AUTHOR: [illegible]

TITLE: [illegible]

PERIODICAL: [illegible]

ABSTRACT: [illegible]

Card [illegible]

80077, SOV/[illegible]-59-1-13/37

Key to Table: (a) Experiment Nr; (b) Molar ratio of $H_2:C_4H_{10}$ in the initial vapor-gas mixture; (c) Summary space velocity of the initial vapor-gas mixture; (d) Yield of the products of catalysis, % by volume, based on the initial C_4H_{10}; (e) Content of unsaturated products in the product of catalysis, in %; (f) Yield of the hydrocarbon products C_5-C_7 in the products of catalysis; (*) In this experiment, beside H_2 and C_4H_{10}, isobutylene, in proportion $H_2:C_4H_8 = 1$, also passed through.

a	b	c	d	e	f
1	1.8	46	100	13	1[illegible].4
[illegible]	8.7	180	89.7	1[illegible]	18.7
3	10.7	186	95	0.0	20.8
[illegible]	13.9	172	96.0	0.0	17.5
[illegible]	1.2*	93	101.7	72.5	9.0

Card 3/4

[illegible] SOV/[illegible]-1-24/37

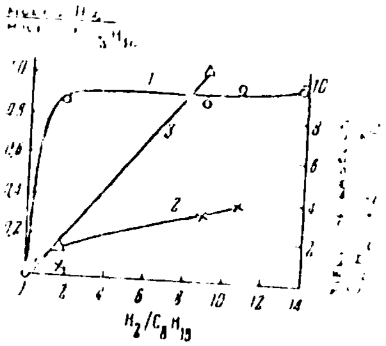
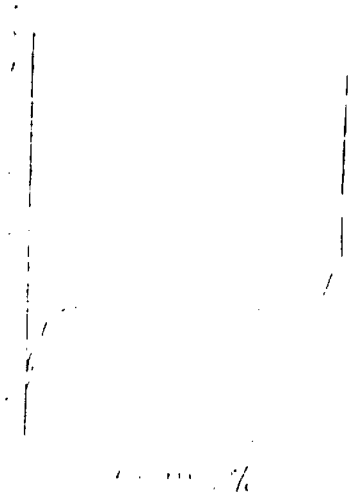


Fig. [illegible]. Relationship between the [illegible] $H_2:C_8H_{16}$ and the quantity [illegible] (in [illegible] (C_8H_{18}) [illegible] (curve 1), for hydro- [illegible] (curve [illegible]), [illegible] yield (in %, based [illegible] the initial C_8H_{16}) of [illegible] products [illegible] (curve [illegible]).

Card 4/[illegible]



[illegible] (
[illegible])
[illegible]

[illegible]. It was [illegible] that the formation of [illegible] hydrocarbons in the products of [illegible] /copolymerization/ of [illegible] and [illegible] (...) and the [illegible] of [illegible]tylene [illegible]. There is 1 table; [illegible] figures; and [illegible] references.

[illegible]: N. D. Z[illegible] Institute of Organic Chemistry, Academy of Sciences, USSR (Institut organicheskoy khimii imeni N. D. Zelinskogo Akademii nauk SSSR)

[illegible]: Apr[illegible], [illegible]

C[illegible]

88362
S/195/60/001/004/012/015
B017/B055

5 1190

AUTHORS: Eydus, Ya. T., Nefedov, B. K.

TITLE: Comparative Studies on the Activity of Cobalt Catalysts in Polymerization and Hydropolymerization Reactions of Isobutylene

PERIODICAL: Kinetika i kataliz, 1960, Vol. 1, No. 4, pp. 604-611

TEXT: Polymerization and hydropolymerization of isobutylene in H_2 and H_2 + CO over Co/ThO_2/kieselguhr catalysts was investigated. Data on polymerization of isobutylene over ThO_2/kieselguhr are given in Table 1. The data on isobutylene polymerization on Co/kieselguhr are shown in Tables 2 and 3. Polymerization of isobutylene on kieselguhr proceeds by an ionic mechanism. Addition of Co and ThO_2 lower the activity of kieselguhr with respect to the ionic polymerization of isobutylene. Experimental data on the hydropolymerization of isobutylene under the influence of CO and using Co/kieselguhr and Co/ThO_2 as catalysts are

Card 1/2

88362

S/195/60/001/004/012/015
B017/B055

Comparative Studies on the Activity of Cobalt Catalysts in Polymerization and Hydropolymerization Reactions of Isobutylene

X

given in Tables 5-8. The percentages of isobutylene and hydrogen entering into reaction on Co/kieselguhr as functions of the CO content of the initial gas mixture are represented in a figure. On Co/kieselguhr, the hydropolymerization of isobutylene occurs simultaneously with its ionic polymerization and the formation of carbon from CO and H_2 by radical mechanism. The various fractions obtained by hydropolymerization on the Co/ThO_2/kieselguhr catalyst are described in Table 9. There are 1 figure, 9 tables, and 12 references: 11 Soviet and 1 US.

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

SUBMITTED: June 14, 1960

Card 2/2

[illegible], B.K

P 2045
S/062/60/000/02/10/012
B003/B066

53830A

AUTHORS: Eydus, Ya. T., Nefedov, B. K.

TITLE: Hydropolymerization of Isobutylene on Cobalt - Clay Catalyst Under Simultaneous Action of Hydrogen and Carbon Monoxide

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk 1960, No. 2, pp. 349 - 351

TEXT: The influence exercised by CO (in different concentrations) and H (in different volume ratios to isobutylene) upon the hydropolymerizatio of isobutylene was investigated. The experiments were carried out on a Co - clay catalyst at atmospheric pressure and 190°C. The results obtained are illustrated in diagrams (Figs. 1, 2, 3). The maximum yield of liquid hydropolymerizate was obtained at a content of 2 - 4% Co in the initial mixture and an isobutylene - hydrogen mixture in a mixing ratio of $i\text{-}C_4H_8 : H_2 = 2 : 1$. When using clay alone as catalyst, neither an influence of H_2 nor of Co upon the polymerization was found to occur. It

X

Card 1/2

Hydropolymerization of Ethylene on
Cobalt - Clay Catalyst Under Simultaneous
Action of Hydrogen and Carbon Monoxide

[illegible]
S/062/60/000/02/10/012
B003/B066

is assumed from the results obtained that the presence of a Co - clay catalyst effects a hydropolymerization according to the radical mechanism, whereas the reaction on the clay catalyst takes place by the ion mechanism. There are 3 figures, 1 table, and 5 Soviet references.

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: June 1, 1959

Card 2/2

S/062/60/000/011/010/016
B013/B078

AUTHORS: Eydus, Ya. T., Nefedov, B. K.

TITLE: Catalytic Hydrocondensation of Carbon Monoxide With Olefins and Their Hydropolymerization Under the Action of Carbon Monoxide and Hydrogen. Report 29. The Behavior of 2,4,4-Trimethylpentene-1 Toward Hydrocondensation Catalysis

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1960, No. 11, pp. 2037 - 2041

TEXT: The present paper deals with the behavior of isobutylene-2,4,4-trimethylpentene-1 toward the hydrocondensation of CO dimers. At first the behavior of an olefin was investigated, then its mixtures with hydrogen (Ref.5) and, finally, the ternary C_8H_{16}-H_2-CO mixtures. The experimental methods and apparatus differed in no way from those described in Refs. 1-5. The 2,4,4-trimethylpentene-1 used was synthesized by the method of A. M. Butlerov (Ref.6) via polymerization of isobutylene under

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Catalytic Hydrocondensation of Carbon Monoxide With Olefins and Their Hydropolymerization Under the Action of Carbon Monoxide and Hydrogen. Report 29. The Behavior of 2,4,4-Trimethylpentene-1 Toward Hydrocondensation Catalysis

S/062/60/000/011/010/016
B013/B078

the action of 63% sulfuric acid. The experimental conditions and results obtained are given in Tables 1 and 2 and graphically represented in Fig.1. The results indicate that 2,4,4-trimethylpentene-1 in the absence of H_2 and CO changes only slightly on the CC clay catalyst at 190°C and atmospheric pressure. A partial shift of the double bond takes place, resulting in an isomerization of 2,4,4-trimethylpentene-2. In mixtures with H_2, 2,4,4-trimethylpentene-1 is hydrogenated up to 2,2,4-trimethylpentane, the degree of hydrogenation depending upon the H_2 excess of the vapor - gas mixture used. Simultaneously, hydrocracking and disproportionation with respect to the molecular weight take place (Ref.8). If the mixture contains chiefly olefin, the reactions will only occur to a limited extent: The maximum content of C_5-C_7 hydrocarbons amounts to 5% in the catalyzate, and that of C_9 and above is 5.5% at

Card 2/3

Catalytic Hydrocondensation of Carbon Monoxide S/062/60/000/0[illegible]/010/016
With Olefins and Their Hydropolymerization B013/B078
Under the Action of Carbon Monoxide and Hydrogen. Report 2[illegible]. The
Behavior of 2,4,4-Trimethylpentene-1 Toward Hydrocondensation Catalysis

most. With an H_2 excess the yield of C_5-C_7 increases. But even at a ratio of H_2/C_8H_{16} = 13.5 it does not exceed 17%. The yield of skeleton isomerization products does not exceed 7-8%. If CO is added to the mixture, hydrocondensation of CO with diisobutylene takes place. At a CO content of 5-6% in the mixture, it does not exceed ~10%. Simultaneously, the original olefin is hydrated up to isooctane at 40-50%. The yield of C_5-C_7 amounts to 10-14%. If the CO content is increased to 8-9%, hydrocondensation will not take place at all. Hydrogenation does not exceed 10-20%. The yield of liquid cracking products amounts to 10%. There are 1 figure, 2 tables, and [illegible] Soviet references.

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: June 22, 1959

Card 3/3

87169

53839 2209, 1274, 1153

S/062/60/000/012/014/020
B013/B054

AUTHORS: Eydus, Ya. T. and Nefedov, B. K.

