.Kh.; TAYUKIN, V.I.

Making the structure of crystals of potassium nitrosohydroxotetranitroruthenate more precise. Zhur.strukt. khim. 5 no. 2:250-256 Mr-Ap '64. (MIRA 17:6)

1. Institut obshchey i neorganicheskoy khimii imeni N.S. Kurnakova.

PORAY-KOSHITS, M.A.; MINACHEVA, L.Kh.

Preliminary X-ray diffraction data on the configuration of the $Nien_2(NO_2)_2$ complex. Zhur. strukt. khim. 5 no.4:642-644 Ag '64. (MIRA 18:3)

1. Institut obshchey i neorganicheskoy khimii imeni Kurnakova AN SSSR.

FREYDLINA, R.Kh.; BRAYNINA, E.M.; MINACHEVA, M.Kh.; NESMEYANOV, A.N.

Electrophilic substitution of cyclopentadienyl compounds of zirconium. Izv. AN SSSR. Ser. khim. no.8:1417-1421 Ag '64. (MIRA 17:9)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.

84872

S/079/60/030/010/008/030
B001/B075

11.1210

AUTHORS: Yur'yev, Yu. K., Zefirov, N. S., and Minacheva, M. Kh.

TITLE: Investigation of the Furan Series. VIII. Tetramethylfuran in Diene Synthesis

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol. 30, No. 10, pp. 3214-3217

TEXT: Following the papers of Refs. 1-9 on the behavior of furan and its derivatives in diene synthesis, the authors studied the behavior of tetramethylfuran in diene synthesis. On the basis of Refs. 10-11, they assumed that diene synthesis in the furan series proceeds according to the ionic mechanism. They observed a vigorous reaction of tetramethylfuran with fumaric nitrile. The principal purpose of the present work was to determine the qualitative difference between the reactivities of tetramethylfuran and furan, and to select those dienophiles which react only with the former. Thus, it was found that tetramethylfuran reacts with methyl maleic anhydride under the formation of a crystalline adduct, whereas furan, 2-methylfuran, and 2,5-dimethylfuran do not react with this dienophile. Chloro- and bromo maleic anhydrides, together with tetramethyl-

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84872

Investigation of the Furan Series. VIII. Tetramethylfuran in Diene Synthesis

S/079/60/030/010/008/030
B001/B075

furan, lead to the corresponding addition products, contrary to the non-reactive phenyl maleic anhydride. Phenyl-β-benzoyl-vinyl sulfone and phenyl-β-acetyl-vinyl sulfone also react with tetramethylfuran only. However, contrary to the former, the latter reacts with the furan itself. Thus, it is shown that there is a great difference between the reactivity of tetramethylfuran and that of furan. Attempts to react the former with dimethyl maleic anhydride, benzal malonic acid ester, acrolein, methyl isopropenyl ketone, acrylonitrile, and cinnamic acid aldehyde failed. Apparently, tetramethylfuran and furan are not so reactive as to react with dienophiles whose double bond is activated only from one side (Refs. 14-16). H. Wienhnhaus and H. Dässlep (Ref. 17) used menthofuran for the reaction with acrolein and crotonic acid aldehyde, taking this reaction for a diene synthesis. The failure of the authors' attempt to react tetramethylfuran with acrolein indicates that the data mentioned by the authors (Refs. 15, 16) are possibly incorrect. Further investigations are therefore necessary. There are 17 references: 5 Soviet, 9 US, and 3 German.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: November 20, 1959

Card 2/2

BRAYNINA, E.M.; MINACHEVA, M.Kh.; FREYDLINA, R.Kh.

Sulfenation of cyclopentadienyl zirconium compounds. Izv. AN SSSR. Otd.khim.nauk no.9:1716 S '61. (MIRA 14:9)

1. Institut elementoorganicheskikh soyedineniy AN SSSR. (Zirconium compounds)

BRAYNINA, E.M.; MINACHEVA, M.Kh.; FREYDLINA, R.Kh.; NESMEYANOV, A.N.,
akademik

Cobalt, nickel, and manganese alcoholates. Dokl.AN SSSR 138 no.3:
598-600 My '61. (MIRA 14:5)

