81412

S/020/60/132/06/37/068
B004/B005

5.4400

AUTHORS: Neymark, I. Ye., Chertov, V. M., Sheynfayn, R. Yu., Kruglikova, N. S.

TITLE: Synthesis of Specific Silica Gels by Modification of Their Surface

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 132, No. 6, pp. 1356-1359

TEXT: It was the object of this investigation to give basic properties to silica gel by means of chemical modification, thus increasing its capacity of adsorbing acid substances. Hydrated samples of coarsely porous silica gel were treated with mono-, di-, or triethanolamine: a) at 100 - 160°C in a glass flask with return-flow cooler, or b) in an autoclave at 160 - 250°C. The content of aminoalcohol groups in the modified silica gels was determined by washing with titrated hydrochloric acid and back titration of the extract with lye. The silica gel adsorbed

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Synthesis of Specific Silica Gels by
Modification of Their Surface

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B004/B005

1.2 - 13.5 milliequivalents of ethanolamine per gram, with 1.2 - 1.75 mequ/g being bound very strongly, probably by chemical means. Fig. 1 shows that the adsorption of methanol vapor was reduced in the case of modified silica gel. The adsorption of acetic acid was increased (Fig. 2) like that of CO_2 gas (Fig. 3), whereas the adsorption of diethyl amine was reduced (Fig. 4). These data confirm that desired properties can be obtained by suitable treatment of silica gels. It is assumed that also a selectivity for basic substances can be attained by treatment with acid radicals. There are 4 figures and 16 references: 13 Soviet, 2 English, and 2 German.

ASSOCIATION: Institut fizicheskoy khimii im. L. V. Pisarzhevskogo
Akademii nauk USSR
(Institute of Physical Chemistry imeni L. V. Pisarzhevskiy
of the Academy of Sciences, UkrSSR)

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81412
S/020/60/132/06/37/068
B004/B005

Synthesis of Specific Silica Gels by Modification of Their Surface

X

PRESENTED: February 22, 1960, by M. M. Dubinin, Academician

SUBMITTED: February 20, 1960

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15 8210 also 2209

22563
S/190/61/003/005/006/014
B101/B218

AUTHORS: Neymark, I. Ye., Chuyko, A. A., Slinyakova, I. B.

TITLE: Olefine-substituted silicas as active fillers of polymers

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 3, no. 5, 1961, 711-715

TEXT: The authors varied the properties of silica by substituting the OH groups of its surface, and studied the effectiveness of the modified silica as a filler of polymethylmethacrylate. Since the presence of double bounds on the surface of the filler promised an especially high activity, the authors modified coarse-pored silica gel, silipur (fine-disperse silica), and powdered silica gel by the following methods: 1) introduction of the allyl radical by reaction of an organomagnesium allyl compound and silica chlorinated on its surface; 2) treatment of chlorinated silica gel with allyl alcohol in the autoclave at 200°C for 2 hr; 3) treatment of silica gel with methylvinyl dichlorosilane vapor and subsequent removal of the nonreacted chlorosilane by heating in vacuo to 200°C; 4) esterification of the nonchlorinated silica by allyl alcohol at 200°C for 2 hr. The results are listed in a table. The quantity of the organic substance chemically sorbed on the sur-

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Olefine-substituted ... S/190/61/003/005/006/014
B101/B218

face of silica was determined by bromination of the double bond; it is termed "iodine number." In the samples 8-10, the methylvinyl dichlorosilane chemically sorbed was determined from the increase in weight. The sorption isotherms for methanol, benzene, and heptane showed that the adsorptive power decreases with increasing substitution of the OH groups by unsaturated organic radicals. Fig. 1 illustrates this phenomenon for silica gel modified by allyl radicals. The same behavior was exhibited by silica gel containing methylvinyl radicals. Samples of the modified silica gel were used as fillers of polymethylmethacrylate (PMMA). 0.1% benzoyl peroxide was added to methylmethacrylate, and polymerization was carried out (with varying quantities of fillers) in sealed ampoules at 60°C for 20 hr. Fig. 3 presents the thermomechanical curves of the polymers obtained. The samples 1, 2, 3 indicated in the Fig. were soluble in boiling dichloroethane after 7 hr, while samples 4, 5, and 6 were only swollen even after 50 hr. Compared to sample 1, the vitrification temperature of sample 5 increased by 12°C, and that of sample 6 by 19°C. The double bonds of olefine-substituted silica caused an intense cross linking of PMMA. Thus, the physico-chemical properties of polymers can be improved, and the cost of polymers can be reduced by the use of modified silica. There are 3 figures, 1 table, and

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22565

Olefine-substituted ...

S/190/61/003/005/006/014
B101/B218

15 references: 13 Soviet-bloc and 2 non-Soviet-bloc. The reference to English-language publication reads as follows: M. C. Brooks, F. W. Boggs, R. H. Evart, Indian Rubber Bull., 1958, N 118, 15.

ASSOCIATION: Institut fizicheskoy khimii im. L. V. Pisarzhevskogo AN USSR (Institute of Physical Chemistry im. L. V. Pisarzhevskiy, AS UkrSSR)

SUBMITTED: July 20, 1960

Table: Content of radicals in modified silica gel.
Legend: 1) number of samples; 2) radical; 3) modification method; 4) number of radicals, mmole/g silica gel; 5) iodine number; 6) synthesis of allyl; 7) ditto; 8) methylvinyl; 9) organo-magnesium; 10) chlorinated silica gel treated with alcohol; 11) esterification; 12) treatment with organosilicon compounds.

X

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S/190/61/003/005/006/014
B101/B218

Olefine-substituted ...