TITLE: Catalytic Hydrocondensation of Carbon Monoxide With Olefins. Report 30. Effect of the Component Ratio of the Initial Mixture on the Hydropolymerization Process of Isobutylene Under the Simultaneous Action of Hydrogen and Carbon Monoxide

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1960, No. 12, pp. 2221-2229

TEXT: The authors studied the dependence of the hydropolymerization process of isobutylene on the CO content and the ratio $i\text{-}C_4H_8 : H_2$ in the ternary $i\text{-}C_4H_8 - H_2 - CO$ mixture. They used the same apparatus and methods as in Ref. 7. Co on clay served as a catalyst (Ref. 2). The reaction was conducted at atmospheric pressure, 190°C, and a volume velocity of the used gas of $\sim 100\ h^{-1}$. It was found that mainly a destructive hydropolymerization of isobutylene took place at a CO content of up to 5% and

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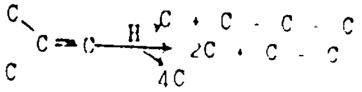
87169

Catalytic Hydrocondensation of Carbon Monoxide With Olefins. Report 30. Effect of the Component Ratio of the Initial Mixture on the Hydropolymerization Process of Isobutylene Under the Simultaneous Action of Hydrogen and Carbon Monoxide

S/062/60/000/012/[illegible]
B013/B054

a ratio i-C_4H_8 : H_2 = 1 - 2, while the real polymerization of isobutylene occurred at i-C_4H_8 : H_3 = 3. In the range of a CO concentration between 7 and 20%, the synthesis according to Fischer-Tropsch mainly occurs. It is assumed that the primary reaction during destructive hydropolymerization of isobutylene is its destructive hydrogenation. A consequence is the formation of reactive alkyl radicals which, for their part, react with the not decomposed isobutylene molecules to form 2-methyl alkanes and corresponding olefins. The destructive hydrogenation processes are the more intense and deep-reaching, the higher the concentration of hydrogen on the catalyst surface is. It evidently decreases with increasing CO- and i-C_4H_8 contents in the used gas. The processes can be schematically represented as follows:



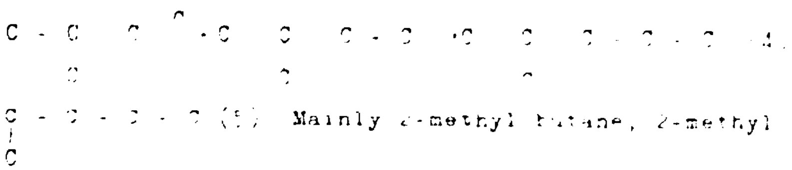
(1)
(2)
(3)

Card 2/5

87169

Catalytic Hydrocondensation of Carbon Monoxide S/062/60/0 [illegible] 2
With Olefins. Report 30 Effect of the Component B011/B054
Ratio of the Initial Mixture on the Hydropoly-
merization Process of Isobutylene Under the
Simultaneous Action of Hydrogen and Carbon Monoxide

In the absence of CO and at a ratio $i\text{-}C_4H_8 : H_2 = 1\text{-}2$, mainly radicals with one, rarely with two, carbon atoms are formed due to the destruction of isobutylene. The further reaction may proceed according to the following scheme:



$$C - C = C + C \rightarrow C - C - C + C \rightarrow C - C - C - C \ (4)$$

$$C - \underset{C}{C} - C \overset{C-C}{\rightarrow} C - \underset{C}{C} - C - C - C \ (5)$$

Mainly 2-methyl butane, 2-methyl pentane, and corresponding olefins are formed. On addition of smaller CO amounts, radicals with one carbon atom are formed, presumably of the same character, according to the scheme: $CO + 2H_2 \rightarrow CH_2 + H_2O$. Besides, the decomposition of isobutylene according to scheme (1) is intensified on addition of CO. Liquid hydrocarbon yields increase, and higher-molecular

Card 3/5

87169

Catalytic Hydrocondensation of Carbon Monoxide S/062/60/000/[illegible]
With Olefins. Report 50. Effect of the Component B013/B054
Ratio of the Initial Mixture on the Hydropoly-
merization Process of Isobutylene Under the
Simultaneous Action of Hydrogen and Carbon Monoxide

2-methyl alkanes are formed. At large CO amounts, isobutylene evidently decomposes according to scheme ([illegible]) only. A considerable part of the radicals with one C atom is formed at the expense of carbon monoxide hydrogenation. As under these conditions only few isobutylene [illegible] are on the catalyst surface, radicals react with each other by realizing the synthesis according to Fischer-Tropsch. The presence of numerous radicals with three carbon atoms which formed according to scheme ([illegible]) leads to the formation of hexane, the presence of CH[illegible] radicals [illegible] the formation of heptane. The latter can be formed according to the [illegible] scheme 2C - C - C + C → C [illegible] C [illegible] suggested in Ref. [illegible]. The formation of various hydrocarbons obtained in the experiments can be explained on the basis of the schemes given. Table [illegible] shows the composition of the gas mixtures used and the properties of the resulting polymerizates. Figs. [illegible] and [illegible] show the distillation [illegible] hydrogenated hydropolymerizates. Table [illegible]

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87169

Catalytic Hydrocondensation of Carbon Monoxide S/062/60/[illegible]
With Olefins. Report 30. Effect of the Component [illegible]
Ratio of the Initial Mixture on the Hydropoly-
merization Process of Isobutylene Under the
Simultaneous Action of Hydrogen and Carbon Monoxide

fractions. Table 10 gives comparative data from publications. Table [illegible] shows the yields in liquid hydrocarbons for the mixtures [illegible]. There are 3 figures, 11 tables, and [illegible] Soviet references.

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: [illegible]

Card [illegible]

EYDUS, Ya.T.; NEFEDOV, B.K.

Polymerization of isobutylene. Usp.khim. 29 no.7:833-863 Jl '60.
(MIRA 13:7)

1. Institut organicheskoy khimii im. N.D. Zelinskogo AN SSSR.
(Propene) (Polymerization)

87407

S/020/60/135/006/023/0[illegible]
B016/B060

11.1210

AUTHORS: Eydus, Ya. T., Nefedov, B. K., Yakovlev, I. P., and Lobzova, A. V.

TITLE: Alkylation of Cyclohexene Under Conditions of the Reaction of the Destructive Isobutylene Hydropolymerization

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 135, No. 6, pp. 1409-1412

TEXT: The authors describe their experiments in alkylating cyclohexene admixed to an isobutylene-hydrogen mixture. Apparatus and methods were the same as those used in previous experiments (Ref. 1). Preliminary experiments were conducted with the mixtures: cyclohexene - hydrogen (results in Table 1, experiments 1 and 2), and isobutylene - hydrogen (experiments 4 and 6). The following conclusions were drawn from results: cyclohexene is chiefly hydrogenated to cyclohexane in the presence of hydrogen at 190°C and atmospheric pressure at the Co-clay catalyst, and is catalyzed irreversibly. Cyclohexene is to a certain degree alkylated by the CH_2 radicals resulting from its hydrocracking. In the presence of

Card 1/2

87407

Alkylation of Cyclohexene Under Conditions of the Reaction of the Destructive Isobutylene Hydropolymerization

S/020/60/[illegible]/006/0[illegible]/0[illegible]
B016/B060

Isobutylene and hydrogen [illegible] 4 times more strongly alkylated than it would be in a mixture with hydrogen only. It is therefore concluded that isobutylene offers an additional alkylation source and the authors' former scheme of the destructive hydropolymerization of isobutylene seems to be confirmed: one part of the isobutylene molecules decomposes in the presence of hydrogen on the catalyst surface, and cyclohexene is methylated by the resulting radicals. Under equal conditions, but without cyclohexene, these radicals react with the initial isobutylene to form 2 methyl substituted hydrocarbons. A method by Ya. T. Eydus and T. L. Fedichkina is mentioned (not described in the text, Ref. 8). There are 1 table and 8 Soviet references.

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: July 7, 1960, by B. A. Kazanskiy, Academician

SUBMITTED: June 30, 1960

Card 2/2

NEFEDOV, B. K.

Cand Chem Sci - (diss) "Transformations of isobutylene and other olefins of iso-structure under conditions of hydrocondensation catalysis." Moscow,1961. 21 pp; (Academy of Sciences USSR, Inst of Organic Chemistry imeni N. D. Zelinskiy); 220 copies; free; list of author's works at end of text (10 entries); (KL, 6-61 sup, 199)

Z/011/62/019/001/010/017
E073/E136

AUTHORS: Eydus, Ya.T., and Nefedov, B.K.

TITLE: Conversion of isobutylene and other iso-olefins under conditions of hydrocondensation of CO with olefins

PERIODICAL: Chemie a chemická technologie. Přehled technické a hospodářské literatury, v.19, no.1, 1962, 33, abstract Ch 62-451. (Neftekhimiya, v.1, no.1, 1961, 74-81)

TEXT: Isobutylene polymerizes on cobalt catalysts on silica gel at 190 °C and atmospheric pressure to di- and tri-isobutylenes. The presence of small quantities of hydrogen increases the yield of the polymerization, whilst equivalent quantities of hydrogen bring about destructive hydro-polymerization accompanied by the formation of 2-methyl substitution alkanes and alkenes. The higher olefins have a low reaction capacity under these conditions.

1 table, 11 references.

[Abstractor's note: Complete translation.]

Card 1/1

S/204/61/001/006/002/004
E075/E436

AUTHORS Eydus Ya.T Nefedov, B.K

TITLE Catalytic polymerization of olefins
14th Communication Polymerization of ethylene
over nickel protoxide-aluminosilicate catalyst under
elevated pressure

PERIODICAL Neftekhimiya v 1 no.6 1961 786 790

TEXT The object of the work was to investigate the influence of
elevated pressure on the polymerization of ethylene in the presen-
of nickel protoxide aluminosilicate catalyst The catalyst was
prepared by treating synthetic aluminosilicate with a solution of
nickel in nitric acid It was activated in air for 5 hours at
450 C and atmospheric pressure It was shown that the catalyst
is active both under atmospheric and higher pressures (5 to
30 atm). However depending on the pressures different reaction
products formed at the optimum reaction temperature of 275 °C
Thus ethylene polymer formed under atmospheric pressure and liquid
products under increased pressure (to 30 atm) An increase in
pressure and a decrease in space velocity or ethylene feed rate
Card 1/2

S/204/61/001/006/002/004
E075/E436

Catalytic polymerization

favoured the formation of liquid hydrocarbons. The yield of polymer decreased with the increasing pressure and was relatively little dependent on the space velocities in the range of 500 to 1000 h^{-1} and the reaction temperature between 200 to 275 °C. For the space velocities of the order of 100 h^{-1} and elevated pressure a process of hydrogen redistribution took place. This was suggested by the presence of saturated hydrocarbons in the gaseous and liquid portions of the polymerization products. There are 2 figures and 3 tables.

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

SUBMITTED: October 21, 1961

Card 2/2

S/062/61/000/002/008/[illegible]
B115/B207

AUTHORS. Eydus, Ya. T. and Nefedov, B. K.

TITLE. Catalytic polymerization of olefins. Report no. 12. Polymerization of isobutylene in the presence of Kisatibi kieselguhr

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, no. 2, 1961, 338-343

TEXT. The authors found that kieselguhr from the Kisatibi deposit is a highly active catalyst of isobutylene polymerization. They used the same apparatus and methods as in their previous studies (Ref. 5, Dokl. AN SSSR, 1959, v. 124, 111, and others), i.e., a continuous apparatus at atmospheric pressure. Kisatibi kieselguhr proved to be more active and stable than red clay. Its activity is close to that of the likewise highly active synthetic aluminum silicate (Tables 3 and 4) which, however, causes stronger cracking, and exerts a stronger isomerizing effect. The authors used kieselguhr in two forms: Catalyst 1 - rock reduced to small pieces and granulated to 3 mm grain size; catalyst 2 - granulated

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Catalytic polymerization of ...

