S/768/60/000/004/002/004
I060/I242

AUTHORS: Plyusnin, V.G., Alekseyeva, I.A., and Babin, Ye, P.

TITLE: Orientation of isopropyl groups in the benzene cycle during catalytic alkylation by propylene over $AlCl_3$, HF, H_2SO_4

SOURCE: Akademiya nauk SSSR. Ural'skiy filial. Institut khimii. Trudy. no. 4. 1960. Sbornik rabot Laboratorii neftesinteza, 49-58

TEXT: Various authors have published conflicting data on this subject. The spectra of combined dispersion of triisopropylbenzene are not described in literature. 1,2,4 and 1,3,5 - triisopropylbenzenes were separated from alkylates and their

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spectra of combined light dispersion were studied. The spectra were photographed on a glass triprismal spectrograph ИСП -51 (ISP-51) on plates with a sensitivity of 45 units GOST. It is possible to determine by this method the composition of alkylates obtained by alkylation of benzene by propylene in the presence of $AlCl_3$, HF, H_2SO_4, and a phosphate catalyst. In the alkylation over $AlCl_3$ the diisopropylbenzene fraction contains only two isomers - 1,3 and 1,4 - diisopropylbenzene,with the predominance of the former; the triisopropylbenzene fraction of the alkylate consists of 1,3,5 - triisopropylbenzene. When alkylating with HF and H_2SO_4, the diisopropylbenzene fraction contains all the three isomers with the predominance in approximately equal amounts of 1,3 and 1,4 isomers, whilst the main product of the triisopropylbenzene fraction is

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1,2,4 - triisopropylbenzene. The diisopropylbenzene fraction obtained with phosphate catalyst contains all the three isomers, the 1,3 - isomer being predominant. Through action of $AlCl_3$ on mono- and diisopropylbenzenes an equilibrium solution is formed of isomers in the diisopropylbenzene fraction in which the proportion between the 1,3 and the 1,4 isomers is three to one. The triisopropylbenzene fraction consists of 1,3,5 - triisopropylbenzene. Unlike the mono- and diisopropylbenzenes, symmetrical triisopropylbenzene does not undergo dealkylation in the presence of small amounts of $AlCl_3$. When alkylating with $AlCl_3$, a composition in equilibrium is formed only when alkylbenzenes differ in the number of alkyl groups. No equilibrium solution of isomers of diisopropylbenzene has been obtained. There are 5 tables. The most important English-language reference is A.W. Franois, Chem.Rev.,(1948),43,257.

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BABIN, Ye.P.; PLYUSNIN, V.G.; RODIGIN, N.M.; ZELENTSOVA, M.I.

Reversible sequential reactions in the propylation of diisopropylbenzene with aluminum chloride. Izv.Sib.otd.AN SSSR no.5:66-72 '60. (MIRA 13:7)

1. Ural'skiy filial AN SSSR.
(Benzene) (Propylation)

BABIN, Ye.P.; PLYUSNIN, V.G., ALEKSEYEVA, I.A.

Kinetics of the formation of alkylbenzene isomers during the alkylation process. Izv.Sib.otd.AN SSSR no.8:75-83 '60.
(MIRA 13:9)

1. Ural'skiy filial AN SSSR.
(Benzene) (Alkylation)

5.3300,5.1190

77865
SOV/79-30-2-16/78

AUTHORS: Babin, Ye. P., Plyusnin, V. G. , Alekseyeva, I. A., Nasakina, M. I., Alekseyeva, G. A.

TITLE: Dealkylation of Polyalkylbenzenes in the Presence of Aluminum Chloride

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol 30, Nr 2, pp 430-435 (USSR)

ABSTRACT: The effect of temperature on the composition of final products of dealkylation of polyisopropylbenzenes (over $AlCl_3$) is reported in this paper. Dealkylation experiments were performed at 20, 40, 60, and 80° in a three-neck round-bottom flask, provided with a spiral stirrer, reflux condenser, and a bubbler for introducing dry hydrogen chloride. 0.27 moles of $AlCl_3$ was used for every mole of alkylbenzene. Reaction time: 6 hours. The two layers, the upper a hydrocarbon and the lower a catalyst phase, were separated, washed with ice water,

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SOV/79-30-2-16/78

dilute HCl and again with water, and then fractionated. The analytical results show that: (1) In the dealkylation of monoisopropylbenzene, raising of temperature lowers the content of monoisopropylbenzene in the hydrocarbon layer (from 19.3% at 20° to 8.7% at 80°), while the content of benzene increases in both the hydrocarbon and (more so) in the catalyst layer. The rise in temperature also increases the ratio of the layers catalyst/hydrocarbon (from 1.8 at 20° to 3.6 at 80°) due to an increase in concentration of di- and triisopropylbenzenes (and of the polymeric products formed in the reaction) in the catalyst phase. (2) In case of diisopropylbenzene, a rise in temperature causes an increase in concentration of benzene, mono- and triisopropylbenzene, and also an increase of diisopropylbenzene in the hydrocarbon layer. Such apparent inconsistency is explained by increasing dealkylation of triisopropylbenzene (concentration of the latter in the catalyst layer decreases with rising temperature) which is formed during the process.

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(3) Dealkylation of triisopropylbenzene results in formation of benzene, mono- and diisopropylbenzene, the concentration of which increases with increasing temperature. The catalyst phases of the polyisopropylbenzenes contain a considerable quantity of unsaturated hydrocarbons, which increases with rising temperature. As in the case of mono- and diisopropylbenzenes, alkylation of triisopropylbenzene results in formation of polymerization products, the concentration of which increases with rising temperature. Comparing the investigated polyisopropylbenzenes, triisopropylbenzene is the most stable, while the mono-derivative is least stable in regard to dealkylation in the presence of aluminum chloride. Isomeric di- and triisopropylbenzenes were analyzed by taking their Raman spectra (taken on the ISP-51 spectrograph and measured with IZA-2 microscope and MF-2 microphotometer). The rise in temperature causes slight changes in meta- to para-isomer ratio (4-fold rise in temperature causes a 6% decrease in concentration of para-diisopropylbenzene, due to

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Dealkylation of Polyalkylbenzenes in the Presence of Aluminum Chloride

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conversion into the meta-isomer). The triisopropylbenzene fractions obtained in all experiments contained only 1,3,5-triisopropylbenzene. There are 6 tables; and 20 references, 9 Soviet, 7 German, 1 Japanese, 2 U.S., 1 French. The U.S. references are: Norris, Rubinstein, J. Am. Chem. Soc., 61, 1167 (1938); H. Gilman, R. M. Meals, J. Org. Chem., 8, 126 (1943).

ASSOCIATION: Ural Branch of the Academy of Sciences, USSR (Ural'skiy filial Akademii nauk SSSR)

SUBMITTED: February 9, 1959

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68340

S/076/60/034/01/012/044
B008/B014

~~5(4)~~ 5.3200

AUTHORS: Plyusnin, V. G., Babin, Ye. P.

TITLE: Rules of the Substitution of Alkyl Groups for Hydrogen Atoms in the Benzene Nucleus
VI. The Problem of Equilibrium in the Process of Alkylation of Benzene by Propylene in the Presence of Aluminum Chloride and Hydrogen Fluoride

PERIODICAL: Zhurnal fizicheskoy khimii, 1960, Vol 34, Nr 1, pp 78-82 (USSR)

ABSTRACT: In this paper the authors investigated hydrofluoric alkylation with respect to the equilibrium and reversibility of this process at each individual stage of the successive substitution of alkyl groups for hydrogen atoms. Tables 1 and 2 indicate that the composition of the alkylates remains practically unchanged before and after the treatment with aluminum chloride or hydrogen fluoride with different molar ratios between olefin and benzene. The chemical equilibrium between the alkylation products is stabilized within the course of alkylation according to the amount of olefin entering the reaction vessel. The equilibrium composition of the alkylation products is determined only by the interaction between the

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Rules of the Substitution of Alkyl Groups for Hydrogen Atoms in the Benzene Nucleus
VI. The Problem of Equilibrium in the Process of Alkylation of Benzene by Propylene in the Presence of Aluminum Chloride and Hydrogen Fluoride

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B008/B014

reacting components with regard to the respective catalyrt. Table 3 indicates that the distribution of the alkyl groups in the presence of aluminum chloride is an equilibrium process, which is, however, not reversible for all substances. An investigation of the dealkylation products showed that, with corresponding values of the molar ratios between olefin and benzene, they are similar to the alkylation products. A figure on p 80 shows curves representing the composition of the system during benzene alkylation with propylene at 60° in the case of different molar ratios. Table 4 contains the results of an investigation of products obtained after tetraisopropyl benzene had been treated with aluminum chloride and hydrogen fluoride. It may thus be concluded that in the reaction with aluminum chloride the first, second, and fourth stage of the successive alkylation are reversible. In the case of alkylation with hydrogen fluoride, however, only the fourth stage is reversible. A scheme is suggested for the two reactions. N. N.