Образец, № ①	Природа органического радикала ②	Метод модифицирования ③	Количество радикалов, ммоли/г силикагеля ④	Иодное число ⑤
1	⑥ Аллильный	⑨ Магнийорганический синтез	0,25	3,18
2	⑦ То же	⑦ То же	0,65	8,80
3	» »	» »	0,75	9,53
4	» »	⑩ Обработка спиртом хлорированного силикагеля	1,03	13,25
5	» »	⑦ То же	1,35	14,0
6	» »	» »	1,57	19,6
7	» »	⑪ Этерификация	1,71	21,8
8	⑧ Метилвинильный	⑫ Обработка кремнийорганическими соединениями	0,78	—
9	⑦ То же	⑦ То же	1,23	—
10	» »	» »	2,23	—

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Olefine-substituted ...

S/190/61/003/005/006/014
B101/B218

Fig. 1: Sorption isotherms.
Legend: 1) methanol; б) benzene; в) heptane; 1) initial sample; 2) sample no. 4; 3) sample no. 7; m) adsorption; n) mmole/g.

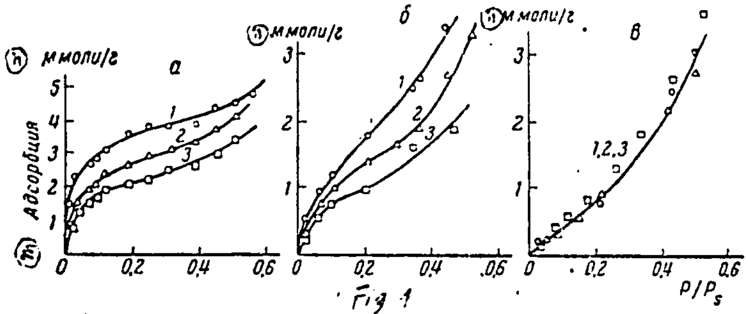

Fig 1

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B101/B218

Olefine-substituted ...

Fig. 3: Thermomechanical properties of the polymers. Legend: 1) PMMA without filler; 2) with 2.5% initial silica; 3) with 2.5% propyl silica; 4) with 2.5% allyl silica; 5) with 5% allyl silica; 6) with 7.5% allyl silica; a) temperature.

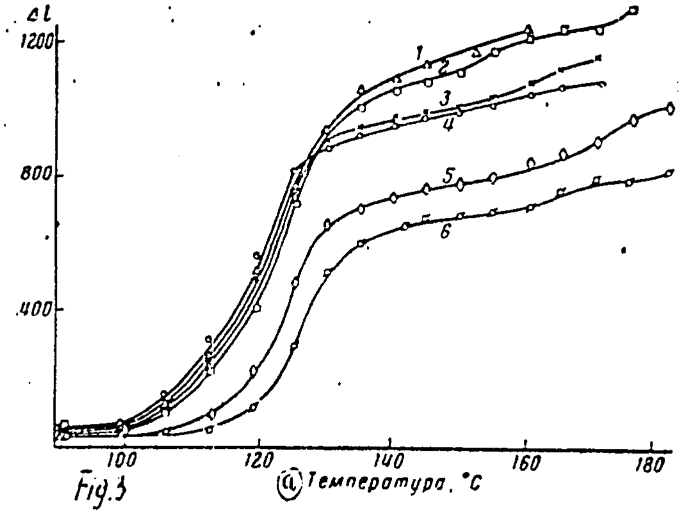

Fig.3

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NEYMARK, I.Ye.; PIONTKOVSKAYA, M.A.; LUKASH, A.Ye.; TYUTYUNNIK, R.S.

Synthesis of artificial zeolites and study of their adsorption properties [with summary in English]. Koll.zhur. 23 no.4: 454-461 Jl-Ag '61. (MIRA 14:8)

1. Institut fizicheskoy khimii AN USSR im. L.V. Pisarzhevskogo.
(Zeolites) (Adsorption)

CHERTOV, V.M.; SHEYNFAYN, R. Yu.; KRUGLIKOVA, N.S.; NEYMARK, I.Ye.

Stepwise methosylation of silica gel and its adsorption properties. Ukr. khim. zhur. 27 no.2:190-196 '61. (MIRA 14:3)

1. Institut fizicheskoy khimii im. L.V. Pisarzhevskogo AN USSR.
(Methoxylation) (Silica)

NEYMARK, I. Ye.; SLINYAKOVA, I.B.

Adsorption properties of silica gels modified by dimethyldichlorosilane. Ukr. khim. zhur. 27 no.2:196-205 '61. (MIRA 14:3)

1. Institut fizicheskoy khimii im. L.V. Pisarzhevskogo AN USSR.
(Silica) (Silane)

PIONTKOVSKAYA, M.A.; NEYMARK, I.Ye.; ZHUGAYLO, Ya.V. [Zhuhailo, IA.V.];
KUKOVSKIY, Ye.G. [Kukovskyi, E.H.]

Change in the structure of titanium gel catalysts in ethyl alcohol dehydration. Ukr. khim. zhur. 27 no.4:447-454 '61.
(MIRA 14:7)

1. Institut fizicheskoy khimii im. L.V.Pisarzhevskogo AN USSR.
(Titanium) (Catalysts) (Ethyl alcohol)

5 1115
5.4400

24059
S/020/61/138/004/020/023
B103/B203

AUTHORS: Neymark, I. Ye. and Chertov, V. M.