S/062/61/000/002/008/[illegible]
B115/B207

directly from the rock. In their effect, no difference was noticed. The authors describe the effect 1) of the reaction temperature of 110-240°C at constant volume velocity ~ 100 h^{-1} upon the yield in polymers; 2) of the volume velocity 50-650 h^{-1} at constant temperature of 160°C upon the yield; 3) of the temperature of $125-240^{C}$ at a volume velocity of 100 h^{-1} upon the composition of the polymerization products, and 4) of the volume velocity 50-700 h^{-1} at 160°C upon this composition. Ad 1): The liquid polymerizate yield (referred to initial isobutylene) is highly temperature-dependent. The curve (Fig. 1) passes at 150-160°C a distinct maximum (yield ~ 75%). The yield in liquid products referred to reacted isobutylene remains 90-100% independent of temperature and volume velocity here and in case 2. Ad 2): The results are shown in Fig. 2. At a volume velocity of more than 500 h^{-1}, the yield in liquid products decreases whereas the capacity of the catalyst increases. Above 650 h^{-1}, both mentioned

Card 2/9

parameters decrease. Ad 3): Tables 1 and 2, as well as Fig. 3, show the results. Ad 4): Tables 3 and 4, as well as Fig. 4, list the results obtained. Summarizing, the authors find that the isobutylene polymerization on Kisatibi kieselguhr sets in at 100-110°C, and gives the best yield at 150-160°C. The reaction products are composed of di- and trimers of isobutylene. The rise in reaction temperature, as well as the reduction of the volume velocity, favor skeleton isomerization and isomerization due to a shift of the double bond, and partly also cracking. The authors mention papers by L. G. Gurvich, S. V. Lebedev and collaborators, Ya. M. Slobodin, B. A. Kazanskiy, and M. I. Rozengart. There are 4 figures, 4 tables, and 9 Soviet-bloc references.

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: September 28, 1959

Catalytic polymerization of ...

S/062/61/000/002/008/012
B115/B207

Таблица 1

1 Свойства полимеризата	2, Температура реакции, °C					
	125	140	160	180	210	240
d_4^{20}	0,7207	0,7086	0,7042	0,7088	0,7079	0,7077
n_D^{20}	1,4218	1,4191	1,4188	1,4178	1,4158	1,4185
5. Начало кипения, °C	101	99,5	96	92	94,5	51

Card 4/9

Catalytic polymerization of ...

S/062/61/000/002/…
B1?5/B207

Таблица 2

3 Пределы кипения фракций, °C	2. Температура реакции, °C					
	125	140	15[illegible]	[illegible]50	210	240
	4. Содержание фракций, об. %					
<101	0,0	6,7	4,7	8,9	4,9	10,[illegible]
101—102 A (2,4,4-триметил-пентен-1)	44,4	37,7	36,0	34,8	32,8	14,2
104—105 B (2,4,4-триметил-пентен-2)	11,4	11,0	13,3	7,9	12,0	9,1
105—130 C (изомерные октены)	2,8	2,6	8,2	12,4	24,4	44,2
177—188 D (тримеры)	25,5	27,8	23,3	18,5	14,7	7,8
>188	—	7,0	7,5	[illegible]	1,3	[illegible]

✓

Card 5/9

S/062/61/000/002/008/012
B115/B207

Catalytic polymerization of ...

Таблица 3

1. Свойства полимеризата	6. Объемная скорость изобутилена, час⁻¹				
	50	100	500	700	[illegible]
		7. кизельгур (кигатиби)			8. САС*
d_4^{20}	0,7172	0,7042	0,7177	0,7055	0,7209
n_D^{20}	1,4205	1,4188	1,4154	1,4148	1,4275
5. Начало кипения, °C	94	96	98,5	101	45

* САС — синтетический алюмосиликат.

✓

Card 6/9

Catalytic polymerization of ... B115/B207

Legend to Tables 1, 2, 3, 4: 1 - properties of the polymerizate; 2 - reaction temperature, °C; 3 - boiling limits of the fractions, °C (transition fractions omitted); 4 - content of fractions, % by volume; 5 - beginning of boiling, °C; 6 - volume velocity of isobutylene, h^{-1}; 7 - Kisatibi kieselguhr; 8 - synthetic aluminum silicate. Tables 2 and 4: A - 2,4,4-trimethyl pentene-1, B - 2,4,4-trimethyl pentene-2, C - isomeric octenes, D - trimers;

Таблица 4

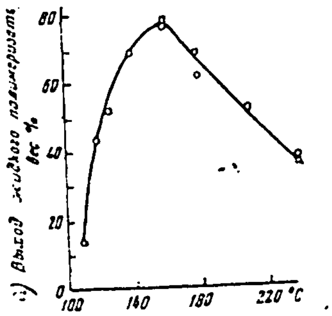
3. Пределы кипения фракций, °C	6. Объемная скорость изобутилена, $ч^{-1}$				
	50	100	300	700	100
	4. Содержание фракций, об. %				
	7. кизельгур (кисатиби)				САС
<101	17.0	4.5	4.7	0.0	[illegible]
101—102 A. (2,4,4-триметилпентен-1)	20.4	33.4	47.0	52.5	12.4
104—105 B. (2,4,4-триметилпентен-2)	10.0	10.6	4.5	7.5	5.0
105—117 C. (изомерные октены)	12.4	8.2	5.3	7.3	19.0
177—188 D. (тримеры)	[illegible]	[illegible]	18.6	18.4	[illegible]
>188	8.0	[illegible]	1.1	3.1	[illegible]

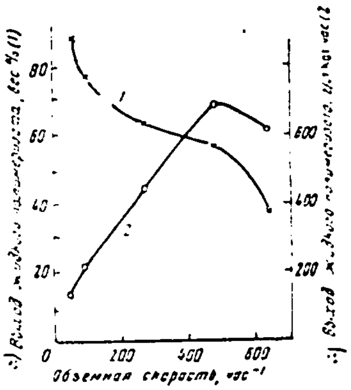
Card 7/9

Catalytic polymerization of ...

S/062/61/000/002/008/012
B115/B207

Legend to Figs. 1 and 2: Yield (a) in liquid polymerizate in % by weight of the isobutylene passed through: Fig. 1 in dependence on temperature, 2 - on the volume velocity, curve 1 - in % by weight, curve 2 - in g/l kat. h.





Card 8/9

S/062/61/000/002/008/012
B115/B207

Catalytic polymerization of ...

Legend to Figs. 3 and 4: Curves of the polymerizate distillation, Fig. 3: at different temperatures, Fig. 4: at different volume velocities (curve 6: with the use of synthetic aluminum silicate)

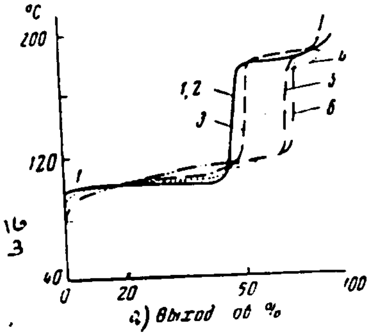
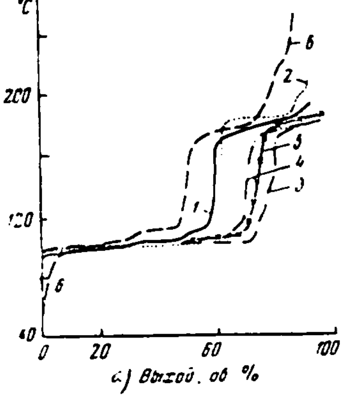


FIG 3

FIG. 4



Card 9/9

S/062/61/000/005/006/009
B118/B220

AUTHORS: Eydus, Ya. T. and Nefedov, B. K.

TITLE: Catalytic polymerization of olefins. Communication 13. Polymerization of isobutylene in the presence of some silica gel specimens

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye khimicheskikh nauk, no. 5, 1961, 894 - 901

TEXT: The authors of the present paper have shown (Ref. 4: Dokl. AN SSSR, 124, 111 (1959); Ref. 5: Izv. AN SSSR. Otd. khim. n. 1961, 338) that isobutylene polymerizes in the presence of red clay and/or kieselguhr. In this reaction, kieselguhr shows approximately the same activity as the synthetic aluminum silicate catalyst used in the cracking process. The authors aimed at studying the catalytic activity of several silica gel specimens of different types in the polymerization of isobutylene at increased temperature. At a temperature of 190°C and under atmospheric pressure it has been found that the finely porous specimens АСМ (ASM), КСМ (KSM), and especially ШСМ (ShSM) are particularly active, only the coarse-grained silica gel КСК (KSK) showed reduced activity. The products involved are
Card 1/3

Catalytic polymerization of

S/062/61/000/005/006/009
B118/B220

by Voskresenskiy khimkombinat (Voskresensk Chemical Combine). The products of polymerization obtained in the presence of the specimens KSK and ASM consist mainly of 2,4,4 trimethyl pentene-1 (up to 45 %); 2,4,4-trimethyl pentene-2 (10 %) and of trimers (15 to 25 %). When using the remaining specimens of silica gel, the polymerization of isobutylene is accompanied by a skeleton isomerization and the formation of odd polymers (hydrocarbons C_5 to C_7). The optimum reaction temperature (in the range 100 to 500°C) amounts to 190°C. Of the silica gels studied only the specimen KSK can be regenerated i. e., with air at 500°C. The silica gel specimens studied show a poor catalytic stability. It has been found, that the specific surface of the specimens is not of decisive importance; thus the silica gel ShSM is much more active than KSK, although its specific surface is much smaller than that of the latter. There are 3 figures, 7 tables and 13 references: 11 Soviet-bloc and 2 non-Soviet-bloc. The 2 references to English-language publications read as follows: B. I. Mair, J. Res. Natl. Bur. Stand, 34, 435 (1945); D. F. Fink, R. W. Lewis, F. T. Weiss, Analyt. Chem. 22, 850 (1950); Ch. Thomas, Industr. and Engng. Chem. 41, 2564 (1949)

Card 2/3

[illegible] 61, [illegible] 9
[illegible] 2 'C

[illegible]

[illegible] Institut [illegible] ...eskoy khimii im. [illegible] D. Zelinskogo Akademii
nauk SSSR [illegible] ...tute of Organic [illegible] im. N. D. Zelinskiy
[illegible] ...cience USSR

Card [illegible]

EYDUS, Ya.T.; NEFEDOV, B.K.; YAKOVLEV, I.P.; LOBZOVA, A.V.

Catalytic hydrocondensation of carbon monoxide with olefins and their hydropolymerization under the action of carbon monoxide and hydrogen. Report 31: Behavior of 2-methyl-1-butene and 3, 3-dimethyl-1-butene in hydrocondensation catalysis. Izv.AN SSSR.Otd.khim.nauk no.6:1127-1134 Je '61. (MIRA 14:6)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.
(Butene) (Catalysis)

EIDUS, I. T. [Eydus, Ya. I.]; NEFEDOV, B. K.