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Rules of the Substitution of Alkyl Groups for Hydrogen Atoms in the Benzene Nucleus VI. The Problem of Equilibrium in the Process of Alkylation of Benzene by Propylene in the Presence of Aluminum Chloride and Hydrogen Fluoride

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B008/B014

Lebedev is mentioned in this paper. There are 1 figure, 4 tables, and 16 references, 8 of which are Soviet.

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ASSOCIATION: Ural'skiy filial Akademii nauk SSSR (Ural Branch of the Academy of Sciences, USSR)

SUBMITTED: May 30, 1957

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5.3200

68816

AUTHORS: **Plyusnin, V. G., Babin, Ye. P., Nasakina, M. I., Rodigin, N. M.**

S/076/60/034/02/003/044
B010/B015

TITLE: Laws of the Substitution of Hydrogen Atoms in the Benzene Nucleus by Alkyl Groups. VII. Ratio Between the Velocity Constants of the Formation of Isopropyl Benzene and Equations for the Composition of the Products of Benzene Alkylation by Propylene in the Presence of Aluminum Chloride

PERIODICAL: Zhurnal fizicheskoy khimii, 1960, Vol 34, Nr 2, pp 267-271 (USSR)

ABSTRACT: In previous papers (Refs 1-3) it was found that the benzene alkylation with propylene in the presence of hydrogen fluoride (as a catalyst) leads to a successive formation of mono-, di-, tri-, and tetraisopropyl benzene, with the reaction rate constants occurring in the following ratio: $k_1 : k_2 : k_3 : k_4 = 1 : 0.8 : 0.32 : 0.16$. In the present paper, this reaction was investigated in the presence of aluminum chloride (instead of hydrogen fluoride). Alkylation took place at 60 ± 0.2°. Propylene was passed through a mixture of 0.03 mol of aluminum chloride per 1 mol of benzene at a constant velocity (about 300-330 l/h per 1 kg of benzene). Tables show the experimental results obtained (Tables 1,2). According to results of experiments and calculation, the ratio of the reaction

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B010/B015

Laws of the Substitution of Hydrogen Atoms in the Benzene Nucleus by Alkyl Groups. VII. Ratio Between the Velocity Constants of the Formation of Isopropyl Benzene and Equations for the Composition of the Products of Benzene Alkylation by Propylene in the Presence of Aluminum Chloride

rate constants is as follows: $k_1 : k_2 : k_3 : k_4 = 1 : 0.58 : 0.24 : 0.015$. Tetraisopropyl benzene is the end product of benzene alkylation. The equations for the composition of the system investigated were calculated for various molar ratios of propylene : benzene. With respect to the industrial production of monoisopropyl benzene it is found that less raw material is consumed if aluminum chloride is used as a catalyst instead of hydrogen fluoride, and that the reaction proceeds irreversibly in the presence of hydrogen fluoride, whereas it is reversible in the presence of aluminum chloride. There are 2 figures, 2 tables, and 15 references, 12 of which are Soviet.

ASSOCIATION: Ural'skiy filial Akademii nauk SSSR (Ural Branch of the Academy of Sciences, USSR)

SUBMITTED: September 25, 1957

Card 2/2

5.3200
5.3100

80224

S/076/60/034/04/04/042
B010/B009

AUTHORS: Aleksoyeva, I. A., Plyusnin, V. G., Babin, Ye. P., Alekseyeva, G.A.
(Sverdlovsk)

TITLE: Laws Governing the Substitution of Alkyl Groups for the Hydrogen Atoms in the Benzene Ring. VIII. Orientation of the Alkyl Groups in the Catalytic Alkylation of Benzene With Acid Catalysts

PERIODICAL: Zhurnal fizicheskoy khimii, 1960, Vol. 34, No. 4, pp. 726-733

TEXT: The investigation results quoted in various publications concerning the compositions of di- and polyalkyl benzenes (obtained with various catalysts) show that a higher percentage of 1,3-dialkylbenzenes may, for instance, be obtained by means of $AlCl_3$ and $FeCl_3$. Since alkyl groups preferably attach to the 1,2- and 1,4-positions in the aromatic ring, this is an "abnormal" phenomenon, which has not yet been explained. In the present paper benzene and isopropylbenzene were alkylated with propylene on kieselguhr in the presence of $AlCl_3$, HF, H_2SO_4, and H_3PO_4. The working methods have already been described (Refs. 11, 12), working conditions are given in Table 1. The catalyzates were

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fractionated in narrow fractions whose Raman spectra were investigated by means of an ISP-51 spectrograph (Tables 2,3, results). The spectra of the mono- and diisopropylbenzenes were determined by means of the spectra of pure compounds (produced by the Komissiya po spektroskopii Akademii nauk SSSR (Commission of Spectroscopy of the Academy of Sciences USSR)). The diisopropylbenzene fraction of the catalyzate obtained by means of $AlCl_3$ contained, under the particular experimental conditions, the two isomers 1,3- and 1,4-diisopropylbenzene, the former being produced in larger quantities than the latter. Three isomers are obtained with the catalysts HF and H_2SO_4, namely almost equal amounts of the 1,3- and 1,4-isomers and much less of the 1,2-isomer. The catalyzate obtained with the phosphorus catalyst also contained all three isomers (predominantly 1,3-diisopropylbenzene). It was found that in the course of the dealkylation of the mono- and diisopropylbenzenes an equilibrium of the isomers in the diisopropyl fraction comes about in accordance with the ratio 1,3-isomer : 1,4-isomer = 3 : 1. With $AlCl_3$ only 1,3,5-triisopropylbenzene forms, while the main reaction product in the case of HF and H_2SO_4 is

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Laws Governing the Substitution of Alkyl Groups for the Hydrogen Atoms in the Benzene Ring. VIII. Orientation of the Alkyl Groups in the Catalytic Alkylation of Benzene With Acid Catalysts

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B010/B009

1,2,4-triisopropylbenzene. For the first time, the Raman spectra of the 1,3,5- and 1,2,4-triisopropylbenzenes are given. They are, however, only tentative qualitative data since the purity of the substances obtained did not yet meet standard requirements. Papers by A. V. Topchiyev and P.G.Sergeyev are mentioned in the text. There are 3 tables and 17 references, 9 of which are Soviet.

ASSOCIATION: Ural'skiy filial AN SSSR Institut khimii (Urals Branch of the AS USSR Institute of Chemistry)

SUBMITTED: April 25, 1957

Card 3/3

RODIGIN, N.M.; BABIN, Ye.P.; PLYUSNIN, V.G. (Sverdlovsk)

Correlations in the substitution of hydrogen atoms by alkyl groups in the benzene ring. Zhur.fiz.khim. 34 no.5:966-972 My '60. (MIRA 13:7)

1. Ural'skiy filial AN SSSR, Sverdlovsk.
(Benzene) (Alkylation)

S/076/60/034/007/010/042/XX
B004/B068

AUTHORS: Babin, Ye. P., Plyusnin, V. G., Nasakina, M. I., and Rodigin, N. M.

TITLE: Laws Valid for the Substitution of Alkyl Groups for Hydrogen Atoms on the Benzene Nucleus. X. Relation Between the Rate Constants of the Formation of Isopropyl Benzene, and Equations for the Composition of the Alkylation Products of Isopropyl Benzene by Means of Propylene in the Presence of Aluminum Chloride

PERIODICAL: Zhurnal fizicheskoy khimii, 1960, Vol. 34, No. 7, pp. 1389-1394

TEXT: In a previous work (Ref. 1), the authors pointed out that the alkylation of benzene with propylene is a consecutive reversible reaction. Reverse reactions take place in the first, second, and fourth stages of the complete reaction. From this result, the conclusion is drawn that benzene must form as the dealkylation product when the alkylation of isopropyl benzene is carried out with propylene. The aim of this paper is to

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Laws Valid for the Substitution of Alkyl Groups for Hydrogen Atoms on the Benzene Nucleus. X. Relation Between the Rate Constants of the Formation of Isopropyl Benzene, and Equations for the Composition of the Alkylation Products of Isopropyl Benzene by Means of Propylene in the Presence of Aluminum Chloride

S/076/60/034/007/010/042/XX
B004/B068

determine the relation between the rate constants of the direct and the reverse reaction, as well as to find out whether the relation between the alkylation constants of benzene corresponds to the relation between the alkylation constants of isopropyl benzene. For this reason, the alkylation of isopropyl benzene was carried out in the presence of $AlCl_3$ with dry propylene in nitrogen. The flow rate of propylene varied between 200 and 250 l/h per kg of isopropyl benzene. The reaction products obtained were rectified. The composition of the fractions with different propylene - isopropyl benzene ratios is given in two tables. Analyses were performed by I. A. Alekseyeva and G. A. Semerneva. It may be seen from these data that at 60°C not only the formation of di-, tri-, and tetraisopropyl benzene but also of benzene takes place. The reverse reaction in the first stage was thereby confirmed. The alkylation reaction is represented by the following scheme:

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Laws Valid for the Substitution of Alkyl Groups for Hydrogen Atoms on the Benzene Nucleus. X. Relation Between the Rate Constants of the Formation of Isopropyl Benzene, and Equations for the Composition of the Alkylation Products of Isopropyl Benzene by Means of Propylene in the Presence of Aluminum Chloride

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$c_0 \underset{\beta_1}{\overset{k_1}{\rightleftarrows}} c_1 \xrightarrow{k_2'} c_2 \xrightarrow{k_3} c_3 \xrightarrow{k_4'} c_4$ (1). k_i are the direct-reaction constants; $i = 1, 2, 3, 4$; β_1 is the reverse-reaction constant. Since the dealkylation of di- and tetraisopropyl benzene has not been considered, k_2' and k_4' are " summational constants" which refer both to the direct and reverse reaction. With k_3, the dealkylation of triisopropyl benzene may be neglected. From an equation given in Ref. 13 for consecutive reversible reactions, the following ratios were found: $\beta_1 : k_1 : k_2' : k_3 : k_4' = 0.38:1:0.20::0.065:0.003$. The equations for the composition of the alkylation products are given as: $c_0 = 38[0.769 \exp(-0.14kt) - 0.769 \exp(-1.44kt)]$;

$c_1 = 66.16 \exp(-0.14kt) - 33.85 \exp(-1.44kt)$;

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Laws Valid for the Substitution of Alkyl Groups for Hydrogen Atoms on the Benzene Nucleus. X. Relation Between the Rate Constants of the Formation of Isopropyl Benzene, and Equations for the Composition of the Alkylation Products of Isopropyl Benzene by Means of Propylene in the Presence of Aluminum Chloride

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$c_2 = 20[9.066 \exp(-0.065kt) - 8.820 \exp(-0.14kt)+0.246 \exp(-1.44kt)]$;
$c_3 = 1.3[80.38\exp(-0.003kt)-143.9\exp(-0.065kt)+64.38 \exp(-0.14kt) - 0.171\exp(-1.44kt)]$;
$c_4 = 100 - \sum_{c_0}^{c_3} c_i$ (4). Fig. 2 shows the proportion by weight of the components with different initial molar ratios n. It is thus shown that there is good agreement between values calculated from (4) and those found experimentally. These values are compared with those established for the alkylation of benzene (data given in Refs. 11 and 14). The relation between the consecutive reversible reaction rate constants for the alkylation of isopropyl benzene differ only little from the relation between the consecutive alkylation rate constants for benzene with propylene under comparable experimental conditions. There are 2 figures, 3 tables, and

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B004/B068

14 references: 11 Soviet and 3 US.

ASSOCIATION: Ural'skiy filial Akademii nauk SSSR, Institut khimii Sverdlovsk
(Ural Branch of the Academy of Sciences USSR, Institute of Chemistry, Sverdlovsk)

SUBMITTED: April 25, 1957

Text to Fig. 2: 1: Benzene; 2: Isopropyl Benzene; 3: Diisopropyl Benzene; 4: Triisopropyl Benzene; 5: Tetraisopropyl Benzene; a) Molar Ratio n; b) Percent by Weight.

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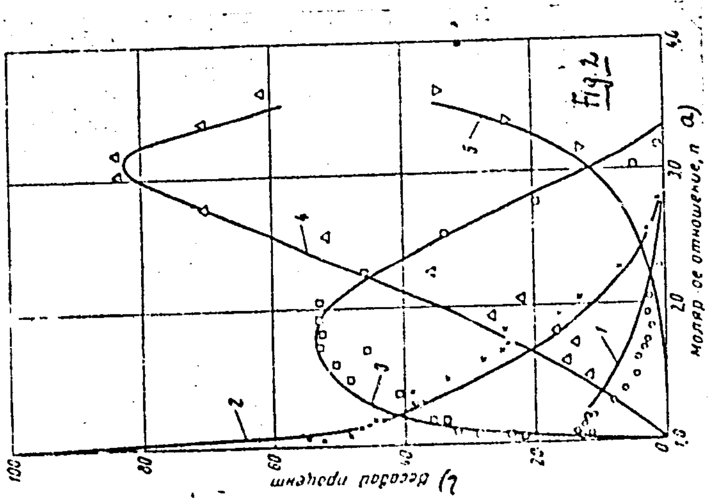

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S/076/60/034/008/015/039/XX
B015/B063

AUTHORS: Babin, Ye. P., Plyusnin, V. G., Nasakina, M. I., and Rodigin, N. M.

TITLE: Rules of Substitution of Hydrogen Atoms in the Benzene Ring by Alkyl Groups. XI. Ratio Between the Constants of the Rate of Formation of Isopropyl Benzenes and the Equations for the Composition of the Alkylation Products of Diisopropyl Benzene With Propylene in the Presence of Aluminum Chloride

PERIODICAL: Zhurnal fizicheskoy khimii, 1960, Vol. 34, No. 8, pp. 1671 - 1676

TEXT: The authors have shown in Ref. 1 that the alkylation of benzene with propylene in the presence of aluminum chloride is a consecutive four-stage reaction, of which the first, the second, and the fourth are reversible. The reversibility of the first stage was demonstrated by the alkylation of monoisopropyl benzene with propylene in the presence of aluminum chloride. The experiments were performed at 60°C (Ref. 2). To study the behavior of diisopropyl benzene under equal conditions, the authors

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Rules of Substitution of Hydrogen Atoms in the Benzene Ring by Alkyl Groups. XI. Ratio Between the Constants of the Rate of Formation of Isopropyl Benzenes and the Equations for the Composition of the Alkylation Products of Diisopropyl Benzene With Propylene in the Presence of Aluminum Chloride

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B015/B063

alkylated this compound with propylene at 60°C, and added 0.03 mole of $AlCl_3$ per mole of diisopropyl benzene. They used a diisopropyl fraction composed of 70% m-isomer and 30% p-isomer; $d_4^{20} = 0.8505$; $n_D^{20} = 1.4898$. The fraction boiled between 198° and 212°C. The alkylation was carried out in a three-necked flask with a reflux condenser and a stirrer. The average flow rate of propylene was 150 l/h per kg of alkyl benzene. The alkylation product was distilled, and it was found that alkylation is a reversible, consecutive reaction since at low molar ratios, monoisopropyl benzene is formed as a dealkylation product of diisopropyl benzene. The alkylation reaction follows the scheme

$c_1 \underset{\beta_2}{\overset{k_2}{\rightleftarrows}} c_2 \xrightarrow{k_3} c_3 \xrightarrow{k_4'} c_4$ (1). This is in accordance with the experiment

since the reaction $c_0 \rightleftarrows c_1 \rightleftarrows c_2 \dashrightarrow c_3 \rightleftarrows c_4$ actually takes place. k_2 and k_3

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Rules of Substitution of Hydrogen Atoms in the Benzene Ring by Alkyl Groups. XI. Ratio Between the Constants of the Rate of Formation of Isopropyl Benzenes and the Equations for the Composition of the Alkylation Products of Diisopropyl Benzene With Propylene in the Presence of Aluminum Chloride

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are constants referring to the direct alkylation reaction; k_4' is a generalized rate constant of the direct and reversible reaction, whereas the reversible dealkylation reaction of diisopropyl benzene has the rate constant β_2. The following ratios were found for these constants: $\beta_2 : k_2 : k_3 : k_4' = 0.14 : 1 : 0.029 : 0.0013$, wherefrom the equations for the composition of the system were derived:

$$c_1 = 14.0\ (0.894\ \exp(-\ 0.025\ kt) - 0.894\ \exp(-\ 1.1435\ kt));$$

$$c_2 = 87.13\ \exp(-\ 0.025\ kt) - 12.82\ \exp(-\ 1.1435\ kt);$$

$$c_3 = 2.9\ [36.89\ \exp(-\ 0.0013\ kt) - 36.78\ \exp(-\ 0.025\ kt) + 0.112\ \exp(-\ 1.1435\ kt)];$$

$c_4 = 100 - \sum_{c_1}^{c_3} c_i$. It is shown that the equations for the composition of

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Rules of Substitution of Hydrogen Atoms in the Benzene Ring by Alkyl Groups. XI. Ratio Between the Constants of the Rate of Formation of Isopropyl Benzenes and the Equations for the Composition of the Alkylation Products of Diisopropyl Benzene With Propylene in the Presence of Aluminum Chloride

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B015/B063

the systems benzene-propylene and monoisopropyl benzene-propylene may be used to calculate the alkylation of diisopropyl benzene with propylene if the monoisopropyl benzene disappears from the system. The ratios obtained for the rate constants of the systems considered were similar. The mean value of the ratio between the rate constants of the formation of isopropyl benzenes shows that the reactivity of isopropyl benzene in the alkylation reaction is 2.24 times higher than that of benzene. The reactivity of diisopropyl benzene is very low as compared to that of benzene. There are 1 figure, 4 tables, and 5 Soviet references.

ASSOCIATION: Akademiya nauk SSSR Ural'skiy filial Institut khimii (Ural Branch of the Academy of Sciences USSR, Institute of Chemistry)

SUBMITTED: March 24, 1958

Card 4/4

BABIN, Ye.P.