1. Institut elementoorganicheskikh soyedineniy AN SSSR. 2. Chlen-korrespondent AN SSSR (for Freydlina).
(Alcoholates)

L 17852-65 EWT(m)/EPF(c)/EWP(j) Pc-4/Pr-4 RM
ACCESSION NR: AP4044701 S/0062/64/000/008/1417/1421

AUTHORS: Freydlina, R.Kh.; Braynina, E.M; Minacheva, M.Kh.; Nesmeyanov, A.N. 13

TITLE: Electrophilically substituted cyclopentadienylzirconium 7 compounds

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 8, 1964, 1417-1421

TOPIC TAGS: cyclopentadienylzirconium compound, organozirconium compound, monocyclopentadienylzirconium compound, dicyclopentadienylzirconium compound, sulfonation, cyclopentadienylzirconium tribisulfate

ABSTRACT: Mono- and dicyclopentadienylzirconium compounds were sulfonated; structures of the products were determined. Monocyclopentadienylzirconium triacetate and H_2SO_4 in the presence of acetic anhydride formed the binary compound $[C_5H_5Zr(OSO_3H)_3] \cdot (CH_3CO)_2O$, in which the acetic anhydride molecule could be exchanged by dimethylformamide. This binary compound, the monocyclopentadienylzirconium

Card 1/3

tribisulfate with acetic anhydride was sulfonated with SO_3 in dichlorethane to form the hydroscopic sulfocyclopentadienylzirconium tribisulfate. Dicyclopentadienylzirconium dichloride was sulfonated with H_2SO_4 in acetic anhydride to the binary cyclopentadienyl(sulfocyclopentadienyl)zirconium dibisulfate with 1 or 2 molecules of acetic anhydride: $[(C_5H_5)(C_5H_4SO_3H)Zr.(OSO_3H)_2].n(CH_3CO)_2O$, n = 1 or 2. In the compound where n = 1, the acetic anhydride was exchanged for ethanol or dimethylformamide: $[(C_5H_5)(C_5H_4SO_3H).Zr(OSO_3H)_2].C_2H_5OH$ or $[(C_5H_5)(C_5H_4SO_3H)Zr(OSO_3H)_2].(CH_3)_2CHNO$. Reaction of these dibisulfates with acetylacetone resulted in the exchange of the unsubstituted cyclopentadienyl group and one of the HSO_4 groups for acetylacetonate to form the binary diacetonylacetonate(sulfocyclopentadienyl)zirconium bisulfate with acetylacetonate: $[(C_5H_4SO_3H)(C_5H_7O_2)_2Zr(OSO_3H)].C_5H_8O_2$. It was found that the

$\angle (C_5H_4SO_3H)(C_5H_7O_2)_2Zr(OSO_3H)\_7 \cdot C_5H_8O_2$. It was found that the sulfo derivatives of cyclopentadienylzirconium compounds do not exchange the bisulfate group for chloride in excess HCl, although in the analgous acyloxy derivatives the anion exchanged readily. This is similar to the behavior of inorganic zirconium sulfates (as opposed to zirconium nitrate) where sulfate anion exchange was difficult. "We sincerely thank Ye.A. Terent'yev and M.V. Bernatsk for

Card 2/3

L 17852-65
ACCESSION NR: AP4044701 /

polarographic determination of zirconium and sulfur in the compounds we synthesized." Orig. art. has: 1 equation

ASSOCIATION: Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR (Institute of Organometallic Compounds Academy of Sciences SSSR)

SUBMITTED: 21Dec62 ENCL: 00

SUB CODE: OC, OC NR REF SOV: 007 OTHER: 011

Card 3/3

BRAYNINA, E.M.; MINACHEVA, M.Kh.; FREYDLINA, R.Kh.

Some properties of tetracyclopentadienylzirconium. Izv. AN SSSR. Ser.khim. no.10:1877-1879 '65. (MIRA 18:10)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.

[illegible]EHAGYAN, [illegible].A.

30369

Iz opyta osvoyeniya novoy tyekhniki na zavodakh tryesta Krasnodarzhirmaslo. Pishch. prom-st' SSSR, vyp. 13, 1949, s. 77-79

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Use of "eskapon" insulation in electric traction motors. Vest. elektroprom. 32 no.9:42-45 S '61. (MIRA 14:8)
(Electric railway motors) (Electric insulators and insulation)

MINAKHINA, V. S.

"Certain Indices of the Condition of the Cardiovascular System and the Permeability of Blood-Carrying Capillaries in Erysipelas Patients." Sub 24 Dec 51, First Moscow Order of the Lenin Medical Inst.