Polymerization of isobutylene. Analele chimie 16 no.1:3-38 Ja-Mr '61.
(EEAI 10:9)

(Polymers and polymerization) (Methylpropene)

AUTHORS: Eidus, Ya. T., Nefedov, B. K. and Lobzov, A. V.
S/204/62/002/001/002/007
I032/1232

TITLE: Catalytic polymerisation of olefins 15 On the liquid products of ethylene polymerization over nickel oxide -- aluminium silicate catalyst under elevated pressure

PERIODICAL: Neftekhimiya, v 2, no 1, 1962, 21 27

TEXT This is a study of the composition of the products of ethylene polymerization over a nickel oxide
aluminum silicate catalyst at 275 C, under pressures ranging between 5 and 30 atm and at volume velocities
between ~ 100 and 2000 hour⁻¹ The products of polymerization were rendered free of dissolved gases and
fractionated by distillation in a column of 60 theoretical plates Distillation curves and tables of physical
constants of different fractions are given. Combinational dispersion (Raman) spectra of several fractions
were taken. Identification of individual hydrocarbons in these fractions was done by means of comparison
of the spectra taken with data found in the literature. It was found that the products of polymerisation con-
ained mainly polymers with an even number of C atoms in the molecule, trimers and tetramers. Monomethyl-
substituted alkenes, mainly 3-methyl-alkenes-2, predominated. Small amounts of 2-methyl-alkenes, *n*-alkenes
disubstituted alkenes and the corresponding alkanes as well as hydrocarbons with an odd number of C atoms
in the molecule were also found The founation of these hydrocarbons indicates the occurrence of side re-

Card 1/2

Catalytic polymerization of olefins..

S/204/62/002/001/002/007
1032/1232

actions, such as isomeration, hydrogen redistribution, alkylation and de-alkylation Elevation of pressure and decrease of volume velocity (within the limits of the interval studied), i e the increase of the time of contact, favour the formation of saturated hydrocarbons and of higher polymers and "odd-number polymers There are 3 figures and 1 table. An English-language reference reads a follows J P Hogan, R L Banks, W C Lanning, A Clark, Ind Engng Chem , 47, 752, 1955

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

SUBMITTED January 17, 1962

Card 2/2

S/062/63/000/003/012/018
B101/B186

AUTHORS: Eydus, Ya. T., Nefedov, B. K., and Vol'pin, M. Ye.

TITLE: Formation of the cycloheptatriene from benzene, carbon oxide and hydrogen with a cobalt catalyst

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye khimicheskikh nauk, no. 3, 1963, 548 - 552

TEXT: Working from the study by W. E. Doering, L. H. Knox et al. (J. Amer. Chem. Soc., 72,2305(1950)) and P. S. Skell, R. C. Woodworth, ibid., 78, 4496(1956)) the reaction of benzene with a $CO+H_2$ mixture at 190°C, 1-20 atm in the presence of a $Co-ThO_2$-kieselguhr catalyst was investigated. It was found that small quantities of cycloheptatriene (about 0.01 % per reacted benzene) are formed. The low stability of the cycloheptatriene was proved by the fact that 98 % of it decompose if it is made to react with $CO+H_2$ under the conditions mentioned. This confirms that incomplete reduction of the CO methylene causes the formation of radicals which either are added to the C-H bond of the benzene, with toluene forming, or are

Card 1/2

Formation of the ...

S/062/63/000/003/012/018
B101/B186

included in the aromatic ring on a C=C bond with cycloheptatriene forming.

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); Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR (Institute of Elemental Organic Compounds of the Academy of Sciences USSR)

SUBMITTED: May 30, 1962

Card 2/2

EYDUS, Ya.T.; NEFEDOV, B.K.

Conversions of olefins in the presence of metal oxides. Usp.khim. 32 no.9:1025-1051 S '63. (MIRA 16:9)

1. Institut organicheskoy khimii imeni Zelinskogo AN SSSR.
(Olefins) (Metallic oxides)

[illegible], Ya. T.; [illegible], [illegible]; [illegible], A.

Catalytic hydrocondensation of carbon monoxide with olefins and their hydropolymerization under the effect of carbon monoxide and hydrogen. Report No. 37: Alkylation of cyclooolefins and benzene by means of a mixture of carbon monoxide and hydrogen in the presence of a cobalt-thorium catalyst. Izv AN SSSR Ser Khim no. [illegible] (MIRA 7:

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

EYDUS, Ia.T.; NEFEDOV, B.K.

Mechanism of the formation of hydrocarbons with a six-membered cycle in the catalytic hydrocondensation of carbon monoxide with cyclopentene. Dokl. AN SSSR 154 no.5:1139-1141 F'64. (MIRA 17:2)

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

EYDUS, Ya.T.; NEFEDOV, B.K.

Initiation of hydropolymerization reaction of olefins during their hydrogenation in the presence of a cobalt catalyst at 200°. Izv. AN SSSR. Ser. khim. no.5:888-893 '65. (MIRA 18:5)

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

EYDUS, Ya.T.; NEFEDOV, B.K.; BESPROZVANNYY, M.A.; PAVLOV, Yu.V.

Catalytic hydrocondensation of carbon monoxide with olefins and their hydropolymerization under the effect of carbon monoxide and hydrogen. Report No.39: Activity of rhodium-based catalysts. Izv. AN SSSR. Ser. khim. no.7:1160-1169 '65. (MIRA 18:7)

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

NEFEDOV, B.K.; EYDUS, Ya.T.

Development of the catalytic syntheses of organic compounds from carbon monoxide and hydrogen. Usp.khim. 34 no.4:630-652 Ap '65. (MIRA 18:8)

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

NEFEDOV, B.K.; EYDUS, Ya.T.; PRYANISHNIKOVA, M.A.; IVANOVA, T.M.

Catalytic hydrocondensation of carbon monoxide with olefins and their hydropolymerization under the effect of carbon monoxide and hydrogen. Report No.38: Conversions of toluene and cycloheptatriene under conditions of hydrocondensation. Izv. AN SSSR. Ser. khim. no.10:1860-1866 O '64.
(MIRA 17:12)

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

NEFED[illegible], B L

7.

L 51526-65
ACCESSION NR: AP5015323

UR/0286/65/000/009/0077/0077
535.885.5(088.8)
10
C

AUTHOR: Vinogradov, G. E.; Zavodchikov, G. I.; Tel'tevskiy, I. A.; Kolomiytsev, Yu. V.; Golubovskiy, Yu. M.; Mikhaylova, K. A.; Kudryavtsev, M. P.; Peryshkov, N. S.; Nefedov, B. L.; Tkachuk, N. N.; Rodzevich, I. V.; Samurov, L. A.

TITLE: A photoelectric autocollimation tube. Class 42, No. 170707

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 9, 1965, 77

TOPIC TAGS: collimator, optical equipment, photocell

ABSTRACT: This Author's Certificate introduces a photoelectric autocollimation tube which contains an optical system for projecting an image of the working slit on a reflecting autocollimation mirror. The optical system then projects the autocollimation image onto photocells which are connected in an electric measuring circuit. This circuit puts out a signal which corresponds to the position of the sight axis of the optical system with respect to the autocollimation mirror. The instrument is designed for reliable operation and simplified construction. The working slit is made up of reflecting fins, e.g., mirrors, fastened to a transpa-

Card 1/2

L 51526-65

ACCESSION NR: AP5015323

C

rent plate in the focal plane of the main lens of the projection system. These reflectors direct the autocollimation image of the working slit along auxiliary optical channels to the photocells which operate on an on-off basis. The photocell located in the main channel, which receives the autocollimation image passed by the working slit, also operates on an on-off basis.

ASSOCIATION: none

SUBMITTED: 08Jul63

ENCL: 00

SUB CODE: EC

NO REF SOV: 000

OTHER: 000

Card 2/2

L 07339-67 EWP(e)/EWT(m) WH
ACC NR: AP6012148 SOURCE CODE: UR/0413/66/000/007/0066/0066

47
B

AUTHORS: **Nefedov, B. L.; Chizhikov, V. A.**

ORG: none

TITLE: Two-component apochromatic objective. Class 42, No. 180370

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 7, 1966, 66

TOPIC TAGS: optic lens, optic system, applied optics

ABSTRACT: This Author Certificate presents a two-component apochromatic objective with lenses made of two types of glass. One type is the heavy crown glass TK4,[15] the other is Kurts-flint glass OF4.[6] To keep the spherical aberration to its minimum value, the objective components are made up by cementing two lenses (see Fig. 1). The first and the fourth of these are made of crown glass, the second and the third of flint glass, and the optical power of the first component is equal to 0.4--0.6 of the power of the entire objective.

UDC: 535.317.2

Card 1/2

L 07339-67
ACC NR: AP6012148

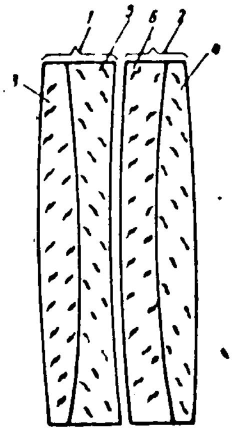


Fig. 1. 1 - first component; 2 - second component; 3 - first lens; 4 - fourth lens; 5 - second lens; 6 - third lens

Orig. art. has: 1 figure.

SUB CODE: 20, 13/ SUBM DATE: 13Apr64

Card 2/2 vmb

ACC NR: AP7009117 (A) SOURCE CODE: UR/0413/67/000/003/0107/0107

INVENTOR: Gal'pern, D. Yu.; Nefedov, B. L.; Sharkunov, I. V.

ORG: None

TITLE: A nonocular optical system for observation and sighting. Class 42, No. 191162

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 3, 1967, 107

TOPIC TAGS: optic instrument, telescopic equipment, optic detection

ABSTRACT: This Author's Certificate introduces a nonocular optical system for observation and sighting. The installation contains an objective lens, a compound erecting lens and a collector in direct proximity to the image surface. Correction for the curvature of the image surface is provided by using a negative and a positive component in the erecting lens. The negative component is used for matching the entrance pupil of the erecting lens to the exit pupil of the objective lens and has a power 20% greater in absolute value than the combined power of the other components.

Card 1/2 UDC: 535.821.1

ACC NR: AP7009117

1--negative component of the erecting lens; 2--positive component of the erecting lens; 3--objective lens

SUB CODE: 17/ SUBM DATE: 02Oct65

NEFEDOV, D. D.

Zoology

DECEASED
c. '62

1963/4

NEFEDOV, D.D.

Case of infectious hemorrhagic nephrosonephritis in Gorkiy Province. Med. paraz. i paraz. bol. 32 no.5:620 S-O'63
(MIRA 16:12)

NEFEDOV, D.D.