Composition of isomers in di- and polyalkylbenzene fractions obtained by alkylation. Khim.prom. no.6:381-389 Je '61. (MIRA 14:6)

1. Stalinskoye otdeleniye Instituta organicheskoy khimii AN USSR.
(Benzene)

BABIN, Ye.P.; ROZENBERG, B.A.; FISHELEVICH, Z.A.

Boron fluoride as catalyst in the polymerization reaction of unsaturated hydrocarbons of a heavy benzene fraction. Koks i khim. no.2:40-42 '62. (MIRA 15:3)

1. Donetskoye otdeleniye Instituta organicheskoy khimii AN USSR.
(Coumaron--Indene resins) (Hydrocarbons)

SHEYNKMAN, A.K.; KAZARINOVA, N.F.; BABIN, Ye.P.

N-acylpyridinium salts as pyridilic agents in Fridel-Crafts reactions. Zhur.VKHO 7 no.1:112-113 '62. (MIRA 15:3)

1. Donetskoye otdeleniye instituta organicheskoy khimii AN SSSR.
(P[illegible]ridinium compounds) (Friedel-Crafts reactions)

ROZENBERG, B.A.; DZHIGIREY, N.V.; DOROFEYENKO, G.N.; BABIN, Ye.P.

Perchloric acid and its compounds as catalysts in organic synthesis. Part 8: Catalytic acylation of some aryl olefins. Zhur.ob.khim. 32 no.10:3417-3421 O '62. (MIRA 15:11)

1. Donetskoye otdeleniye Instituta organicheskoy khimii AN Ukrainskoy SSR.

(Olefins) (Acylation)
(Perchloric acid)

BABIN, Ye.P.; KOLPAKCHI, A.A.

Alkylation of chlorobenzene with isopropyl chloride in the presence of alumimum chloride. Kin.i kat. 3 no.6:855-860 N-D '62. (MIRA 15:12)

1. Institut organicheskoy khimii AN UkrSSR, Donetskoye otdeleniye.

(Bemzene) (Propane) (Alkylation)

DOROFEYENKO, G. N.; BABIN, Ye. P.; ROZENBERG, B. A.; OSIPOV, O. A.;
KASHIRENINOV, O. Ye.

Catalytic acetylation of some polymers. Izv. vys. ucheb. zav.; khim. i khim. tekh. 5 no.5:804-807 '62.
(MIRA 16:1)

1. Donetskoye otdeleniye Instituta organicheskoy khimii AN UkrSSR i Rostovskiy-na-Donu gosudarstvennyy universitet.

(Polymers) (Acetylation)

ROZENBERG, B.A.; BODNARCHUK, R.D.; DOROFEYENKO, G.N.; BABIN, Ye.P.

Perchloric acid and its compounds as catalysts in organic synthesis. Part 10: Acylation in the acenaphthene series. Zhur. ob. khim. 33 no.5:1489-1492 My '63. (MIRA 16:6)

1. Donetskoye otdeleniye Instituta organicheskoy khimii AN UkrSSR.

(Acenaphthene) (Acylation)
(Perchloric acid)

BABIN, Ye. P.; BORODINA, Z. S.; KOMPANETS, V. A.

Alkylation of toluene by propylene in the presence of $AlCl_2 \cdot H_2PO_4$. Zhur. fiz. khim. 36 no.12:2768-2772 D '62.
(MIRA 16:1)

1. Institut organicheskoy khimii, Donetskoye otdeleniye, Akademiya nauk UkrSSR.

(Toluene) (Propene) (Catalysts)

KAZARINOVA, N.F.; BABIN, Ye.P.; SOLOMKO, K.A.; KOTELENETS, M.I.;
ARTAMONOV, A.A.; SHEYNKMAN, A.K.

Preparation of 4-ethylpyridine. Zhur.prikl.khim. 36 no.3: 649-654 My '63. (MIRA 16:5)

(Pyridine)

BABIN, Ye.P.; CHEKHUTA, V.G.; MARSHTUPA, V.P.

Alkylation of toluene with propylene in the presence of $BF_3 \cdot H_3PO_4$.
Zhur.fiz.khim. 37 no.1:68-72 Ja '63. (MIRA 17:3)

1. Institut organicheskoy khimii AN UkrSSR, Donetskoye otdeleniye.

BABIN, Ye.P.; GAKH, I.G.

Kinetics of the formation of alkyl phenols in the process of alkylation. Zhur. VKHO 8 no.5:580-581 '63.
(MIRA 17:1)

1. Donetskoye otdeleniye Instituta organicheskoy khimii AN UkrSSR i Donetskiy filial Vsesoyuznogo nauchno-issledovatel'skogo instituta khimicheskikh reaktivov i osobo chistykh khimicheskikh veshchestv.

BABIN, Ye.P.; KOLPAKCHI, A.A.

Relation of the rates of formation of isopropylbenzenes and equations for the composition of alkylation products of chlorobenzene with propylene in the pressence of aluminum chloride. Zhur. fiz. khim. 37 no.6:1371-1374 Je '63.

(MIRA 16:7)

1. Donetskoye otdeleniye instituta organicheskoy khimii.

(Benzene) (Alkylation)

(Chemical reaction, Rate of)

KOLPAKCHI, A.A.; BABIN, Ye.P.

Effect of solvent on the kinetics of the alkylation of chlorobenzene with propylene. Zhur. fiz. khim. 37 no.11:2560-2563 N'63. (MIRA 17:2)

1. Donetskoye otdeleniye instituta organicheskoy khimii.

BABIN, Ye.P.; MARSHTUPA, V.P.; RUDENKO, N.Z.; BORODINA, Z.S.; SIDORENKO, L.M.

Kinetics of the formation of isomers of isopropyltoluenes in toluene alkylation by propylene. Izv.vys.ucheb.zav.;khim.i khim.tekh. 6 no.5:787-794 '63. (MIRA 16:12)

1. Donetskiy meditsinskiy institut i Donetskoye otdeleniye instituta organicheskoy khimii AN UkrSSR.

BABIN, Ye. P.; MARSHTUPA, V. P.

Alkylation of benzene with propylene in thepresence of $AlCl_3$ at 0°. Zhur. fiz. khim. 37 no. 3:656-658 Mr '63. (MIRA 17:5)

1. Institut organicheskoy khimii, Donetskoye otdeleniye, AN UkrSSR.

BABIN, Ye.P.; MARYSHKINA, L.I.; BORODINA, Z.S.

Disproportionation of mono-, di-, and triisopropylbenzenes.
Neftekhimiia 4 no.1:21-25 Ja-F'64
(MIRA 17:6)

1. Institut organicheskoy khimii AN UkrSSR, Donetskoye otdeleniye.

[illegible], Ye. [illegible]; [illegible], [illegible]

Effect of temperature on the alkylation of benzene with propylene in the presence of [illegible]. Neftekhimiia 4 no.1:26-29 Ja-F'64 (MIRA 17:6)

1. [illegible] ob"yedineniye.

BABIN, Ye.P.; MAR[illegible], [illegible]; [illegible], I.P.

Thermodynamics of the isomerization of certain dialkylbenzenes. Neftekhimiia 4 no.2:[illegible] Mr-Ap'64. (MIRA 17:8)

1. Institut organicheskoy khimii AN UkrSSR, Donetskoye otdeleniye i Moskovskiy institut neftekhimicheskoy i gazovoy promyshlennosti imeni I.M. Gubkina.

BABIN, Ye.V.; [illegible], V.F.; BORODINA, Z.S.; [illegible], L.I.

Thermodynamics of certain reactions of alkylation of toluene [illegible] alkylation of lower aromatic hydrocarbons. Ukr. Ukr. khim. zhur. 30 no. [illegible] '64 (MIRA 18:1)

1. Institut organicheskoy khimii AN UkrSSR, Donetskoye otdeleniye.

GAKH, I.G.; GABDRAKHMANOV, F.G.; BABIN, Ye.P.

Cation exchangers as catalysts for the alkylation of alkyl benzenes. Zhur. ob. khim. 34 no.8:2807 Ag '64.

(MIRA 17:9)

L 51487-65 EPF(c)/EWT(m)/EWP(j)/T Pc-4/Pr-4 RM
ACCESSION NR: AP5015126

UR/0366/65/001/006/1102/1104
547.722.3+547.424.2

20
B

AUTHOR: Rozenberg, B. A.; Babin, Ye. F.