TITLE: Adsorption and ion-exchanging properties of silicas modified by a radical with acid functions

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 138, no. 4, 1961, 877-879

TEXT: The authors attempted to prepare silica gels modified by radicals with acid functions to give them a specificity as to the adsorption of substances with basic properties. As a radical of the said type they chose the sulfo group for the modification of (1) laboratory-made silica gel of uniformly coarse grain, and (2) Aerosil, a highly disperse preparation of nonporous silica. Both preparations were sulfonated in two stages: (A) The specimens dried in vacuo at 200°C for 2 hr were phenylated with diphenyl dichlorosilane. (B) The phenyl groups thus formed on the surface were sulfonated with H_2SO_4, the specimens washed with distilled water, and dried at 180-200°C. The scheme illustrates the process:

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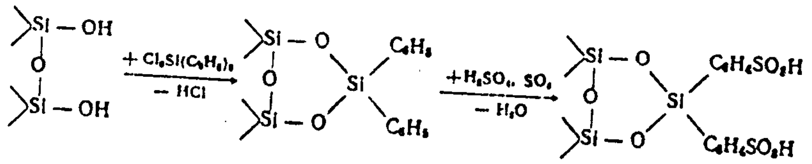
Adsorption and ion-exchanging properties ... S/020/61/138/004/020/023
B103/B203



Thus, part of the OH groups on the surface was replaced by a compound containing sulfo groups. The ion-exchanging properties of the sulfonated specimens were determined by the value of the static exchanging capacity on the basis of the exchange from a 1 N aqueous NaCl solution. At the same time, the authors determined the pH value of the equilibrium solution formed by the exchange of H^+ of the sulfo groups for the Na^+ of the solution. They found that the results of the ion exchange on sulfonated specimens strongly deviated from those on initial specimens of both preparations. The pH value of sulfonated specimens in equilibrium solutions is 1.8 - 2, i.e., the exchange proceeds in strongly acid media. On non-modified silanol silica gel, such pH values give no exchange. Thus, the authors found that the presence of a strongly acid, ionogenic sulfo

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Adsorption and ion-exchanging properties ... S/020/61/138/004/020/023
B103/B203

group covalently bound to the surface of the silica gel and Aerosil produced an ion exchange, also in strongly acid media. This is also the case if the hydrogen of the outer surface of the double layer of the silica gel is neither capable of dissociation nor exchange because of its much weaker protonization as compared to the hydrogen of the sulfo group. The changed adsorption properties due to the modification may be caused by a change of the porosity or of the chemical nature of the surface. To eliminate the influence of porosity, the authors studied nonporous Aerosil. They recorded the vapor adsorption isotherms of benzene, heptane, methanol, and diethyl amine on initial, on phenylated, and on sulfonated specimens. The adsorption of all vapors was strongly reduced by phenylation. For sulfonated Aerosil, the adsorption isotherms of benzene and heptane were slightly higher than for phenylated one (due to partial destruction of the phenyl silyl coat in sulfonation). On the other hand, these curves for methanol and diethyl amine on sulfonated Aerosil were not only higher than on phenylated one but even higher than in the initial product. Hence, it is concluded that the adsorption of methanol and diethyl amine on sulfonated Aerosil is based on chemosorption due to interaction of their molecules with the sulfo groups. Besides, desorption shows that the

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Adsorption and ion-exchanging properties ... S/020/61/138/004/026/023
B103/B203

amount of methanol and diethyl amine irreversibly bound to sulfonated specimens is larger than that on phenylated and initial specimens. For the molecules of methanol and diethyl amine, the sulfo groups represent active adsorption centers increasing their adsorption. For the molecules of benzene and heptane, however, the sulfo groups have not the function of such centers. This reduces the adsorption potential of modified Aerosil compared to the vapor of the two latter substances. Specific adsorbents and catalysts can be produced by modifying silica gels with radicals of acid or basic functions. In particular, sulfo silica gels may be used as non-swelling ion exchangers in strongly acid media. Since the framework of such ionites consists of heat-resistant silica gel they can be used at higher temperatures than ion-exchanging resins. There are 2 figures, 2 tables, and 12 references: 10 Soviet-bloc and 3 non-Soviet-bloc. The reference to an English-language publication reads as follows: Ref. 4: C.J.Plank, J.Phys.Chem., 57, 284 (1953).

ASSOCIATION: Institut fizicheskoy khimii im. L.V. Pisarzhevskogo Akademii nauk USSR (Institute of Physical Chemistry imeni L. V. Pisarzhevskiy of the Academy of Sciences UkrSSR)

Card 4/5

NEYMARK, I. Ye.

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PHASE I BOOK EXPLOITATION SOV/6246

Soveshchaniye po tseolitam. 1st, Leningrad, 1961.

Sinteticheskiye tseolity; polucheniye, issledovaniye i primeneniye (Synthetic Zeolites: Production, Investigation, and Use). Moscow, Izd-vo AN SSSR, 1962. 286 p. (Series: Its: Doklady) Errata slip inserted. 2500 copies printed.

Sponsoring Agency: Akademiy nauk SSSR. Otdeleniye khimicheskikh nauk. Komisiya po tseolitam.

Resp. Eds.: M. M. Dubinin, Academician and V. V. Serpinskiy, Doctor of Chemical Sciences; Ed.: Ye. G. Zhukovskaya; Tech. Ed.: S. P. Golub'.

PURPOSE: This book is intended for scientists and engineers engaged in the production of synthetic zeolites (molecular sieves), and for chemists in general.

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Synthetic Zeolites: (Cont.) SOV/6246

COVERAGE: The book is a collection of reports presented at the First Conference on Zeolites, held in Leningrad 16 through 19 March 1961 at the Leningrad Technological Institute imeni Lensovet, and is purportedly the first monograph on this subject. The reports are grouped into 3 subject areas: 1) theoretical problems of adsorption on various types of zeolites and methods for their investigation, 2) the production of zeolites, and 3) application of zeolites. No personalities are mentioned. References follow individual articles.