Economic base for selecting control measures for Aedes. Med. paraz. i paraz. bol. 33 no.2:234-235 Mr-Ap '64
(MIRA 17:11)

BEKAREVICH, A.N. (Gomel'); BERESLAVSKIY, M.D. (Uzhgorod); GROMOV, A.P. (Melekess); DUBINCHUK, Ye.S.; TESLENKO, I.F. (Kiyev); ZOLOTOVITSKIY, Ye.N. (Reutovo); KAZHDAN, B.I. (Leningrad); KLIMENCHENKO, D.V. (Berdyansk); MEL'NIKOV, K.S. (Sterlitamak); MIKHAYLOV, K.F. (Magnitogorsk); NASYROV, A.Z. (Sterlitamak); NEFEDOV, D.I. (Moskva); NOVOSELOV, S.I. (Moskva); PRAVILOV, B.R. (s.Kanino Ryazanskoy obl.); PRINTSEV, N.A. (Kursk); SEMENOVICH, A.F. (Sverdlovsk)

Discussion of the plans for the programs. Mat. v shkole no.6:5-28 N-D '59. (MIRA 13:3)

(Mathematics--Study and teaching)

ALEKSEYEV, G.P.; ANDON'YEV, V.S.; ARNOL'D, A.V.; BASKIN, S.M.; BASHMAKOV, N.A.; BEREZIN, V.D.; BERMAN, V.A.; BIYANOV, T.F.; GORBACHEV, V.N.; GRECHKO, I.A.; GRINBUKH, G.S.; GROMOV, M.F.; GUSEV, A.I.; DEMENT'YEV, N.S.; DMITRIYEV, V.P.; DUL'KIN, V.Ya.; ZVANSKIY, M.I.; ZENKEVICH, D.K.; IVANOV, B.V.; INYAKIN, A.Ya.; ISAYENKO, P.I.; KIPRIYANOV, I.A.; KITASHOV, I.S.; KOZHEVNIKOV, N.N.; KORMYAGIN, B.V.; KROKHIN, S.A.; KUDOYAROV, L.I.; KUDRYAVTSEV, G.N.; LARIN, S.G.; LEBEDEV , V.P.; LEVCHENKOV, P.N.; LEMZIKOV, A.K.; LIPGART, B.K.; LOPAREV, A.T.; MALYGIN, G.F.; MILOVIDOVA, S.A.; MIRONOV, P.I.; MIKHAYLOV, B.V., kand. tekhn. nauk; MUSTAFIN, Kh.Sh., kand. tekhn. nauk; NAZIMOV, A.D.; NEFEDOV, D.Ye.; NIKIFOROV, I.V.; NIKULIN, I.A.; OKOROCHKOV, V.P.; PAVLENKO, I.M.; PODROBINNIK, G.M.; POLYAKOV, G.Ya.; PUTILIN, V.S.; RUDNIK, A.G.; RUMYANTSEV, Yu.S.; SAZONOV, N.N.; SAZONOV, N.F.; SAULIDI, I.P.; SDOBNIKOV, D.V.; SEMENOV, N.A.; SKRIPCHINSKIY, I.I.; SOKOLOV, N.F.; STEPANOV, P.P.; TARAKANOV, V.S.; TREGUBOV, A.I.; TRIGER, N.L.; TROITSKIY, A.D.; FOKIN, F.F.; TSAREV, B.F.; TSETSULIN, N.A.; CHUBOV, V.Ye., kand. tekhn. nauk; ENGEL', F.F.; YUROVSKIY, Ya.G.; YAKUBOVSKIY, B.Ya., prof.; YASTREBOV, M.P.; KAMZIN, I.V., prof., glav. red.; MALYSHEV, N.A., zam. glav. red.; MEL'NIKOV, A.M., zam. glav. red.; RAZIN, N.V., zam. glav. red. i red. toma; VARPAKHOVICH, A.F., red.; PETROV, G.D., red.; SARKISOV, M.A., prof., red.; SARUKHANOV, G.L., red.; SEVAST'YANOV, V.I., red.; SMIRNOV, K.I., red.; GOTMAN, T.P., red.; BUL'DYAYEV, N.A., tekhn. red.

(Continued on next card)

ALEKSEYEV, G.P.---(continued). Card 2.

[Volga Hydroelectric Power Station; a technical report on the design and construction of the Volga Hydroelectric Power Station (Lenin), 1950-1958] Volzhskaia gidroelektrostantsiia; tekhnicheskii otchet o proektirovanii i stroitel'stve Volzhskoi GES imeni V.I.Lenina, 1950-1958 gg. V dvukh tomakh. Moskva, Gosenergoizdat. Vol.2.[Organization and execution of constrution and assembly work] Organizatsiia i proizvodstvo stroitel'no-montazhnykh rabot. Red. toma: N.V.Razin, A.V.Arngol'd, N.L. Triger. 1962. 591 p. (MIRA 16:2)

1. Deystvitel'nyy chlen Akademii stroitel'stva i arkhitektury SSSR (for Razin).
(Volga Hydroelectric Power Station (Lenin)--Design and construction)

NEFEDOV, G.A.

Storehouses in the coal industry; textbook Moskva, Ugletekhizdat, 1952. 339 p. (54-18051)

NEFEDOV, G.A.; MALINOVSKAYA, T.A.

Continuous measurement of the volume of filtrates during filtration. Khim. prom. 41 no.5:387-388 My '65.

(MIRA 18:6)

LEBEDEV, N.V.; FADEYEV, Ye.V.; LOGVINENKO, B.M.; NEFEDOV, G.N.; ZIL'-
BERMINTS, L.A.

Effect of acoustic oscillations on some representatives of the zooplankton of the Black Sea. Nauch. dokl. vys. shkoly; biol. nauki no. 2:94-96 '64. (MIRA 17:5)

1. Rekomendovana kafedroy darvinizma Moskovskogo gosudarstvennogo universiteta im. M.V.Lomonosova.

LEBEDEV, N.V.; LOGVINENKO, B.M.; FADEYEV, Yu.V.; NEFEDOV, G.N.;
ZIL'BERMINTS, L.A.; DEDUKHOVA, V.A.

Motor responses of anchovies to acoustic stimuli. Nauch. dokl. vys. shkoly; biol. nauki no.2:91-94 '65. (MIRA 18:5)

1. Rekomendovana kafedroy darvinizma Moskovskogo gosudarstvennogo universiteta im. M.V. Lomonosova.

NEFEDOV, G.N.

Growth factor and the rate of growth of the Sardinella aurita in the Dakar and Takoradi areas. Trudy Azcherniro no.20:44-48 '62. (MIRA 16:4)

(Atlantic Ocean—Sardines)

NEFEDOV, Ivan Ivanovich, laureat Stalinskoy premii, dorozhnyy master. **KUCHUGURNYY**, N.I., inzhener-podpolkovnik tyagi, redaktor; **KALENYY**, V., redaktor, **LADNYY**, Yu., tekhnicheskiy redaktor.

[My experience in perfect maintenance of railroad tracks] Moi opyt otlichnogo soderzhaniia puti. Pod red. N.Y.Kuchuhurnogo. [Kharkov] Khar'kovskoe knizhno-gazetnoe izd-vo, 1953. 33 p.
(Railroads--Maintenance and repair) (MLRA 8:2)

NEFEDOV, I.I., dorozhnyy master (g.Khar'kov)

The decisions of the Congress must be put into practice. Put' i put.khoz. 5 no.12:5 D '61. (MIRA 15:1)

(Railroads--Labor productivity)

KULIKOV, V.O.; PRIKHOZHENKO, A.Ye.; NEFEDOV, I.S.; GRYZLOV, Ye.S.;
BELYUKIN, A.A.

Self-carburation of natural gas in a "thick" jet. Metallurg
9 no.9:10-11 S '64. (MIRA 17:10)

1. Metallurgicheskiy zavod im. Il'icha.

ARTSYBASHEV, Ye.S., kand. sel'khoz. nauk, mladshiy nauchnyy sotr.;
VINOGRADOV, B.V., kand. geogr. nauk, starshiy nauchnyy sotr.; KUZNETSOV, V.V., pochvoved, mladshiy nauchnyy sotr.; MARKOVSKIY, V.K., inzh.-gidrogeol., mladshiy nauchnyy sotr.; MEYYER, G.Ya., doktor geol.-miner. nauk, starshiy nauchnyy sotr.; NEFEDOV, K.Ye., inzh.-gidrogeol., aspirant; POPOVA, T.A., kand. biol. nauk, mladshiy nauchnyy sotr.; KELL', N.G., otv. red.; KUDRITSKIY, D.M., red. izd-va; ZAMARAYEVA, R.A., tekhn. red.

[Application of aerial methods for the study of underground waters; materials on the studies in Turkmenia, the northwestern regions of the East European Plain, and the Caspian Depression] Primenenie aerometodov dlia izucheniia gruntovykh vod; materialy issledovaniia v severo-zapadnykh raionakh Russkoi ravniny v Prikaspiiskoi nizmennosti Turkmenii. Moskva, Izd-vo Akad. nauk SSSR, 1962. 141 p. (MIRA 15:11)

1. Russia (1923- U.S.S.R.) Ministerstvo geologii i okhrany nedr. Laboratoriya aerometodov. 2. Chlen-korrespondent Akademii nauk SSSR (for Kell').
(Water, Underground) (Aerial photogrammetry)

NEFEDOV, K.Ye.

Hydrogeological mapping based on data of aerial photography.
Dokl. AN SSSR 148 no.3:676-678 Ja '63. (MIRA 16:2)

1. Laboratoriya aerometodov Ministerstva geologii i okhrany nedr
SSSR. Predstavleno akademikom A.G. Betekhtinym.
(Water, Underground—Maps) (Photographic interpretation)

ZAYKOV, M.A.; TSELUYKOV, V.S.; KAMINSKIY, D.M.; DADOCHKIN, N.V.;
MESHCHERYAKOV, P.A.; MARININ, P.G.; MIRENSKIY, M.L.; PROKOP'YEV,
A.V.; OVCHINNIKOVA, R.F.; Prinimali uchastiye; BELYAVSKIY, M.A.;
KAFTANOV, M.P.; KUCHKO, I.I.; LAR'KINA, F.Ye.; MANCHEVSKIY, I.V.;
MARAMYGIN, G.F.; MERKUTCV, V.N.; NASIBULIN, A.S.; NEFEDOV, M.K.;
PERMYAKOV, V.M.; CHELYSHEV, N.A.; CHVANOV, L.K.

Investigating conditions of rolling on three-high billet mills.
Izvy vys. ucheb. zav.; chern. met. 6 no.10:74-83 '63.
(MIRA 16:12)

1. Sibirskiy metallurgicheskiy institut i Kuznetskiy metallurgicheskiy kombinat.

TOPKASOV, L.P.; NEFEDOV, M.V.

Rapid assembly of shops for the production of caprolactam.
Prom. stroi. 41 no.2:10-12 F '63. (MIRA 16:3)

1. Trest Sibmetallurgmontazh.
(Kemerovo—Azepinone)
(Kemerovo—Chemical plants)

KOLESNICHENKO, D.A.; NEFEDOV, N.A.; KRYLOV, I.S.