TITLE: Telomerization of tetrahydrofuran

SOURCE: Zhurnal organicheskoy khimii, v. 1, no. 6, 1965, 1102-1104

TOPIC TAGS: telomer, foaming agent, floatation, tetrahydrofuran polymer

ABSTRACT: The telomerization of tetrahydrofuran (TNF) in a $HClO_4-(CH_3CO)_2O$ system
was studied primarily to obtain the dimer 4,4'-diacetoxydibutyl ether. The latter
is one of the most effective foaming agents and should be most useful in floatation
applications. It was found that molar ratios of 0.66—1.00 (acetic anhydride/mono-
mer) optimize the yield of the dimer. Boiling of the reaction mixture was also
found to improve the yield of the dimer. 4, 4'-Dihydroxydibutyl ether was obtained
in 72% yield by saponification of 4, 4'-diacetoxydibutyl ether with alcoholic KOH
The diacetoxy derivative may serve as the starting material for the preparation of
other 4, 4'-difunctional derivatives of dibutyl ether. Orig. art. has: 2 tables.
[VS]

Cord 1/2

L 51487-65
ACCESSION NR: AP5015126

ASSOCIATION: none

SUBMITTED: 20May64

ENCL: 00

SUB CODE: OC, GC

NO REF SOV: 005

OTHER: 004

ATD PRESS: 4017

Card 2/2

L 62198-65 EWP(e)/EWT(m)/EPF(c)/EWP(i)/EPR/EWP(t)/EWP(b) Pr-4/Ps-4 IJP(c) JD/JW

ACCESSION NR: AP5015881 UR/0080/65/038/006/1253/1256
542.973 + 546.27'161 + 547.532

34
33
B

AUTHOR: Babin, Ye. [illegible], Kuz'menkov, A. A., Zotova, N. L.

TITLE: Boron fluoride as a catalyst of reactions promoting the removal of sulfur from benzenes obtained as by-products of coking

SOURCE: Zhurnal prikladnoy khimii, v. 38, no. 6, 1965, 1253-1256

TOPIC TAGS: boron fluoride, sulfur removal, benzene, coking product, alkylation, polymerization, condensation

ABSTRACT: Solutions of pure sulfur compounds were reacted with gaseous boron fluoride in order to determine the capacity of the boron fluoride catalyst to cause alkylation, polymerization, and condensation reactions between mercaptans, alcohols, sulfides, ethers, and thiophene, and thus remove sulfur. To confirm the data thus obtained on the catalytic effect of BF_3, samples of crude benzenes from coking plants were subjected to the same experiments, which proved to be successful: the degree of removal of sulfur was 99.3-99.6%. Sulfur is removed under normal flow conditions, and the process can be made continuous. The loss of BF_3 is 1-1.5% kg per metric ton of benzene. The mild catalytic properties of boron fluoride insure the absence of side reactions which otherwise would

Card 1/2

L 62198-65

ACCESSION NR: AP5015881

cause the loss of aromatic hydrocarbons (benzene, toluene, xylenes). Orig. art. has: 4 tables.

ASSOCIATION: Donetskoye deleniye Instituta organicheskoy khimii AN UkrSSR (Donets Section, Institute of Organic Chemistry, AN UkrSSR)

SUBMITTED: 09Sep63 ENCL: 00 SUB CODE: FP, OC

NO REF SOV: 006 OTHER: 000

Card 2/2

BABIN, Ye.P.; KOLPAKCHI, A.A.

Disproportionation and conjugated alkylation of alkylchlorobenzenes in the presence of $AlCl_3$, $AlCl_2.H_2PO_4$, and $AlCl_3.CH_3NO_2$. Zhur. prikl. khim. 38 no.7:1640-1643 Jl '65.
(MIRA 18:7)

MARSHTUPA, V.P.; BABIN, Ye.P.; KOLESNIKOV, I.M.; MARYSHKINA, L.I.;
BORODINA, Z.S.

Solubility of propylene in aromatic hydrocarbons. Khim. prom.
41 no.8:585-587 Ag '65. (MIPA 18:9)

1. Moskovskiy institut neftekhimicheskoy i gazovoy promyshlennosti imeni akademika Gubkina.

BABIN, Ye.P.; MARYSHKINA, L.I.; PIOTRKOVSKAYA, L.G.

Alkylation of mono and diisopropylbenzenes with propylene in the presence of aluminum chloride. Zhur. fiz. khim. 39 no.5:1242-1245 My '65.
(MIRA 18:8)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut khimicheskikh reaktivov i osobo chistykh khimicheskikh veshchestv. Donetskiy filial.

GAKH, I.G.; BABIN, Ye.P.

Vapor pressure of alkylated dihydroxybenzenes. Zhur.fiz.khim. 39 no.7:1745-1746 Jl '65. (MIRA 18:8)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut khimicheskikh reaktivov i osobo chistykh khimicheskikh veshchestv, Donetskiy filial.

GAKH, I.G.; BABIN, Ye.P.; GAKH, L.G.; MARSHTUPA, V.P.

Effect of the nature of catalyst on the orientation in the aromatic ring. Zhur. org. khim. 1 no.9:1626-1627 S '65. (MIRA 18:12)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut khimicheskikh reaktivov i osobo chistykh khimicheskikh veshchestv, Donetskiy filial. Submitted July 27, 1964.

BABIN, Ye.P.; RUDENKO, N.V.; SIDORENKO, L.M.; BORODINA, Z.S.

Effect of the temperature on the composition of cymene fractions during the alkylation of toluene by catalysts based on aluminum chloride. Zhur. prikl. khim. 38 no.5:1185-1188 My '65.

(MIRA 18:11)

ACC NR: AP6033451 SOURCE CODE: UR/0413/66/000/018/0037/0037

INVENTOR: Babin, Ye. P.; Marshtupa, V. P.; Chekhuta, V. G.; Maryshkina, L. I.

ORG: none

TITLE: Method of obtaining a pyromellitic anhydride. Class 12, No. 185892 15 [announced by Donets Branch of All-Union Scientific Research Institute of Chemical Reagents and Especially Pure Chemical Substances (Donetskiy filial vsesoyuznogo nauchno-issledovatel'skogo instituta khimicheskikh reaktivov i osobo chistykh khimicheskikh veshchestv)]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 18, 1966, 37

TOPIC TAGS: alkyl benzene, oxidation, vanadium catalyst, pyromellitic anhydride

ABSTRACT: An Author Certificate has been issued for a method of obtaining pyromellitic anhydride by oxidation of alkyl benzenes in the vapor phase with the use of a vanadium catalyst. Diisopropylbenzene is suggested for use as the alkyl benzene. [Translation]

Card 1/1 SUB CODE: 07/SUBM DATE: 01Jun65/ UDC: 547.585'582.2.07

BABIN, Yu.A., aspirant

Application of vacuum drying in the light industry. Nauch. trudy MTILP no.30:221-228 '64. (MIRA 18:6)

1. Kafedra avtomatiki Moskovskogo tekhnologicheskogo instituta legkoy promyshlennosti.

BRICHKIN, A.V., doktor tekhn. nauk; ZINEVICH, N.I.; BABIN, [illegible], inzh.

Concerning the book by V.M. Mostkov "Making underground structures of large cross section. Shakht. stroi. 8 no.9:29 S '64. (MIRA 17:12)

1. Chlen-korrespondent AN KazSSR (for Brichkin). 2. Glavnyy inzh. Kazakhskogo filiala Vsesoyuznogo ordena Lenina proyektno-izyskatel'skogo i nauchno-issledovatel'skogo instituta imeni S.Ya. Zhuka (for Zinevich).

KUDINOV, Nikolay Nikolayevich; AL'KIMOVICH, A.V., inzh., retsenzent; VESHKEL'SKIY, S.A., retsenzent; BABIN, Yu.P., nauchn. red.; SMIRNOV, Yu.I., red.

[Marine atomic power plants] Sudovye atomnye energeticheskie ustanovki. Leningrad, Sudostroenie, 1964. 330 p. (MIRA 18:2)

L 40176-66 EWT(1)/EWT(m)/T JK

ACC NR: AP6029396 SOURCE CODE: UR/0427/66/019/003/0049/0052

36

B

AUTHOR: Babina, E. Ya.

ORG: Department of Biochemistry, Yerevan Veterinary Institute (Kafedra biokhimii, Yerevanskiy zooveterinarnyy institut)

6

TITLE: Effect of monoethanolamine on the nucleic acid content of the organs of irradiated rats

19

SOURCE: Biologicheskiy zhurnal Armenii, v. 19, no. 3, 1966, 49-52

TOPIC TAGS: rat, nucleic acid, radiation biologic effect, DNA, RNA, liver, drug effect, radiation sickness

ABSTRACT: X-irradiation (650 r) decreases the DNA and RNA content of the liver and spleen of white rats at all times from 30 minutes to 10 days after exposure. Monoethanolamine increases the DNA content of the liver and spleen 30 minutes, 6 and 8 days after exposure. The maximum increase of 46% in the liver occurs 30 minutes after exposure; 90% in the spleen on the 3rd day of radiation sickness. Monoethanolamine increases the amount of RNA in the liver 30 minutes and 6 days after exposure; in the spleen, 30 minutes, 8 and 11 days after exposure. The maximum increase of 32% in the liver occurs on the 6th day of radiation sickness; 46% in the spleen on the 8th day of radiation sickness. Orig. art. has: 2 tables. [JPRS: 36,932]

SUB CODE: 06 / SUBM DATE: 05Jun65 / ORIG REF: 005

Card 1/1

0917 2641

L 38258-66 EWT(m)

ACC NR: AP6028653

SOURCE CODE: UR/0252/66/042/001/0031/0035

AUTHOR: Babina, E. Ya.