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Pavlova, S. N., Z. V. Driatskaya, and M. A. Ekhchiyan. Application of Synthetic Zeolites in Determining the Content of Normal Alkanes in Gasoline Fractions	253
Galich, P. N., I. T. Golubchenko, A. A. Gutyrya, V. S. Gutyrya, and I. Ye. Neymark. Investigation of the Possible Application of Synthetic Zeolites as Carriers and Catalysts for the Dehydrogenation and Cracking of n-Paraffins	260
Palek, M., P. Iru, O. Grubner, and G. Beyer. Synthetic Zeolites as Molecular Sieves With Color Indication of Water-Vapor Pressure	263
Malyusov, V. A., N. N. Umnik, N. N. Kulov, N. M. Zhavoronkov, G. I. Faydel', and D. O. Zisman. Purifying Formaldehyde From Moisture and Formic Acid With the Aid of Synthetic Zeolites	267

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NEYMARK, I.Ye., doktor khimicheskikh nauk, prof.; CHUYKO, A.A., inzh.; BLOKH, G.A., doktor khimicheskikh nauk, prof.; GENDLER, T.R., inzh.; CHUGAY, A.D., inzh.

Use of organic silica as a rubber filler. Izv.vys.ucheb.zav.; tekh.leg.prom. no.2:60-67 '62. (MIRA 15:5)

1. Institut fizicheskoy khimii AN USSR (for Neymark, Chuyko). 2. Dnepropetrovskiy khimiko-tekhnologicheskiy institut imeni Dzerzhinskogo (for Blokh, Gendler). 3. Kiyevskiy zavod "Krasnyy rezinshchik" (for Chugay). Rekomendovana kafedroy tekhnologii reziny Dnepropetrovskogo khimiko-tekhnologicheskogo instituta.

(Rubber) (Silica)

GALICH, P.N.; GOLUBCHENKO, I.T.; GUTYRYA, A.A.; GUTYRYA, V.S.; DOLINSKAYA, E.S.; MOZDOR, Ye.V.; NEYMARK, I.Ye.

Nature of cokelike deposits formed on CaC-type molecular sieves in the cracking of n. alkanes. Neftekhimiia 2 no.2:193-195 Mr-Ap '62. (MIRA 15:6)

1. Institut khimii polimerov i monomerov AN USSR i Institut fizicheskoy khimii imeni Pisarzhevskogo AN USSR, Kiyev.
(Paraffins) (Cracking process)

NEYMARK, I.Ye.

Materials for rubberized rain clothing. Kozh.-obuv.prom. 4
no.1:27-29 Ja '62. (MIRA 15:3)

1. Nachal'nik zavoda plashchevykh tkaney kalininskogo kombinata "Iskozh".
(Rubberized fabrics) (Clothing, Waterproof)

S/069/62/024/002/006/008
B110/B144

5.4111

AUTHORS: Slinyakova, I. B., Neymark, I. Ye.

TITLE: Effect of the nature of the organic radical of modified silica gels on their adsorption properties

PERIODICAL: Kolloidnyy zhurnal, v. 24, no. 2, 1962, 220 - 226

TEXT: The authors studied the effect of the number of hydrocarbon groups in the graft organosilicon radical on the adsorption properties of modified silica gels with mono-, di-, and trimethyl chloro silanes, and mono- and diphenyl dichloro silanes. The adsorption of water vapor decreases as the number of methyl or phenyl groups in the organosilyl radical increases. The strongly hydrophobic character of the surfaces of modified silica gels is due to poor wetting of the pore walls and to the absence of capillary condensation. Wetting by hydrocarbons is good since the maximum benzene and heptane sorption volume of the pores decreases by 20% only. This reduction is due to pore contraction caused by the formation of alkyl(aryl)silyl radicals. Comparison of isotherms showed that the adsorption of methanol, benzene, and heptane vapors decreased with increasing

X

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number of methyl groups. This is due to a decrease in hydroxyl groups and to the screening of the remaining hydroxyl by methyl groups. Cl atoms not used for the addition of monomethyl trichloro silane to the silica gel surface can hydrolyze to hydroxyl groups with atmospheric moisture. Methanol adsorption during grafting with the monomethyl radical is greater than with dimethyl or trimethyl radicals since one methyl group of the monomethyl radical does not block all hydroxyl groups. The low adsorption of benzene to modified silica gel is due to a decrease in dispersive forces and to the absence of acceptor-donor interaction of benzene with the hydroxyl groups of silica gel. Heptane adsorption decreases with increasing number of methyl groups owing to a decrease in the potential of attractive forces. This is caused by destruction of the silicon-oxygen skeleton at a distance corresponding to the van der Waals dimensions of the hydrocarbon radicals in the surface layer. A similar situation was observed when using monophenyl and diphenyl dichloro silanes for modification. Adsorption of water and the maximum sorption volume were reduced by modification with dimethyl, diethyl, and diphenyl dichloro silanes. Lower methanol and benzene adsorption to the diethyl silyl surface is caused by better screening of the ethyl radical. The hexane adsorption isotherms of dimethyl and diethyl silyl compounds hardly differ. The decrease in adsorptive power after treatment with alkyl chloro silane is mainly caused by chemical surface changes but occupation of pores by radicals has apparently also a certain effect. A double bond in the radical increases the surface polarity, and adsorption is therefore greater than with saturated radical. In the donor-acceptor mechanism, this difference was greater than in adsorption by dispersive forces. There are 5 figures, 1 table, and 15 references.

ASSOCIATION: Institut Fizicheskoy khimii AN USSR im. L. V. Pisarzhevskogo Kiyev (Institute of Physical Chemistry AS UkrSSR imeni L. V. Pisarzhevskiy, Kiyev)

SUBMITTED: March 27, 1961

GALICH, P.N.; GUTYRYA, A.A.; GUTYRYA, A.A.; GUTYRYA, V.S.; NEYMARK, I.Ye.