Practical use of textolite fillers in the repair of worn-out
machine components. Stan.i instr. 26 no.12:14-17 D '55.
(Machine tools) (MLRA 9:2)

OSIPOV, K.A.; NEFEDOV, N.A., inzh., retsenzent

[Methods of solving problems in metal cutting; for the course "Fundamentals of the study of metal cutting and the cutting tool."] Metodika resheniia zadach po rezaniiu metallov; predmet "Osnovy ucheniia o rezanii metallov i rezhushchii instrument." Moskva, 1958. 72 p. (MIRA 12:2)

(Metal cutting)

NEFEDOV, N.A., inzh.; OSIPOV, K.A., inzh.; ARSHINOV, V.A., kand. tekhn nauk, dots., retsenzent; EPSHTEYN, A.Yu., inzh., retsenzent; KUNIN, P.A., inzh., red.; SOKOLOVA, T.F., tekhn. red.

[Problems and examples of metal cutting and metal-cutting tools] Sbornik zadach i primerov po rezaniiu metallov i rezhushchemu instrumentu. Moskva, Mashgiz, 1962. 224 p. (MIRA 15:11)
(Metal cutting) (Metal-cutting tools)

NEFEDOV, N.I., prof., doktor biolog. nauk

Click beetles (Elateridae) and their zonal distribution in the Kabardino-Balkar A.S.S.R. Uch. zap. Kab.-Balk. gos. un. no.12: 103-109 '62. (MIRA 16:6)

(Kabardino-Balkar A.S.S.R.—Click beetles)

NEFEDOV, N.I.; SEKREKOV, P.G.

Materials on the infestation of farm lands by wireworms and the larvae of darkling and comb-clawed beetles in a series of collective farms of Terek District, Kabardino-Balkar A.S.S.R. Uch. zap. Kab.-Balk. gos. un. no.12:111-116 '62.
(MIRA 16:6)

(Terek District--Wireworms)
(Terek District--Darkling beetles)
(Terek District--Comb-clawed beetles)

NEFEDOV, N.I.; ABITOV, M.B.

Materials on the infestation of farm lands by wireworms and the larvae of darkling and comb-clawed beetles in a series of collective farms of Zol'skiy District, Kabardino-Balkar A.S.S.R. Uch. zap. Kab.-Balk. gos. un. no.12:117-120 '62. (MIRA 16:6)

(Zol'skiy District—Wireworms)
(Zol'skiy District—Darkling beetles)
(Zol'skiy District—Comb-clawed beetles)

NEFEDOV, N.I., prof., doktor biolog. nauk

Species of main soil pests on the collective farms of Terek and Zol'skiy Districts, Kabardino-Balkar A.S.S.R. Uch. zap. Kab.-Balk. gos. un. no.12:131-142 '62. (MIRA 16:6)

(Terek District—Agricultural pests)
(Zol'skiy District—Agricultural pests)

NEFEDOV, N.I., prof., doktor biolog. nauk

Methods for determining the infestation of farm lands by wireworms and the larvae of darkling and comb-clawed beetles. Uch. zap. Kab.-Balk. gos. un. no.12:143-158 '62.
(MIRA 16:6)

(Wireworms)
(Darkling beetles)
(Comb-clawed beetles)

NEFEDOV, N.I.

Ladybirds of Ul'yanovsk Province. Uch. zap. Kab.-Balk. gos. un. no.12:173-185 '62. (MIRA 16:6)

(Ul'yanovsk Province—Ladybirds)

NEFEDOV, N.I.

Around Mount Elbrus. Uch. zap. Kab.-Balk. gos. un. no.14:
149'62. (MIRA 16:6)

(ELBRUS, MOUNT — BIOLOGICAL RESEARCH)

NEFEDOV, N.I., prof. dr. sol'skokhoz. nauk

Zonal character in the distribution of the Coccinellidae of the Kabardino-Balkar A.S.S.R. Uch. zap. Kab.-Balk. gos. un. no.10: 105-127 '61.

Variability and formation of species among Coccinellidae. Uch. zap. Kab.-Balk. gos. un. no.10:129-145 (MIRA 17:6)

ACC NR: AP7004199 SOURCE CODE: UR/0125/67/000/001/0056/0058

AUTHOR: Kareta, N. L.; Nefedov, N. N.

ORG: Electric Welding Institute im. Ye. O. Paton, AN UkrSSR (Institut elektrosvarki AN UkrSSR)

TITLE: Welding of graphite materials

SOURCE: Avtomaticheskaya svarka, no. 1, 1967, 56-58

TOPIC TAGS: graphite, ~~[illegible],~~ ~~material~~ METAL joining, electric arc welding, diffusion bonding, bonding technology, ~~bonded joint strength~~, BUTT WELDING, CONSUMABLE ELECTRODE, BONDING PROPERTY, DIFFUSION WELDING

ABSTRACT: Two 10 mm-thick graphite plates with flat end faces placed 1 mm from each other were butt welded using a consumable graphite electrode 15 mm in diameter and a straight-polarity d-c current of 200 amp at 60 v. The welding was done in air at a pressure of 120—180 atm and at a welding speed of 1.5 m/hr. The graphite of the joint had a sharply defined columnar structure and a very low strength. The strength of the joint was significantly increased by using silicon-impregnated graphite as a filler material, but the resulting weld strength was still too low for practical

Card 1/2 UDC: 621.791.752

ACC NR: AP7004199

purposes. Similar unsatisfactory results were obtained in diffusion bonding of 10 mm-thick plates of 30PG and 50PG graphite, anode-grade graphite, and EGO electrode-grade graphite. The graphite plates were electrically heated to 1500—4000C and pressed against each other with a force of 1 kg/mm^2. Satisfactory results were obtained in diffusion bonding with a titanium, zirconium, niobium, tantalum or hafnium insert between the graphite plates to be jointed. The plates were heated to 2300—3000C in an inert gas by a current at a density of 7—14 amp/cm^2 and held against each other under a pressure of up to 1 kg/mm^2 for 3—6 min. The joint had a eutectic structure consisting of graphite and metal carbide. The strength of the joint depended on the depth of penetration of metal into graphite, and the joint failed along the base material if the metal penetrated to a depth of 1.5—2 mm. The joints of EGO electrode graphite, anodic graphite, and graphite densified with pyrographite, diffusion bonded with a zirconium insert 0.1—0.15 mm thick, had at 2500C a tensile strength of 158, 156 and 498 kg/cm^2, respectively. In tension and bending tests at room temperature, the joints failed along the base material. Orig. art. has: 3 figures and 1 table. [MS]

SUB CODE: 11, 13/ SUBM DATE: 19Apr66/ ORIG REF: 003/ ATD PRESS: 5116

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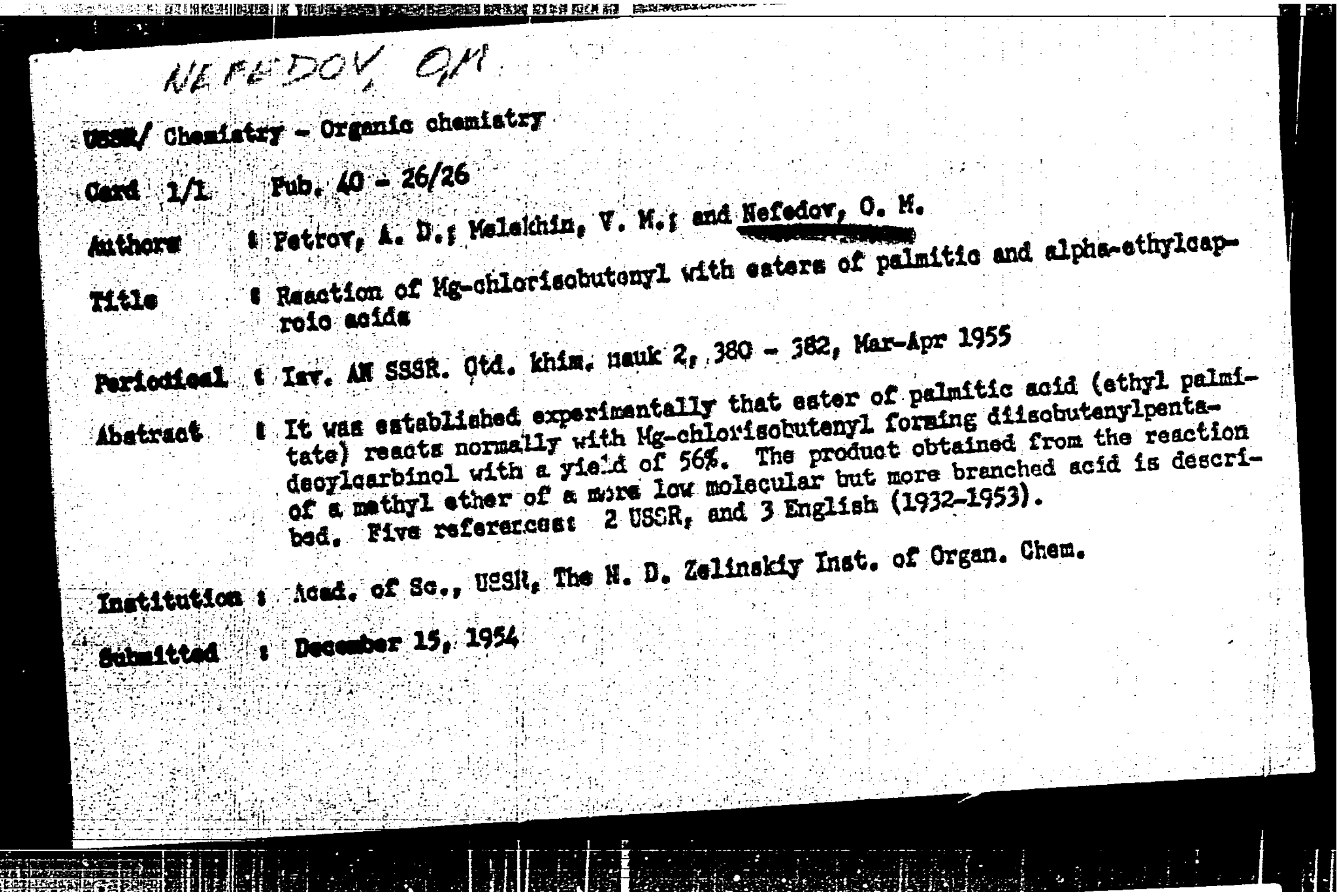

NEFEDOV, O.M.

USSR/ Chemistry - Organic chemistry

Card 1/1 Pub. 40 - 26/26

Authors : Petrov, A. D.; Melekhin, V. M.; and Nefedov, O. M.