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(Navigation--Tables) (Winds)

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[Calculating machines in accounting, planning and administration in railroad transportation] Vychislitel'naia tekhnika v uchete, planirovanii i upravlenii na zheleznodorozhnom transporte. [By] A.N.Vinogradov i dr. Moskva, Transzheldorizdat, 1963. 407 p. (MIRA 17:2)

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MINAKOV, A.; YAKOVLEV, M.

Results of mass training of miners in allied professions. Mast.ugl.
5 no.9:18 S '55. (MLRA 9:10)
(Mining engineering--Study and teaching)

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Improved wage planning in mines. Ugol' 32 no.4:35-37 Ap '57.
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1. Trest Khakassugol'.
(Krasnoyarsk territory--Coal mines and mining)

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For provitable mine operations. Ugol' 36 no.10:44-47 O '61.
(MIRA 14:12)

1. Trest Khakassugol'.
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Minakov, A. G. and Engver, Ye. A. - "Reverberatory furnaces for fusion of flux," (Taken from the working experience of the 'Avtosteklo' plant), Trudy po avtomat. svarke pod flyusom (In-t elektrosvarki im. Patona), Symposium 4, 1949, p. 56-62, with a digram

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1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

7

C

Stability of refractories toward high-melting glass in a tank. M. D. TAMARIN AND A. G. MINAKOV. *Ogneupory*, 15 [10] 466-71 (1950).—The upper row in a periodic tank making high-melting glass was changed to electrocast mullite blocks, interspersed with thermitocorundum, high-alumina, kaolin, and electrocast quartz blocks. The nature of the destruction was studied after a 50-day run. Electrocast mullite proved the least suitable in regard to stability and flaws in the glass. Thermitocorundum and high-alumina refractories showed sufficient resistance but, because of the cavernous destruction of their surface, additional tests should be made to determine flaws in the glass. Kaolin blocks showed high resistance and dissolved uniformly in the melt; they are, to all appearances, satisfactory. Electrocast quartz showed high resistance both in these tests and also in a tank lined entirely with it; glass quality was also high. After 4 months, a tank lined with electrocast quartz was still in satisfactory condition for use. 8 photographs.

B.Z.K.