Certain features of the catalysis of alkanes over zeolites (molecular sieves). Dokl.AN SSSR 144 no.1:147-150 My '62. (MIRA 15:5)

1. Institut khimii polimerov i monomerov AN USSR i Institut fizicheskoy khimii AN USSR. 2. Chlen-korrespondent AN SSSR (for Gutyrya).

(Paraffins) (Catalysis) (Zeolites)

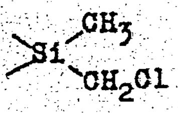
S/021/63/000/002/014/016
D405/D301

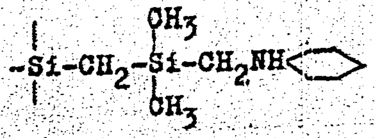
AUTHORS: Chuyko, A. A., Pavlyk, H. Ye. and Neymark, I. Ye.

TITLE: Synthesis and adsorptive properties of amino-organic silicas with Si-C bond

PERIODICAL: Akademiya nauk UkrRSR. Dopovidi. no. 2, 1963, 230-233

TEXT: The investigation had the purpose of obtaining amino-organic silicas with Si-C bond, and of studying their adsorptive and ion exchange properties. Modified silicas were obtained, having the following chemical compounds on their surface:

a)


b)

$-Si-CH_2-Si(CH_3)_2-CH_2NH-C_6H_{11}$

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c) $-\overset{|}{\underset{|}{SI}}-CH_2-NH_2.$

On the original and modified silica specimens the sorption isotherms of vapors of methanol, benzene, heptane and dry gaseous hydrogen chloride were studied at 20°C in a vacuum adsorption device with quartz spring balances. It was found that substitution of part of the hydroxyl groups of the aerosol by organic radicals leads to a decrease in absorption of methanol and benzene, as well as of heptane. The obtained results are in agreement with the data available in the literature. The fact that methanol and benzene is much more adsorbed by aniline methyl aerosol than by chloromethyl aerosol can be explained by the possible formation of a hydrogen bond of these materials with the >NH-group of aminosilicas. It was found that the modification of the aerosol of the chloromethyl group leads to a sharp decrease in its adsorption as compared to the original specimen. It is established that amino-organic silicas are selective adsorbents of acidic substances. It is noted that the

Synthesis and adsorptive ... B/021/63/000/002/014/016
D405/D301

concentration of the amino-groups in the aminomethyl aerosol, obtained by ion exchange, is nearly equal to the amount of irreversibly chemisorbed hydrogen chloride; this is not the case with aniline methyl aerosol. There are 2 figures.

ASSOCIATION: Instytut fizychnoyi khimiyi AN URSR (Institute of Physical Chemistry of the AS UkrRSR)

PRESENTED: by Academician O. I. Brods'kyy of the AS UkrRSR

SUBMITTED: July 19, 1962

Card 3/3

BLOKH, G.A., doktor khimich. nauk, prof.; NEYMARK, I.Ye., doktor khimich. nauk, prof.; BORODUSHKINA. Kh.N., inzh.; BOGUSLAVSKIY, D.B., inzh.; SHEVCHENKO, Yu.G., inzh.

Molecular sieves and problems of rubber vulcanization. Izv. vys. ucheb. zav.; tekh. leg. prom. no.4:46-53 '63. (MIRA 16:10)

1. Dnepropetrovskiy khimiko-tekhnologicheskiy institut (for Blokh). 2. Institut fizicheskoy khimii AN UkrSSR (for Neymark.) 3. Dnepropetrovskiy shinyy zavod (for Borodushkina, Boguslavskiy, Shevchenko). Rekomendovana kafedroy tekhnologii reziny Dnepropetrovskogo khimiko-tekhnologicheskogo instituta.

S/204/63/003/001/013/013
E075/E436

AUTHOR: Neymark, I.Ye.

TITLE: Surface chemical compounds on siliceous adsorbents and their role in the adsorption phenomena

PERIODICAL: Neftekhimiya, v.3, no.1, 1963, 149-158

TEXT: A systematic investigation was carried out on the influence of various surface chemical compounds on the adsorption properties of silica gel, aerosil and montmorillonite clays. About 40 modified adsorbents were synthetized with the following bonds: Si-F, Si-ORN, Si-R, Si-RNH_2, Si-$ORNH_2$, Si-OR_2NH, Si-OR_3N, Si-RCOOH, Si-RSO_3, where R - various organic radicals. The adsorption capacity of the adsorbents modified with the non-ionic groups (adsorption of H_2O, methanol, benzene, n-hexane) decreases with the van der Waals radical radius. The increase of the number of hydrocarbon groups in the radicals attached to the surfaces decreased the adsorptive capacity of xerogels due to screening of the unreacted surface hydroxyl groups. Silica gel and aerosil with the attached sulfonic acid groups have the properties of strong mineral acids and their adsorption capacity is even greater

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S/204/63/003/001/013/013
Surface chemical compounds ... E075/E436

than that of the original adsorbents. Methanol and amines are chemisorbed on such acidic adsorbents, which can be used as non-swelling ion-exchangers. Due to the inorganic nature of their skeleton they should be more satisfactory at high temperatures than the synthetic cation exchangers. Silica gels with the attached amino groups show an increased adsorptive capacity for acidic substances, the basic properties increasing from primary to tertiary amines. The new adsorbents with ion-exchange properties should have many potentialities in acid-base catalysis and chromatography. There are 6 figures and 2 tables.

ASSOCIATION: Institut fizicheskoy khimii AN USSR
(Institute of Physical Chemistry AS UkrSSR)

SUBMITTED: August 4, 1962

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L 10757-63 EPR/EWP(j)/EPF(c)/EWT(m)/BDS—AFFTC/ASD—Ps-4/Pc-4/Pr-4—
FM/WW
ACCESSION NR: AP3003291 S/0138/63/000/006/0031/0034 82 78

AUTHOR: Chuyko, A. A.; Neymark, I. Ye.; Landau, I. M. (Deceased); Tsepenyuk, E.V.; Chuyko, Ye. A.