25

ORG: Yerevan Zootechnical-Veterinary Institute (Yerevanskiy zootekhnicheski-veterinarnyy institut)

TITLE: Changes in oxidative processes in the tissues of irradiated animals under the effect of monoethanolamine

19

SOURCE: AN ArmSSR. Doklady, v. 42, no. 1, 1966, 31-35

TOPIC TAGS: radiation biologic effect, rat, radiotherapy, radiation sickness, drug effect, biologic respiration, biologic metabolism, tissue physiology

ABSTRACT: Since Rachinskiy and Mozzhukhin have established that any compound which has a protective function in biological experimentation is an inhibitor of the oxidative reactions of fat, and since Kamalyan has shown that monoethanolamine in processes of self-oxidation of fats is also an antioxidant, the author set out to determine the content of lipid peroxides and the amount of absorbed oxygen in tissues of animals subjected to x-ray irradiation under conditions of monoethanolamine protection.

The work was conducted on male white rats (212 animals), weighing 150-200 grams, maintained under ordinary vivarium conditions.

Card 1/3

0917 2271

L 38258-66

ACC NR: AP6028653

C

The acute radiation sickness was induced by single whole-body irradiation with the RUM-11 roentgenotherapeutic device under the following conditions: voltage -- 180 kv, current strength -- 15 ma, filters 0.5 mm Cu and 2 mm Al, source-skin distance -- 40 cm. Radiation dose: 650 r, dose strength -- 48 r/min.

Monoethanolamine was introduced parenterally at a rate of 200 mg per 1 kg of animal bodyweight over a period of 7-10 minutes prior to irradiation. The survival rate for each dose was 33%. The material for the investigation was the liver and spleen of the rats. All examinations were made in 30 minutes, 2, 5, 7, and 10 days after the radiation exposure.

The conclusions drawn were as follows:
1. Roentgen irradiation at a dose of 650 r induces an increase in lipid peroxides and a drop in tissue respiration in the tissues of the liver and spleen of white rats.
2. Monoethanolamine decreases the content of lipid peroxides both in the liver and spleen of irradiated animals, the greatest decreases occurring on the 4th - 5th day in the case of the liver, and on the 4th - 6th day for the spleen.

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L 38258-66

ACC NR: AP6028653

0

3. Monoethanolamine increased the oxygen requirement by tissues of the liver and spleen of irradiated rats from the very first hours after irradiation up to the 11th day of the radiation sickness.

4. Decrease in the lipid peroxide content and increase in tissue respiration in the liver and spleen of white rats in the course of radiation sickness under the effect of monoethanolamine explains to some degree the mechanism of the protective action of monoethanolamine on irradiated male white rats. This article was presented by Academician G. Kh. Bunyatyan on 19 May 1965. Orig. art. has: 2 tables. [JPRS: 36,932]

SUB CODE: 06 / SUBM DATE: none / ORIG REF: 010 / OTH REF: 001

Card 3/3

BABINA, F. L.

AUTHORS: Peyzulayev, Sh.I., Karabash, A.G., Krauz, L.S., Kostareva, F.A., Smirnova-Averina, N.I., Babina, F.L., Kondrat'yeva, L.I., Voronova, Ye.F., Meshkova, V.M.

32-24-6-19/44

TITLE: Spectral Methods for the Determination of Admixture Traces (Spektral'nyye metody opredeleniya sledov primesey), I. Chemical Spectral Methods of Analyzing Strontium, Chromium, and Silicon (I. Khimiko-spektral'nyye metody analiza strontsiya, khroma i kremniya), II. The Quantitative Spectral Analysis of Water and Microsamples on the Basis of Strontium Nitrate (II. Kolichestvennyy spektral'nyy analiz vody i mikroobraztsov na osnove nitrata strontsiya)

PERIODICAL: Zavodskaya Laboratoriya, 1958, Vol 24, Nr 6, pp 723-731 (USSR)

ABSTRACT: In the course of the present work analysis methods are investigated in which sensitivity is increased by previous enrichment and which make it possible to determine a larger number of admixtures. From the analysis of strontium, which is described in detail, it follows that determination is based upon a formation of strontium sulfate and that 18 elements can be determined by means of one

Card 1/4

Spectral Methods for the Determination of Admixture Traces. 32-24-6-19/44
I. Chemical Spectral Methods of Analyzing Strontium,
Chromium, and Silicon. II. The Quantitative Spectral Analysis
of Water and Microsamples on the Basis of Strontium Nitrate

spectrogram, in which case sodium is determined separately. Analysis sensitivity is shown by a table, and the preparation of samples and the spectral analysis itself are described. From the data concerning the determination of chromium it follows e.g., that chromium is volatilised in form of CrO_2Cl_2, that practically complete (99.7%) volatilisation is attained at 200-220°, and that at the same time only arsenic, boron, germanium, tin, and mercury are removed. In the case of a low content of admixtures analysis was carried out already after the first concentration, whereas in the case of a higher percentage (10^{-4} - 10^{-2}%) also the second concentrate was examined. The analysis is described. The analysis of silicon is based upon its volatilization in form of fluorides; also in this case the concentrate of the admixtures is produced on the basis of a spectrally pure strontium sulfate, and also in this case 18 elements can be determined simultaneously by means of one spectrogram, sodium being determined separately. The process of analysis is described, and it is said, among other things, that the method was worked out in 1955 for the

Card 2/4

Spectral Methods for the Determination of Admixture Traces. I. Chemical Spectral Methods of Analyzing Strontium, Chromium, and Silicon. II. The Quantitative Spectral Analysis of Water and Microsamples on the Basis of Strontium Nitrate

32-24-6-19/44

determination of elementary silicon.
II. The method is based upon application of the sample solution on to spectrally pure strontium nitrate powder, drying, and spectral analysis; it is possible, on the one hand, to examine the organic impurities existing in water, and, on the other, to analyze the composition of various microsamples. In the analysis of water it is possible to determine 12 elements by means of one spectrogram, including the ordinary admixtures found in water as well as corrosion products. The process of analysis is described as well as the manner in which etalons and the spectrally pure strontium nitrate are prepared. By the method described it is possible to determine 26 elements by the analysis of microsamples. Analysis is described, and it is said, among other things, that the relative sensitivity in determining components and admixtures depends on the weighed in portion of the microsample and the strontium nitrate; corresponding data are given by a table.
By comparative determinations carried out on a strontium nitrate-

Card 3/4

Spectral Methods for the Determination of Admixture Traces. I. Chemical Spectral Methods of Analyzing Strontium, Chromium, and Silicon. II. The Quantitative Spectral Analysis of Water and Microsamples on the Basis of Strontium Nitrate

32-24-6-19/44

and beryllium oxide basis the fact was established that both varieties of the method work with a relative error of ± 15-20%, and that frequently a weighed portion of 0.1-50 mg is sufficient. There are 2 figures, 6 tables, and 14 references, 6 of which are Soviet.

1. Spectrum analyzers--Performance 2. Minerals--Analysis 3. Minerals--Determination 4. Water--Impurities 5. Water --Spectra 6. Strontium nitrate spectrum--Applications

Card 4/4

L 44026-65 EWT(m)/EWG(m)/EWP(t)/EWP(z)/EWP(b) Pad IJP(c) RDW/JD/HW

ACCESSION NR: AP5011051 UR/0075/65/020/004/0501/0504 41 B

AUTHOR: Babina, F. L.; Karabash, A. G.; Peyzulayev, Sh. I.; Semenova, Ye. V.

TITLE: Chemical-spectrographic determination of traces of impurities in copper and its compounds 27 27

SOURCE: Zhurnal analiticheskoy khimii, v. 20, no. 4, 1965, 501-504

TOPIC TAGS: copper analysis, copper purity, spectrographic analysis, electrochemical concentration

ABSTRACT: A chemical-spectrographic method for the analysis of copper and its compounds was developed. It is based on a chemical concentration of the impurities by separation of most of the copper by electrolysis on a platinum cathode, followed by a quantitative spectral determination of the impurities in the concentrate, the bulk of which consists of CuO. The spectra are excited in a direct-current arc between carbon electrodes

Card 1/2

entire procedure is given. Orig. art. has: 2 tables.

ASSOCIATION: None

SUBMITTED: 20Feb64 ENCL: 00 SUB CODE: IC, OP

NO REF SOV: 007 OTHER: 011

Card 2/2

[illegible]

LEYZEROVICH, G.Ya.; BABINA, I.V.; SEREBRENNIKOVA, E.Ya.

Roasting copper concentrates in a fluidized bed. TSvet.met. 28 no.6:12-15 N-D '55. (MIRA 10:11)

1. Gintsvetmet.

(Copper--Metallurgy) (Fluidization)

137-58-5-8795

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 5, p 9 (USSR)

AUTHOR Babina, I. V.