Title : Reaction of Mg-chlorisobutenyl with esters of palmitic and alpha-ethylcaproic acids

Periodical : Izv. AN SSSR. Otd. khim. nauk 2, 380 - 382, Mar-Apr 1955

Abstract : It was established experimentally that ester of palmitic acid (ethyl palmitate) reacts normally with Mg-chlorisobutenyl forming diisobutenylpentadecylcarbinol with a yield of 56%. The product obtained from the reaction of a methyl ether of a more low molecular but more branched acid is described. Five references: 2 USSR, and 3 English (1932-1953).

Institution : Acad. of Sc., USSR, The N. D. Zelinskiy Inst. of Organ. Chem.

Submitted : December 15, 1954

NEFEDOV, O. M., Cand Chem Sci -- (diss) "Metalorganic Synthesis and Properties of 1-alkylnaphthalenes and 1', 1'-di-(1-naphthyl)-alkans of the Compound C_{17}-C_{28}." Mos, 1957. 15 pp (Min of Higher Education USSR, Mos Order of Lenin Chemicotechnological Inst im D. I. Mendeleyev), 110 copies (KL, 49-57, 111)

NEFEDOV, O. M.

Distr: 4E4j/4E3d/4E2c(j)

Reaction of 2-phenyl-2-methylpropylmagnesium chloride with allyl chloride and methallyl chloride. A. D. Petrov, O. M. Nefedov, and Yu. N. Ogibin (N. D. Zelinskii Inst. Org. Chem., Acad. Sci. U.S.S.R., Moscow). *Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1957, 1004-6.—Alkylation of C_6H_6 with methallyl chloride in the presence of H_2SO_4 gave 75-80% *1-chloro-2-methyl-2-phenylpropane*, b. 71-2°, n_D^{20} 1.1210, d_{20} 0.9228. This (84.3 g.) treated with 18.8 g. Mg in Et_2O gave the Grignard reagent in 88% yield, which treated with 131 g. iso-BuCl over 4 hrs. and refluxed 20 hrs. gave after refluxing the products over Na 80% Me_3CPh; with shorter period of the last step the products consisted of 84% Me_3CPh and some 2,5-dimethyl-2,5-diphenylhexane. Treatment of the above Grignard reagent with CH_2:$CHCH_2Cl$ gave 70% *5-methyl-5-phenyl-1-hexene*, b_7 71°, n_D^{20} 1.1043, d_{20} 0.8948, along with diallyl and some Me_3CPh. Similar reaction with methallyl chloride gave biisobutenyl, Me_3CPh, and *2,5-dimethyl-5-phenyl-1-hexene*, b_7 90°, 1.5074, 0.9174. Hydrogenation of the products gave: *2-methyl-2-phenylhexane*, b_5 70°, 1.4908, 0.8675; *2,5-dimethyl-2-phenylhexane*, b_5 78°, 1.4885, 0.8653; *2-methyl-2-cyclohexylhexane*, b_4 90.5°, 1.4582, 0.8330; *2,5-dimethyl-2-cyclohexylhexane*, $b_{0.4}$ 116.5°, 1.4634, 0.8448. *2,5-Dimethyl-2,5-diphenylhexane*, m. 62°; *2,5-dimethyl-2,5-dicyclohexylhexane*, m. 83°. Alkylcyclohexanes possess 1.5 greater viscosities than do the corresponding phenyl analogs. G. M. Kosolapoff

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Nefedov, O.M.

Distr: 4E2c(j)/4E4j/4E3d 7

Synthesis and viscous properties of 1-alkylnaphthalenes and their decahydro derivatives. A. D. Petrov, O. M. Nefedov, and V. D. Vorob'ev (D. I. Mendeleev Chem. Technol. Inst., Moscow). *Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1957, 1105-10.—Attempts to prep. 1-(2-ethylhexyl)naphthalene from 1-$C_{10}H_7Cl$ or 1-$C_{10}H_7Br$ and the appropriate RBr by conventional Wurtz reaction were not very satisfactory. In Et_2O, Li or Mg gave only traces of desired products, yielding mainly $C_{10}H_8$, 5,8-diethyldodecane, and 1,1'-binaphthalene. K gave somewhat better results with 3.5-6% yields of the desired product, while Na in Et_2O gave 8-9% yields with $C_{10}H_7Cl$, and 4-6% with $C_{10}H_7Br$ being used. Repetition of Andreev's synthesis (*C.A.* 41, 2595i) with Li gave 11% 1-$C_{10}H_7Bu$. To 7 g. Li in 200 ml. Et_2O was added 3-5 ml. 1-$C_{10}H_7Cl$, the mixt. heated to start the reaction, the remainder of ArCl (65 g. total) in 150 ml. Et_2O added during 105 min., after stirring 1 hr. the mixt. treated with 0.8 mole desired RX in 150 ml. Et_2O during 105 min., stirred 2-3 hrs., refluxed 7-10 hrs., and treated with dil. AcOH, and the products were isolated by fractionation. Thus were prepd.: *1-n-octylnaphthalene*, $b_{1.5}$ 182.7°, $b_{1.0}$ 171°, m. −2°, n_D^{20} 1.5527, d_{20} 0.9413; *1-sec-octylnaphthalene*, $b_{1.5}$ 173°, m. −60°, 1.5506, 0.9389; *1-(2-ethylhexyl)naphthalene*, b_1 161.5°, m. −44.5°, 1.5530, 0.9406; *1-(1-methyl-1-ethylamyl)naphthalene*, $b_{1.0}$ 144°, m. −38°, 1.5518, 0.9610; *1-n-octyldecahydronaphthalene*, $b_{1.5}$ 157°, m. −14.5°, 1.4750, 0.8689; *1-sec-octyldecahydronaphthalene*, b_1 150.5-1°, m. −68°, 1.4763, 0.8709; *1-(2-ethylhexyl)decahydronaphthalene*, $b_{1.5}$ 155°, m. −55.5°, 1.4768, 0.8729; *1-(1-methyl-1-ethylamyl)decahydronaphthalene*, b_1 145-6°, m. −42°, 1.4837, 0.8859. The decahydro

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A. D. Petrov, O. A. Defedov, V. L. Vainy.

cerivs. were prepd. from the naphthalenes by hydrogena-
tion over Raney Ni. Viscosities of the products are tabu-
lated in 20-200° range. Products with iso structure have
greater viscosity than those with normal side chains, but the
difference is small above 125°. Reaction of $C_6H_{13}MgBr$
with $1\text{-}C_{10}H_7Ac$ gave crude *2-(1-naphthyl)-2-octanol*, mixed
with the corresponding olefin, b_4 160-5°, which heated
with $CuSO_4$ gave *2-(1-naphthyl)octene*, 90%, b_4 163.5-4°,
1.5801, 0.9532. This hydrogenated over Raney Ni to *2-(1-*
naphthyl)octane, b_4 162.5°, 1.5518, 0.9393 G. M. K.

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Nefedov, G.M.

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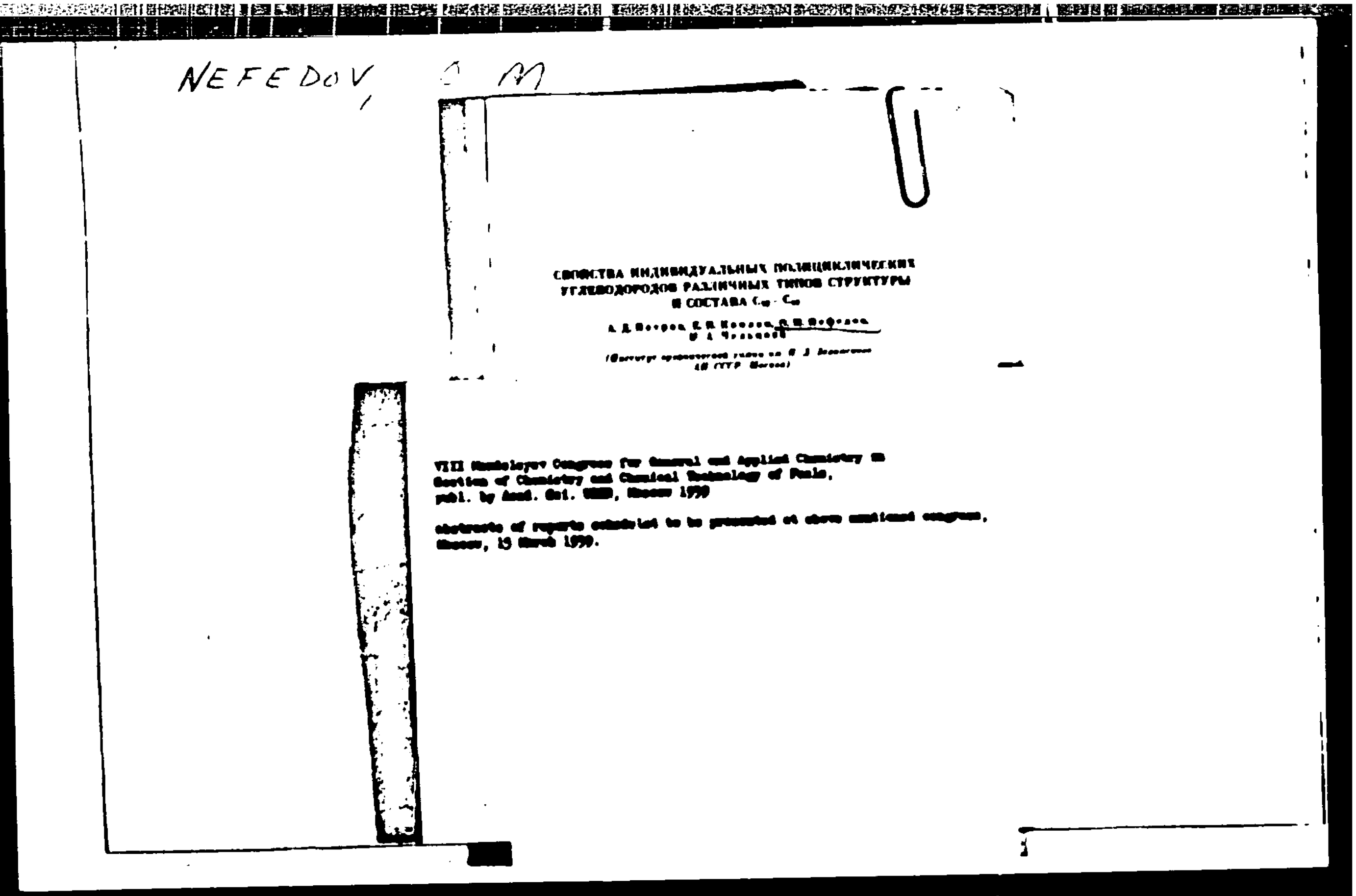
✓ **Effect of the nature of the metal on yields of alkanes synthesized by the Wurtz reaction.** A. D. Petrov, G. M. Nefedov, and E. I. Grigor'ev (D. I. Mendeleev Chem. Technol. Inst., Moscow). *Zhur. Obshchei Khim.* 27, 1876-81(1957); cf. *C.A.* 48, 3230d.—Increase of yields of alkanes in the Wurtz reaction was observed in passing from Mg to Li, Na, or K; this increase is small for secondary halides and quite considerable for primary halides. Treatment of [illegible] with HBr at 120-30° gave 3-[illegible] (0.21 mole) added in 1 hr. to 0.5 g.-equiv. metal in Et_2O, heptane, or isopentane and stirred 10 hrs. gave *6,8-diethyldodecane*, b_4 99°, f.p. −92°, n_D^{20} 1.4373, d_{20} 0.7822, the yield being best with Na in Et_2O or isopentane (68.5-69.1%) or with K in isopentane (71.8%). $C_6H_{13}MgBr$ with PrCHO gave 75% 4-decanol, b_{11} 99°, 1.4320, 0.8262, which gave 4-bromodecane, b_{11} 97-8°, 1.4568, 1.0705, which with K in Et_2O gave 17-22.5% *7,8-dipropyltetradecane*, b_4 161°, f.p. −66°, 1.4435, 0.7943. Similarly, *sec*-octyl bromide and Mg followed by AcH gave 72% 3-methyl-2-nonanol, b_8 86-9°, 1.4286, 0.8353, which gave *2-bromo-3-methylnonane*, b_8 71.5-5°, 1.4526, 1.0722, which with K in Et_2O gave 7.4-10% *7,8,9,10-tetramethylhexadecane*, b_4 144-6°, b_8 163-5°, f.p. −88°, 1.4550, 0.8112. Grignard reagent from 1-bromo-2-ethylhexane and iso-PrCHO gave 69% *2-methyl-5-ethyl-3-nonanol*, b_{12} 81-2°, 1.4412, 0.8471, which gave *3-bromo-2-methyl-5-ethylnonane*, b_{11} 85°, 1.4578, 1.0226, which with K in isopentane gave 9.6% *5,10-diethyl-7,8-diisopropyltetradecane*, b_4 164-6°, f.p. −67°, 1.4662, 0.8173 (with Na the yield was lower); the products of disproportionation reaction were hydrogenated over Raney Ni yielding *2-methyl-5-ethylnonane*, b_{11} 83°, f.p. −116°, 1.4227, 0.7520. All the Wurtz reactions were run under N atm.