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TITLE: Effect of the chemical nature of filler surface and ionising radiation on the properties of rubbers 19

SOURCE: Kauchuk i rezina, no. 6, 1963, 31-34

TOPIC TAGS: rubbers, SKS-30, SKN-40, SKB; fillers; silica; Belaks; modified silica; vinyl-substituted silica; vulcanization; vulcanizate properties; tensile strength; modulus; swelling; ionising radiation, butadiene-styrene rubber; nitrile rubber, sodium butadiene rubber; silica surface hydroxyls

ABSTRACT: The effect of the chemical nature of the filler 15 surface on the physico-mechanical properties of rubbers has been studied. Butadiene-styrene 15 (SKS-30), 15 nitrile (SKN-40) 15 and sodium butadiene 15 (SKB) rubbers loaded with unmodified silica and with silica whose surface hydroxyls had been substituted by allyloxy or vinyl radicals were used. Use of modified silica in standard rubber mixes (containing 100 parts rubber and 50 to 60 parts filler) was shown to improve the physico-mechanical properties of the vulcanizates. For example, the tensile strength of

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L 10757-63
ACCESSION NR: AP3003291

SKN-40 rubber containing 60% filler increased from 126.3 kg/cm^2 with unmodified silica to 163.6—168 kg/cm^2 with vinyl-substituted silica (vinyl silica); the respective values of the modulus at 600% elongation and swelling at equilibrium in benzene were 55.2 and 134 kg/cm^2 and 30 and 15%. This improvement was attributed to greater compatibility of the filler and the rubber and to a reaction between the olefin radicals of the filler surface and the rubber with the possible formation of C-C and C-S-C linkages. The effect was studied of ionising radiation from a Co^{60} source at a dose rate of 77 r/sec on nonloaded SKS-30 rubber and on SKS-30 loaded (ratio 1/1) with unmodified and with modified silica (Belaks) containing 2.5% vinyl, methyl, or ethyl radicals. Irradiation did not affect the tensile strength and the modulus at 100% elongation of unloaded rubber but considerably improved these properties in loaded rubbers, particularly with vinyl silica. The maximum effect of irradiation is attained after 48 hr. These results were attributed to the participation of the filler in the formation of the three-dimensional network. In particular, the allyl or vinyl groups of the filler and the rubber macromolecules form radicals which link the two through the formation of covalent bonds. It is concluded that the structure and the physicomechanical properties of vulcanizates can be controlled by modifying the nature of the organic radicals on the silica surface, the number of such radicals, the composition of the vulcanizates, and the method of vulcanization. Orig. art. has:

L 10757-63
ACCESSION NR: AP3003291

2

1 figure and 2 tables.

ASSOCIATION: Institut fizicheskoy khimii im. L. V. Pisarzhevskogo AN SSSR (Institute of Physical Chemistry, AN SSSR); Kiyevskiy regeneratorno-rezinovy*y zavod (Kiev Reclaim Rubber Plant)

SUBMITTED: 00	DATE ACQ: 10Jul63	ENCL: 00
SUB CODE: 00	NO REF SOV: 004	OTHER: 004

Card 3/3

SHEINFAYN, R.Yu.; KRUGLIKOVA, N.S.; STAS', O.P.; NEYMARK, I.Ye.

Mechanism of the formation of a porous silica gel structure. Part 1: Effect of the acid treatment of hydrogel on the size and packing density of xerogel particles. Koll.zhur. 25 no.6:732-738 N-D '63.
(MIRA 17:1)

1. Institut fizicheskoy khimii AN UkrSSR imeni Pisarzhevskogo, Kiyev.

SLINYAKOVA, I.B.; NEYMARK, I.Ye.

Adsorbent for the chromatographic separation of a propane - propylene - hydrogen mixture. Zhur. prikl. khim. 36 no.10: 2313-2315 O '63. (MIRA 17:1)

CHERTOV, V.M.; DZHAMBAYEVA, D.B. [Dzhambaieva, D.B.]; NEYMARK, I.Ye.
[Neimark, I.IE.]

Change in the porous structure of xerogel of silicic acid under the effect of hydrothermal treatment of hydrogell Dop. AN URSR no.5:613-616 '64. (MIRA 17:6)

1. Institut fizicheskoy khimii AN UkrSSR. Predstavleno akademikom AN UkrSSR A.I.Brodskim [Brods'kyi, O.I.].

BORODUSHKINA, Kh.N. [Borodushkina, Kh.M.]; BLOKH, G.A. [Blokh, H.A.];
BOGUSLAVSKIY, D.B. [Bohuslav'kyi, D.B.]; NEYMARK, I.Ye.
[Neimark, I.IE.], GENDLER, T.R. [Hendler, T.R.]

Molecular sieves (zeolites) as rubber curing accelerators.
Dop. AN URSR no.8:1084-1087 '64. (MIRA 17:8)

1. Dnepropetrovskiy khimiko-tekhnologicheskiy institut,
Dnepropetrovskiy shinnyy zavod i Institut fizicheskoy khimii
AN UkrSSR. Predstavleno akademikom AN UkrSSR F.D. Ovcharenko.

BORODUSHKINA, Kh.N.; BLOKH, G.A.; BOGUS'AVSKIY, D.B.; GENDLER, T.R.;
NEYMARK, I.Ye.; PIONTKOVSKAYA, M.A.

Synthetic zeolites as carriers of rubber vulcanization accelerators.
(MIRA 17:9)
Kozh. obuv. prom. 6 no.6:14-19 Je '64.