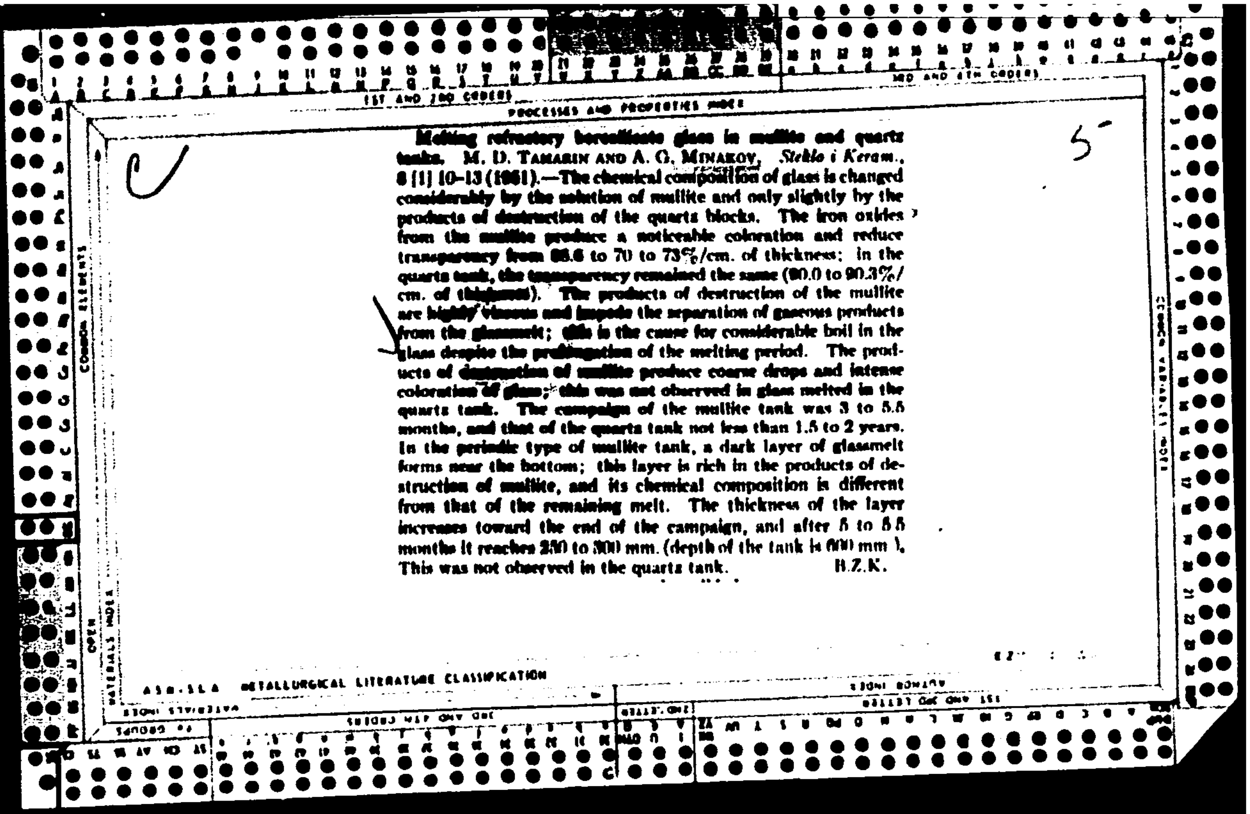
COMMON ELEMENTS

MATERIALS INDEX

ASO-SLA METALLURGICAL LITERATURE CLASSIFICATION

CA

Decreasing the concentration of phosphorus in high-manganese fluxes during fusion in gas furnaces. M. M. Timofeev and A. G. Min[illegible]. *Avtogennoe Delo* 21, No. 6, 23-4(1950).—P concn. was decreased from 0.15% to 0.09% by treatment in a reverberatory furnace. M. S.



5

Melting refractory borosilicate glass in mullite and quartz tanks. M. D. TAMARIN AND A. O. MINAKOV. *Steklo i Keram.*, 8 [1] 10-13 (1961).—The chemical composition of glass is changed considerably by the solution of mullite and only slightly by the products of destruction of the quartz blocks. The iron oxides from the mullite produce a noticeable coloration and reduce transparency from 86.6 to 70 to 73%/cm. of thickness; in the quartz tank, the transparency remained the same (90.0 to 90.3%/cm. of thickness). The products of destruction of the mullite are highly viscous and impede the separation of gaseous products from the glassmelt; this is the cause for considerable boil in the glass despite the prolongation of the melting period. The products of destruction of mullite produce coarse drops and intense coloration of glass; this was not observed in glass melted in the quartz tank. The campaign of the mullite tank was 3 to 5.5 months, and that of the quartz tank not less than 1.5 to 2 years. In the periodic type of mullite tank, a dark layer of glassmelt forms near the bottom; this layer is rich in the products of destruction of mullite, and its chemical composition is different from that of the remaining melt. The thickness of the layer increases toward the end of the campaign, and after 5 to 5.5 months it reaches 250 to 300 mm. (depth of the tank is 600 mm). This was not observed in the quartz tank. B.Z.K.

MINAKOV, A. G.

2079. Melting of difficultly fusible borosillicate glass in tanks lined with mullite and quartz blocks.--M. D. Tamarin and A. G. Minakov(Stek. Keram., 8, No.1, 10,1951). The comp. of borosilicate glass when melted in a mullite tank is considerably changed by the dissolution of mullite, whereas the decomposition products of a silica lining have practically no effect on the comp. of glass. Fe oxides entering from the mullite blocks cause noticeable coloration of the glass and reduce the light transmission from 86-6 to 70-73%/cm. thickness. In a silica-lined task, however, the light transmission remains unaffected (90-90.3%/cm.). The decomposition products of mullite have a high viscosity and retard the escape of gases, and so cause seeds. The amount of rejected glass melted in a mullite tank varies between 5 and 23% (the main faults being seeds, cords, coloration and low thermal stability). With the silica lining the waste amounts to 3-9%, the only fault being stones from the silica roof. In russia, mullite tanks last for 3-5.5 months, whereas a silica lining lasts for 1.5-2 years. In an intermittent tank lined with mullite a dark glass layer is formed containing a great amount of mullite decomposition products and having a comp. quite different from the rest of the melt; after c. 5 months this layer will be 10-12 in. deep, the tank being 23.5 in deep. This does not occur with a silica lining. It is concluded that for the melting of difficultly fusible borosilicate glass the silica lining is preferable to the mullite linings. (5 figs., 8 tables.)