TITLE Results of Investigations Performed by Gintsvetmet on Dissociation Roasting of Calcium Sulfate and on Sublimation Roasting of Antimony and Lead Employing an Enlarged Laboratory Furnace (Rezul'taty issledovaniya Gintsvetmeta po dissotsiiruyushchemu obzhigu sul'fata kal'tsiya i vozgonochnomu obzhigu sur'my i svintsa v ukrupnenno-laboratornoy pechi)

PERIODICAL: Tr. Tekhn. soveshchaniya po obzhigu materialov v kipyashchem sloye. Moscow, Metallurgizdat, 1956, pp 118-126

ABSTRACT: Investigations indicate that it is possible to dissociate up to 95.3-98.5 percent of gypsum into lime and sulfurous anhydride in a FluoSolids process at 1220°C achieved by means of employing solid (0.5 mm particle size) fuel and 32-41 percent of vaporized fuel. It is established that fuel ashes and lime tend to agglomerate in the boiling layer, a fact which demonstrates the possibility of carrying out agglomeration processes (for example, nephelin with lime and others) in the boiling layer. Laboratory experiments show that, at an Sb content of 1.4-5.0 percent in ore and 0.1-0.4 percent in cinder, up to 72-85 percent of Sb evapo-

Card 1/2

137-58-5-8795

Results of Investigations Performed by Gintsvetmet (cont.)

rates from lean ores with resulting rich sublimates containing 30-60 percent Sb. A 95-percent extraction was achieved in the process of distilling Pb from ore in the plant's tubular furnace; 0.1 percent remained in the clinker; the output of the furnace amounted to 1 ton per 1 m^3 of its volume; the fuel consumption amounted to 10 percent. Distillation of Pb from the same ore (2.18 percent Pb, 4.43 percent S, and 0.6 percent Zn) but in a boiling layer resulted in a 95 percent extraction with 0.13 percent Pb remaining in the clinker, the consumption of fuel amounting to 25 percent.

A. P.

1. Antimony--Sublimation 2. Lead--Separation 3. Ores--Processing

Card 2/2

[illegible]

[illegible] from [illegible] 10

Method of Roasting Zinc Concentrates in a Boiling Layer with Simultaneous Distilling-off of Lead and Cadmium SOV/136-58-12-5/22

participated in this work) and also with its simultaneous granulation. For preliminary granulation, sulphite-cellulose lye or bentonite was used and, after drying, roasting was effected in a 104-mm diameter, 3 000 mm high heat-resisting tube with the bed-depth maintained at a level of 1 000 mm. Gas cleaning was by a 300 x 200 x 300 mm chamber followed by a sleeve filter. Roasting was carried out in two stages: in the first with a deficiency of air and the distillation of lead and cadmium; in the second stage with excess air, the SO_2- and O_2- contents of the exit gases being 4-6 and 12-14%, respectively, the corresponding figures for the first stage being 12 and 0.2%. Various concentrates treated at the Belov Works were tested and the authors enumerate the optimal conditions and mention that a 70-tons of concentrate/day installation is now being designed by Giprotsvetmet for the works for checking the laboratory results. The 0.05 m^2 hearth area rectangular furnace described by I.V. Babina (Tsvetnyye Metally, 1958, Nr 7) was used for the roasting tests with partial granulation in the boiling layer. The results

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(Table 4) showed that by increasing air flow from the 10-11 cm/sec used in practice to 17-20 cm/sec, the roasting could be effected at a higher temperature than 900-980 °C; with increasing temperature the cyclone-dust output decreased (Table 5). This method is now under test at the Belovsky Works. The author conclude that the Gintsvetmet work has proved the applicability and advantage of boiling layer roasting in pyrometallurgical zinc production. There are 1 figure and 5 tables.

ASSOCIATION: Gintsvetmet

Card 3/3

AZOS, S.; AREF'YEV, A.; ARTAMONOV, I.; BABINA, I.; BEREGOVSKIY, V.; BLOZHKO, V.; BRAVERMAN, A.; BYKHOVSKIY, Yu.; VINOGRADOVA, M.; GALANKINA, Ye.; GIL'DENGERSH, F.; GLOBA, T.; GREYVER, N.; GORDON, G.; GUL'DIN, I.; GULYAYEVA, Ye.; GUSHCHINA, I.; DAVYDOVSKAYA, Ye.; DAMSKAYA, G.; DERKACHEV, D.; YEVDOKIMOVA, A.; YEGUNOV, V.; ZABELYSHINSKIY, I.; ZAYDENBERG, B.; AZMOSHNIKOV, I.; ITKINA, S.; KARCHEVSKIY, V.; KLUSHIN, D.; KUVINOV, Ye.; KUZNETSOVA, G.; KURSHAKOV, I.; LAKERNIK, M.; LEYZEROVICH, G.; LISOVSKIY, D.; LOSKUTOV, F.; MALEVSKIY, Yu.; MASLYANITSKIY, I.; MAYANTS, A.; MILLER, L.; MITROFANOV, S.; MIKHAYLOV, A.; MYAKINENKOV, I.; NIKITINA, I.; NOVIN, R.; OGNEV, D.; OL'KHOV, N.; OSIPOVA, T.; OSTRONOV, M.; PAKHOMOVA, G.; PETKER, S.; PLAKSIN, I.; PLETENEVA, N.; POPOV, V.; PRESS, Yu.; PROKOF'YEVA, Ye.; PUSHKOV, S.; REZKOVA, F.; RUMYANTSEV, M.; SAKHAROV, I.; SOBOL', S.; SPIVAKOV, Ya.; STRIGIN, I.; SPIRIDONOVA, V.; TIMKO, Ye.; TITOV, S.; TROITSKIY, A.; TOLOKONNIKOV, K.; TROFIMOVA, A.; FEDOROV, V.; CHIZHIKOV, D.; SHEYN, Ya.; YUKHTANOV, D.

Roman Lazarevich Veller; an obituary. Tsvet. met. 31 no.5:78-79 My '58. (MIRA 11:6)

(Veller, Roman Lazarevich, 1897-1958)

LEYZEROVICH, Grigoriy Yakovlevich; BABINA, Irina Vladimirovna; SEREBRENNIKOVA, Esfir' Yakovlevna; CHUMAK, Z.V., inzh., retsenzent; POPOV, N.A., inzh., retsenzent; TSETLIN, V.M., red.; MISHARINA, K.D., red.izd-va; ISLENT'YEVA, P.G., tekhn.red.

[Roasting zinc concentrates in a fluidized bed] Obzhig tsinkovykh kontsentratov v kipiashchem sloe. Pod red. Leizerovicha. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1959. 222 p. (MIRA 12:8)
(Zinc--Metallurgy)

SOV/136-59-6-5/24

AUTHORS: Babina, I.V., Besser, A.D., Alyushin, Ye.I., Lukin, A.N. and Yedziyev, S.S.

TITLE: Roasting of Zinc Concentrates in an Effervescent Bed with Simultaneous Elimination of Lead and Cadmium and Coarsening of Cinder Granules (Obzhig tsinkovykh kontsentratov v kipyashchem sloye s otgonkoy svintsa i kadmiya i ukrupneniyem zeren ogarka)

PERIODICAL: Tsvetnyye metally, 1959, Nr 6, pp 27-32 (USSR)

ABSTRACT: By carrying out roasting of zinc concentrates in an effervescent bed with simultaneous granulation of the cinders and volatilisation of lead and cadmium, it was found that when the speed of air supply to the furnace was increased to 17-20 cm/sec, roasting could be carried out at a bed temperature of 1100 - 1150°C. An examination of the laboratory results was carried out in the reconstructed furnace KS-3. When the furnace was reconstructed for the first time, the hearth area was decreased from 19.3 to 8.4 m^2 and it was given a rectangular shape with a length-to-width ratio of 5.3:1. This made it possible for the mildly oxiding zone in the

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effervescent bed to be extended and thereby favourable conditions to be created for the elimination of lead and cadmium as sulphides (the vapour tension of these metals at the roasting temperature is higher than that of oxides). The decrease of the hearth area was brought about by an extra layer of fireclay brick; vertical brick walls were laid up to a height of 1.2 m and above that followed a slanting layer at an angle of 60° (Figure 1). In the reconstruction of the furnace KS-3, a means for the separation of coarse dust from volatile matter at 750 - 800°C was provided in the form of dust extractors. Experiments carried out in the thus altered furnace have confirmed the laboratory experiments and shown that at 1050 - 1150°C the roasting process goes on steadily, the material is not turned into monolite but a coarsening of the cinder granules and a decrease in dust loss is observed. The work of the lined dust extractors was, however, rendered difficult because of

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formation of crust of sulphided dust inside them. However, in the second reconstruction of the furnace, it was decided to see whether it was possible to catch the coarse dust in dust chambers built inside the furnace. To this end, vertical divisions were made of brick inside the furnace. A diagram of the layout of chambers in the furnace is shown in Figure 2. Investigations carried out after the second reconstruction of the furnace have shown that 80% of the dust was caught in the chambers. As a result of the unfavourable position of the gas inlet into the first chambers, the dust loss increased in this series of experiments up to 50% of the total quantity of solid roasting products. The third reconstruction of the furnace (Figure 3) was designed to reduce dust losses by increasing the volume of the furnace above the bed. The hearth area was decreased to 6.6 m^2 and the dust chambers inside the furnace were left out. The slanting part of the furnace was made at an angle of 75 - 80° to the horizontal. The control layout for the

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technological parameters of the roasting process is shown in Figure 4. A mixture consisting of zinc concentrates with an addition of Waelz oxides was roasted. The charge contained 46-48% Zn, 27-29% S, 1.1-1.4% Pb, 0.14-0.19% Cd and 10-11% moisture. This was charged into the fore-chamber of the furnace. The cinders were cooled and submitted to further treatment. Investigations were carried out at 950, 1000, 1050, 1150 and 1190°C. At a temperature of above 1000°C, the elimination of Pb and Cd from the cinders proceeded satisfactorily and the amount which was removed increased with increasing temperature of the bed. This dependence is shown in Table 2 and in Figure 5. The reduction of dust removal in relation to the temperature of the process is shown in Figure 6. As a result of their investigations, the authors have arrived at the following conclusions.