S/0138/64/000/002/0001/0005

ACCESSION NR: AP4017159

AUTHORS: Borodushkina, Kh. N.; Blokh, G. A.; Boguslavskiy, D. B.; Gendler, T. R.; Neymark, I. Ye.

TITLE: Vulcanization of rubber compounds in the presence of filled zeolites

SOURCE: Kauchuk i rezina, no. 2, 1964, 1-5

TOPIC TAGS: rubber, rubber compound, vulcanization, scorching, accelerator, Altax, Santocure, phenylguanidine, zeolite, filled zeolite, ammonia, methylamine, dimethylamine, ethanolamine, adsorption, kinetics of desorption

ABSTRACT: The vulcanization of protective and brake rubber compounds from natural and butadiene-styrene rubbers of the SKMS-30ARKM brands was conducted in the presence of synthetic zeolites of the NaKh type with pores 10 Å in diameter, filled with ammonia, methylamine, dimethylamine, monoethanolamine, and diethanolamine. These filled zeolites were used in the capacity of secondary accelerators of vulcanization (instead of Altax and diphenylguanidine) in combination with the basic accelerator Santocure. It was found that an increase of ammonia content in protective and brake rubber compounds to 0.25 and 0.40% (by weight), respectively,

ACCESSION NR: AP4017159

permitted the production of materials with a higher degree of vulcanization, while still preserving the resistance of the compounds to scorching. The use of ammonia-filled zeolites also resulted in a substantial saving of time, achieving within 30 minutes a degree of vulcanization for protective rubber equal to that attained by Altax in 50 minutes. Methylamine and dimethylamine exert a similar effect on the vulcanization of rubber compounds when used in association with zeolites. While the ethanolamines are known to act as accelerators of vulcanization, their direct application causes (within 20-26 minutes at 110C) some scorching of the compounds during the working operation. However, when adsorbed on zeolites, monoethanolamine and diethanolamine impart to brake-rubber compounds a state of plastic flow which lasts for 37-39 minutes. It was found that the physical and mechanical properties of these vulcanized rubbers were practically identical with those of the vulcanizates produced with the aid of Altax and diphenylguanidine. The kinetics of desorption of amines from zeolites at various temperatures was studied, and it was observed that a 10-minute heating at 140C caused the desorption of only 40% monoethanolamine and 18% diethanolamine. The capacity of zeolites to retain the amines at elevated temperatures lessens the danger of scorching in the vulcanization process. Orig. art. has: 3 tables and 2 charts.

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ACCESSION NR: AP4017159

ASSOCIATION: Dnepropetrovskiy khimiko-tekhnologicheskiy institut, Dnepropetrovskiy shinnyy zavod i institut fizicheskoy khimii AN SSSR (Dnepropetrovsk Chemical and Technical Institute, Dnepropetrovsk Tire Plant and Institute of Physical Chemistry, AN SSSR)

SUBMITTED: 00	DATE ACQ: 23Mar64	ENCL: 00
SUB CODE: CH	NO REF SOV: 007	OTHER: 001

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L 14324-65 EWT(m)/ EPF(c)/EPA(w)-2/EWP(j)/T Pc-4/Pab-10/Pr-4 SSD/AFWL/AS(mp)-2

ACCESSION NR: AP4043130 RWH/WH/RM S/0069/64/026/004/0506/0512

AUTHORS: Slinyakova, I.B.; Kurkova, M.F.; Neymark, I.Ye. B

TITLE: Gels of organosilicon compounds 2--The adsorptive properties of mixed gels of methylsilanetriol and silicic acid

SOURCE: Kolloidnyy zhurnal, v. 26, no. 4, 1964, 506-512

TOPIC TAGS: mixed organosilica gel, synthesis, adsorptive property, hydrophilicity, hydrophobicity, methylsilanetriol silicic acid gel, porosity, rigidity, sodium methylsiliconate, water adsorption, hydrocarbon adsorption, gel structure, controlled adsorptive property

ABSTRACT: The adsorptive properties of mixed organosilica gels prepared by coprecipitation of mixtures of sodium methylsiliconate [illegible] acids were investigated. Two series

by the addition of

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L 14324-65
ACCESSION NR: AP4043130

siliconate and increasing amounts of sodium silicate. It was concluded that micelles of the methylsilanetriol and silicic acid were simultaneously condensed with one another and that the washed and dried organosilica gel consisted of aggregates of primary particles formed from siloxane groups in which the silicon atom surface contained methyl or hydroxyl groups; the possibility of the presence of methyl groups in the gel skeleton was indicated. Small additions (up to 10%) of sodium methylsiliconate do not affect the normal gelling of polysilicic acid possible to

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L 14324-65
ACCESSION NR: AP4043130

synthesize organosilica gels with the desired adsorptive properties. Orig. art. has: 3 figures, 1 table and 1 formula

ASSOCIATION: Institut fizicheskoy khimii AN USSR im. L.V. Pisarzhevskogo Kiyev (Institute of Physical Chemistry AN USSR)

SUBMITTED: 23Dec62 DATE ACQ: ENCL: 00

SUB CODE: GC, MA NR REF SOV: 003 OTHER: 005

Card 3/3

SHEYNFAYN, R. Yu.; LIPKIND, B.A.; STAS', O.P.; NEYMARK, I. Ye.

Mechanism of the porous structure formation in silica gel. Part 3: Role of aging of neutral and alkaline hydrogels in the formation of the porous structure of xerogels. Koll. zhur. 26 no.6:734-738 N-D '64 (MIRA 18:1)

1. Institut fizicheskoy khimii imeni L.V.Pisarzhevskogo AN UkrSSR i Gor'kovskaya opytnaya baza Vsesoyuznogo nauchno issledovatel'skogo instituta po pererabotke nefti i gaza i polucheniyu zhidkogo topliva.