Minakov, A. G.

✓ Preparation of crocus from iron vitriol in a rotary furnace. MT A. G. Minakov, N. A. Semerenko, and Yu. A. Brodskii. ~~Steklo i Keram.~~, 10 [2] 11-14 (1953).—High-quality crocus, with uniform grain size and high polishing capacity, is obtained from a large rotary furnace (7 x 0.8 to 1 m.). The output is 200 kg./hr. of dehydrated vitriol and up to 120 kg./hr. of burned crocus. B.Z.K.

②

PM

MINAKOV, A. G.

USSR/Miscellaneous - Industrial processes

Card 1/1 : Pub. 104 - 6/9

Authors : Minakov, A. G., Shchepanskiy, L. A., Andrega, P. N., and Dubrovskiy, V. A.

Title : Use of zinc chloride as a glass grinding accelerator

Periodical : Stek. i ker. 8, 23-25, Aug 1954

Abstract : The characteristics of $ZnCl_2$, when used as a glass grinding accelerator, are described. The accelerating effects of other grinding solutions $CuCl_2$, $CuSO_4$, $ZnSO_4$, $FeSO_4$, $FeCl_3$ and $Cd(CH_3COO)_2$, are discussed. The advantages derived from using $ZnCl_2$ glass grinding accelerators, are listed. Tables.

Institution : ....

Submitted : ....

Minakov, A.G.

Use of zinc sulfate for accelerating the glass-polishing process. A. G. Minakov, L. A. Shchepanskii, P. N. Andrega, and V. A. Dubrovskii. *Silikattechnik* 6, [illegible] (1955).—See *C.A.* 49, 6561h. W. Eitel 4

Matls

MINAKOV, A.G.; SHCHEPANSKIY, L.A.; ANDREGA, P.N.; DUBROVSKIY, V.A.

Answer to the K.Gesse's article. Stek.i ker. 12 no.12:23-25 D '55.
(MLRA 9:3)

(Glass manufacture) (Zinc sulfate)

MINAKOV, A. G.

USSR/Chemical Technology. Chemical Products and their Application. J-12
Glass. Ceramics. Building Materials.

Abs Jour: Referat Zh.-Kh., No 8, 1957, 27635

Author : A.G. Minakov, T.S. Dubrovskaya.
Inst : ———
Title : Some Chemical Process at Glass Polishing.

Orig Pub: Steklo i keramika, 1956, No 9, 23-25.

Abstract: With a view to determine the character of chemical processes taking place at the polishing of glass on rotating devices, the chemical composition of following substances was determined: of the crocus "cookies" forming on felt polishers; of the white deposit ("white frost") falling out on the surface of plaster-of-Paris seams between sheets laid on polishing tables, and of the crocus suspension with the accelerant - Zn sulfate - added to it. The crocus "cookies" consist of Zn, Fe, Ca and Na sulfates, Fe, Ca and Mg hydroxides, ferric oxide and soluble sili-

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USSR/Chemical Technology. Chemical Products and their Application. J-12
Glass. Ceramics. Building Materials.

Abs Jour: Referat Zh.-Kh., No 8, 1957, 27635

ca. Accumulation of Fe sulfate takes place in the "cookies" during the polishing process, it is always contained in crocus produced by roasting iron vitriol; Zn sulfate accumulates too, and its excess in the "cookies" results in slowing down of the process of glass polishing. The content of insoluble variation of silica in "cookies" reaches 98% of the amount of precipitates insoluble in hydrochloric acid. The main component of the "white frost" is Na sulfate. The presence of this compound, as well as the presence of soluble silica in the "white frost" and the "cookies" are the evidence of hydration and hydrolysis of glass and of the transition of alkaline cations and silica forming in the result of the hydrolysis from the glass into the solution. The amount of silica, Ca sulfate and alkalis in the "white frost" depends on the chemical composition of the glass. It is surmised that the Fe, Zn, Ca and other sulfates further the accele-

Card : 2/3

USSR/Chemical Technology. Chemical Products and their Application. Glass. Ceramics. Building Materials.

J-12

Abs Jour: Referat Zh.-Kh., No 8, 1957, 27635

ration of the film formation on the glass surface reacting with the alkali cations of the surface film by interchanging ions, and that they intensify the process of glass polishing in this way. The main chemical reactions originating at the polishing of glass with the crocus suspension with added Zn sulfate are enumerated.

Card : 3/3