1) The method worked out for roasting zinc concentrates enables the output of the effervescent-bed furnace to be

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sharply increased and enables cinders to be obtained which are suitable for pyrometallurgical re-treatment in which the sintering stage is left out. The new method also enables the extraction of Pb and Cd to be sharply raised by re-treating sublimates which are enriched with these metals.

2) At a temperature of 1100 - 1190°C, the furnace works steadily; the hearth remains free of crusts.

3) In order to cut down the dust losses to a minimum, the furnace must have a considerable volume above the bed which ensures a long stay and a low speed of the gas in the working space of the furnace. The charge must be added directly to the effervescent bed.

4) In order to attain the best elimination of Pb and Cd the furnace must have a rectangular shape with a length-to-width ratio of the hearth of approximately 6:1.

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Roasting of Zinc Concentrates in an Effervescent Bed with Simultaneous Elimination of Lead and Cadmium and Coarsening of Cinder Granules

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There are 6 figures and 2 tables.

ASSOCIATIONS: Gintsvetmet (Babina, I. V., Besser, A. D.)
Belovskiy tsinkovyy zavod (Belovo Zinc Plant) (Alyushin, Ye.I., Lukin, A.N., Yevsdiyev, S.S.)

Card 6/6

BABINA, I.V.

Introducing the roasting of pyrites in a fluidized bed.
Sbor. nauch. trud. GINTSVETMET no.15:320-327 '59. (MIRA 14:4)
(Pyrites) (Ore dressing) (Fluidization)

S/137/61/000/012/051/149
A006/A101

AUTHOR: Babina, I. V.

TITLE: Sublimation roasting of antimonic ores in a fluidized bed (semi-industrial tests)

PERIODICAL: Referativnyy zhurnal. Metallurgiya, no. 12, 1961, 32 - 33, abstract 12G232 ("Sb. tr. Gos. n.-i. in-t tsvetn. met", 1959, no. 15, 328 - 340)

TEXT: Semi-industrial tests were carried out on sublimation roasting of Sb-ores in a fluidized bed with the aid of a furnace with a capacity of 5 - 7 tons of ore per day. The furnace bottom is made of heat-resistant concrete; the 460 mm thick walls and the vault are made of refractory bricks with a heat insulating packing. At 900, 1,200 and 1,500 mm level, 3 charge pipes are mounted in the furnace which make it possible to charge the ore and the fuel both over and into the layer at different depths. On the opposite side of the furnace 3 discharge pipes are mounted at 45° angle at 900, 1,200 and 1,500 mm height. Kizil Kiy coal was used as fuel and reducing agent; it contained 10 - 22% moisture and 10 - 20% ash. The author investigated the effect on the degree of Sb sublimation

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A006/A101

exerted by the height of the layer (900 - 1,500 mm), the temperature (850 - 1,030°C) the air excess, and the charge height of the material in the furnace. It was established that for 1.5 mm size material, the optimum height of the layer was 1,500 mm when ore and coal were charged to 900 mm depth from the bottom level. Satisfactory Sb sublimation was observed at 980 - 1,030°C. The optimum air-fuel ratio was 3.9 - 4.1 nm^3/kg. Air supply to the furnace in a quantity of 200 - 300 m^3/hour assured a linear velocity of 12 - 17 cm/sec. Air pressure in the air chamber at 1,500 mm of the layer height was 900 - 1,000 mm water column. The output of cinder from the charge was 70 - 75%. The output of cyclonic dust was 23 - 24%. In experiments with circulation of cyclonic dust, its output increased to 50 - 140%. The Sb content in the cyclonic dust varies within 0.3 to 1.2% and in the cinder from 0.09 - 0.13% Sb. Small modifications in the furnace design (increasing the shaft height by 2.7 m, reducing the water-cooled section before the cyclone, etc) reduced the Sb content in the cyclone dust, i.e. raised the technology of Sb extraction into the sublimates. Experiments were also made with melting the sublimates in crucibles. It was found that melting in crucibles with a reducing agent (coal) and without it and soda at 900 - 950°C, yielded crude Sb containing in %: Fe 0.008 - 0.15; As 2.2 - 2.4; Cu 0.01 - 0.06; Pb 0.5 - 0.6;

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A006/A101

Zn 0.01. The yield of crude metal from the sublimates is 65 - 70%. The hydrometallurgical system of reprocessing the sublimates consists in the leaching out of sublimates with sulfurous waste electrolyte at $\geqslant$ 90°C with subsequent electrolysis of the solution with non-soluble anodes at D_c 250 amp/m^2. Sb extraction from sublimates into the solution is 96 - 97%. Sb current efficiency without a diaphragm was 50%, and 80% with a diaphragm.

G. Svodtseva

[Abstracter's note: Complete translation]

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SHVARTSMAN, Yakov Naumovich; LEYZEROVICH, G.Ya., kand.tekhn.nauk, retsenzent; BABINA, I.V., inzh., retsenzent; NEYMAN, M.N., inzh., retsenzent; KUZNETSOV, N.N., inzh., red.; MISHARINA, K.D., red.izd-va; KARASEV, A.I., tekhn.red.

[Fluid bed roasting of zinc concentrates] Obzhig tsinkovykh kontsentratov v kipiashchem sloe; uchebnoe posobie dlia podgotovki i povysheniia kvalifikatsii masterov i rabochikh. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1960. 92 p. (MIRA 13:9)
(Ore dressing) (Zinc) (Fluidization)

BABINA, I.V.; BESSER, A.D.

Roasting of zinc concentrates in a fluidized bed with a driving off of lead and cadmium. Sbor. nauch. trud. Gintsvetmeta no.18: 328-338 '61. (MIRA 16:7)

(Zinc—Metallurgy) (Distillation)

BESSER, A.D.; BABINA, I.V.

Testing the simultaneous roasting of zinc concentrates and limestone in a fluidized bed. Sbor. nauch. trud. Gintsvetmeta no.23:96-105 '65. (MIRA 18:12)

MESHCHANINOVA, V.I.; VINOGRADOVA, M.A.; RABICHEVA, L.M.; BABINA, I.V.;
NIKITINA, I.S.; SYROVEGINA, K.V.; MYZENKOV, F.A.

Developing a flow sheet for the dressing of zinc fluorite ores from the "Voznesenskoye" deposit and determining the behavior of fluorine in the process of zinc recovery from concentrates. Sbor. nauch. trud. Gintsvetmeta no.23: 165-181 '65.

(MIRA 18:12)

BABINA, K.

Knit goods on the inspection stands. Mest.prom.i khud.promys. 2 no.8:29 Ag '61.
(MIRA 14:9)

1. Zamestitel' direktora assortimentnogo kabineta Ministerstva torgovli RSFSR.

(Knit goods industry—Quality control)

BABINA, K.; AGNISTIKOVA, L., inzh.

Workers clothing. Mest.prom. i khud.promys. 2 no.12:14-15 D '61.
(MIRA 14:12)

1. Zamestitel' direktora Assortimentnogo kabineta Ministerstva torgovli RSFSR (for Babina).

(Clothing, Protective)

BABINA, K.

Designers, textile manufacturers and Clothiers. Mosk[illegible].
i khud.promys. 3 no.1:14-15 [illegible] (MIRA 15:2)

1. Zamestitel' direktora assortimentnogo kabineta Ministerstva torgovli RSFSR.

(Clothing industry)

BABINA, M. D.

C2

Determination of benzene hexachloride in the air. M. D. Babina. *Gigiena i Sanit.* 1954, No. 5, 52-3.—The detn. is made by treatment of the sample with 0.1*N* alc. NaOH by heating 15 min. to 70°, followed by acidification with HNO_3 and addn. of $AgNO_3$; the AgCl suspension is compared with a standard scale. The method is sensitive to 0.02 mg. per 5 ml. of the soln. G. M. Kosolapoff

AF