G. M. Kosolapoff

4E4j
4E3d



NEFEDOV, O M

СВОЙСТВА ИНДИВИДУАЛЬНЫХ ПОЛИЦИКЛИЧЕСКИХ
УГЛЕВОДОРОДОВ РАЗЛИЧНЫХ ТИПОВ СТРУКТУРЫ
И СОСТАВА [illegible] - [illegible]

А. Д. Петров, [illegible], О. М. Нефедов,
[illegible]

(Институт органической химии им. Н. Д. Зелинского
АН СССР, Москва)

VIII Mendeleyev Congress for General and Applied Chemistry in
Section of Chemistry and Chemical Technology of Fuels,
publ. by Acad. Sci. USSR, Moscow 1959

Abstracts of reports scheduled to be presented at above mentioned congress,
Moscow, 15 March 1959.

S/081/62/000/001/052/067
B158/B101

11.013

AUTHORS: Petrov, A.D., Nefedov, O.M.

TITLE: Properties of some individual hydrocarbons of naphthalene and hydronaphthalene series of $C_{17}-C_{26}$ composition

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 1, [illegible], 41, abstract 1Zh149 (Tr. Groznensk. neft. in-t, sb. [illegible], [illegible], 218-224)

TEXT: Results are given of studies of the solidification point (melting point), kinematic viscosity, oxidation susceptibility, thermal stability and heat value of naphthalene hydrocarbons and their hydrogenated forms. It is established that in the case of α-alkylnaphtalenes and 1,1-di-(α-naphthyl)-alkanes the transition from aromatic hydrocarbons to their perhydrogenated forms causes an increase in the viscosity and a reduction in the solidification point in contrast with the β-alkylnaphthalenes and other alkyl aromatic hydrocarbons. Among the isomeric α-alkynaphthalenes and their decahydrogenated products the viscosity increases in proportion to the number of tertiary and particularly

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Properties of some ...

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quaternary C atoms in the side chain. In the 1,1-di-(α-naphthyl) alkane series and their perhydrogenated forms the melting point and viscosity decrease with increase in the length of the aliphatic radical. It is shown that the heat value per unit volume increases in measure with cyclization of the hydrocarbons from alkanes to alkyl decanes and further to didekalylalkanes. [Abstracter's note: Complete translation.]

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5 33003

S/079/60/030/06/02/009
B002/B016

AUTHORS: Petrov, A. D., Zalegn, B. B., Mal'antcheva, V. G., Zakharov, Ye. P., Nefedov, O. M., Tereshchenko, Ye. B., Chel'tsova, M. A.

TITLE: Properties of Naphthene Hydrocarbons of Different Structural Types of the Composition $C_{14}-C_{28}$

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol. 30, No. 6, pp. 1764-1780

TEXT: Since there are no data available on the most important physical properties of the various alkyl cyclohexanes of the composition $C_{14}-C_{20}$ with branched side chain, the alkyl decaline and the tricyclohexyl alkanes and didecalyl alkanes, an attempt was made here to detect some relationships between heat of combustion by volume and weight, molecular weight, structure, number of naphthene rings, their mutual arrangement in the molecule and the degree of the side chain branching. The following naphthene hydrocarbons were synthesized by hydrogenation of alkyl-aromatic hydrocarbons of the benzene and naphthalene series which were obtained by

Properties of Naphthene Hydrocarbons of Different Structural Types of the Composition $C_{14}-C_{28}$

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the authors for the first time by means of magnesium and lithium-organic compounds: 1) alkyl cyclohexanes with quaternary C atom in the side chain, 2) 1,1-dicyclohexyl alkanes and 1,1,1-tricyclohexyl alkanes, 3) 1,2-dicyclohexyl ethanes, 4) α-alkyl decalins, 5) 1,1-di-(α-decalyl) alkanes. Furthermore some isoparaffins of the carbon number $C_{14}-C_{22}$ and di- and tricyclohexyl alkanes with cyclohexyl rings distributed along the chain were synthesized by the Grignard-Wurtz reaction. Heat of combustion, solidification point, density, kinematic viscosity at 20° and structure of the compounds were determined. The values are summarized in the table. The heat of combustion was determined in a bomb calorimeter according to ГОСТ 5080-55 (GOST 5080-55), and the solidification point according to ГОСТ 1533-42 (GOST 1533-42). The results show that the heat of combustion by volume of compounds with about the same molecular weight is the higher the higher the number of the naphthene rings contained in these compounds. It was further found that in the 1,1-di-(α-decalyl)-alkanes the solidification point, the viscosity, and the calorific value by volume decrease with increasing molecular weight. In alkyl cyclohexanes with equal branching degree, however, an increase of these properties is

Properties of Naphthene Hydrocarbons of Different Structural Types of the Composition $C_{14}-C_{28}$

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B002/B016

observable, which reflects the influence of the mutual arrangement of the rings in the molecules. It was further confirmed that the density, the calorific value by volume and the viscosity increase proportionally to the number of the tertiary but especially of the quaternary carbon atoms in the side chains. The synthetic procedure is briefly outlined in the experimental part. Synthesis schemes are given. There are 1 table and 20 references: 7 Soviet and 13 American.

ASSOCIATION: Institut organicheskoy khimii Akademii nauk SSSR (Institute of Organic Chemistry of the Academy of Sciences of the USSR)

SUBMITTED: June 7, 1959

86166

S/020/60/133/004/038/040XX
B016/B054

5 3700 2209 1236 1273

AUTHORS: Nefedov, O. M., Levkov, Ya. L., and Petrov, A. D.,
Corresponding Member of the AS USSR

TITLE: Production of Aryl Halides From Aromatic Hydroxy Compounds

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 133, No. 4,
pp. 855-858

TEXT: The authors discuss the methods of producing aryl halides (ArX), and the difficulties arising in this connection. They mention a method suggested by English chemists (Ref. 4) in 1957, which eliminates these shortcomings. There, the ArX are produced from the corresponding hydroxy compounds Ar'OH and PCl_5 according to the following scheme:

$$3Ar'OH + PCl_5 \xrightarrow{120-140^\circ} (Ar'O)_3PCl_2 + 3HCl;$$

$$(Ar'O)_3PCl_2 + ArOH \xrightarrow{120-140^\circ} (Ar'O)_3(ArO)PCl + HCl;$$

$$(Ar'O)_3(ArO)PCl \xrightarrow{230-350^\circ} ArCl + (Ar'O)_3PO.$$

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Production of Aryl Halides From Aromatic Hydroxy Compounds

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B016/B054

where Ar'OH is an aromatic hydroxy compound with better electron-donor properties than ArOH (phenol, p-cresol, the best one being p-tert.-butyl phenol). To obtain aryl bromides (ArBr) or aryl iodides (ArI), the compound $(Ar'O)_3(ArO)PCl$ is boiled before the pyrolysis with an excess of C_2H_5Br or CH_3I, e.g.:

$$(Ar'O)_3(ArO)PCl + C_2H_5Br \xrightarrow{t} (Ar'O)_3(ArO)PBr + C_2H_5Cl$$

$$(Ar'O)_3(ArO)PBr \xrightarrow{250-350} ArBr + (Ar'O)_3PO$$

X

During the pyrolysis of the reaction products, the undesired halide Ar'X is also formed (up to 70%). The yields of aryl bromides become even smaller. Therefore, the authors developed modified methods of synthesizing individual ArX, in which they proceeded from the corresponding hydroxy compounds and PX_5. They found that the substitution of the hydroxy group in ArOH by chlorine for the production of ArCl can be performed during one stage. For this purpose, the corresponding aromatic compound is heated

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with PCl_5 (ratio 4:1) at 140-160°C for 3-5 h. Subsequently, the resulting tetraaryloxy phosphorus chloride is pyrolytically decomposed at 280-300°C. The yields in aryl chlorides attained nearly the theoretical ones (92-95%), irrespective of the electron-donor capacity of the ArOH used. In a similar way, the authors obtained several ArBr in yields of 70-95% from ArOH and PBr_5 (4 : 1). The modification mentioned fully eliminated the formation of contaminating aryl halides, reduced the duration of the process to 1/2 or even 1/5, and increased the ArX yields by 50-100%. The use of a certain excess ArOH over the stoichiometric ratio does not reduce the ArX yield, nor does it impede its purification, since the admixture of ArOH can be easily removed by alkali. The advantage of this method lies in the fact that the triaryl phosphates formed in the pyrolysis of $(ArO)_4PX$ can be hydrolyzed up to 2/3 by boiling with alkali for 5-8 h. The ArOH isolated during that process may be used again for the production of ArX without any special purification. Finally, the authors thoroughly describe the reactions mentioned. Table 1 shows constants of the ArOH used, as well

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