L 20756-65 EPF(c)/EWP(j)/EWT(m)/T Pc-4/Pr-4/Pb-4 RM
ACCESSION NR: AP5000474 S/0073/64/030/011/1143/1145

AUTHOR: Rastrenenko, A. I.; Plachinda, A. S.; Neymark, I. Ye.

TITLE: The adsorption of hydrocarbons on ion exchange derivatives of type A zeolite

SOURCE: Ukrainskiy khimicheskiy zhurnal, v. 30, no. 11, 1964, 1143-1145

TOPIC TAGS: type A zeolite, hydrocarbon adsorption, molecular sieve, propane separation, paraffinic hydrocarbon

ABSTRACT: The adsorption isotherms of saturated normal hydrocarbons on type A zeolites containing Na and Ca, Na and Co and Na and Ni cations in different ratios was studied. When the $[Ca^{++}]/([Ca^{++}]+[Na^{+}])$ ratio was ≈ 0.3, a sharp increase was noted in the adsorption of propane on the CaNaA zeolite at all pressures over 0.5 mm. The p = 0.5 mm isobar did not show this increase. The behavior in NaMgA zeolites was similar. Substitution of about 30% of the Na

properties of type A zeolite. As the hydrocarbon chain length increased from

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L 20756-65
ACCESSION NR: AP5000474

3

C_3-C_{10} the adsorption of the n-paraffins decreased from ~2.2 to 1.1 mmol/gm. Propane (~5Å) was readily adsorbed, while the C_5 and longer hydrocarbon chains require distortion for diffusion into the zeolite, and greater exchange of Na for Ca, hence propane can be readily separated from a hydrocarbon mixture using a zeolite with the proper amount of substitution of Na by Ca. "S. N. Antonovskathe authors express thanks." Orig. art. has: 3 figures.

ASSOCIATION: Institut fizicheskoy khimii im. L. V. Pisarzhevskogo AN UkrSSR (Institute of Physical Chemistry AN UkrSSR)

SUBMITTED: 20Sep63 ENCL: 00

SUB CODE: IC, GC NO REF SOV: 001 OTHER: 002

Card 2/2

ACCESSION NR: AP4013337 S/0020/64/154/003/0692/0694

AUTHOR: Slinyakova, I. B.; Budkevich, G. B.; Neymark, I. Ye.

TITLE: Hydrophobic hydrogen-silicic adsorbent with Si--H bond (xerogel of polysiloxane hydride).

SOURCE: AN SSSR. Doklady*, v. 154, no 3, 1964, 692-694

TOPIC TAGS: silica gel, hydrophobic silica gel, hydrophilic silica gel, hydrophobic silica gel preparation, adsorption isotherms, polysiloxane hydride xerogel, hydrogen silica gel, specific surface, silicon hydrogen bond

ABSTRACT: A silica gel on whose surface the hydroxyl groups are replaced by atoms incapable of forming hydrogen bonds, whose dimensions do not exceed those of the hydroxyl groups, and which have a high polarizability was synthesized. The "hydrogen" silica gel was prepared by hydrolysing an organosilicon compound to a hydrogel of silane triol $[HSi(OH)_3]_n$, which on drying formed a high molecular porous material $(HSiO_{3/2})_n$, containing 51.1% Si, insoluble in organic solvents.

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ACCESSION NR: AP4013337

stable to 300C and having a Si--H bond strength of 75kcal. In the spatial lattice, each Si contains an H; the surface of the xerogel is evenly covered with hydrogen atoms giving it hydrophobic properties. The sorption isotherms for water, methanol and hexane vapors at 20C were determined. The specific surface of the material is similar to that of hydrophilic silica gel-about 520 sq. m. /gm.; the adsorption of hexane on these two materials is equal; the adsorption of methanol on the new material is about two times less than adsorption of hexane, while water adsorption is practically nil. Hexane adsorption is explained by the dispersive forces which are almost the same in the hydrogen and the hydrophilic silica gels, regardless of the chemical nature of the surface. Since the hydrogen layer of the xerogel cannot form donor-acceptor bonds, water is not adsorbed. The weak adsorption of methanol is based only on dispersion forces. "Determination of the nitrogen sorption isotherms was conducted by N. P. Samchenko and A. I. Ponomarenko, for which the authors express their appreciation." Orig. art. has: 1 table and 1 figure

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ACCESSION NR: AP4013337

ASSOCIATION: Institut fizicheskoy khimii im. L. V. Pisarzhevskogo Akademii nauk SSSR (Institute of Physical Chemistry, Academy of Sciences, SSSR)

SUBMITTED: 30Aug63 DATE ACQ: 26Feb64 ENCL: 00

SUB CODE: PH NO REF SOV: 004 OTHER: 000

Card 3/3

L 60052-65

ACCESSION NR: AP5017956

zeolite form begin to manifest themselves at a degree of exchange equal to approximately 0.33, which is in good agreement with the theoretical calculations. It was found that the various cation-exchanging forms of zeolites are stable to Co^{60} gamma radiation; this distinguishes zeolites from most organic ion exchangers. The use of various cation-exchanging zeolites in catalysis is very promising. Orig. art. has: 8 figures and 2 tables.

ASSOCIATION: Institut fizicheskoy khimii im. L. V. Pisarzhevskogo Akademii nauk UkrSSR (Institute of Physical Chemistry, Academy of Sciences, UkrSSR)

SUBMITTED: 15Dec64 ENCL: 00 SUB CODE: IC

NO REF SOV: 025 OTHER: 001

TERTYKH, V.A.; CHUYKO, A.A.; NEYMARK, I.Ye.

Infrared spectroscopic method for studying the reaction of γ-aminopropyl and β-cyanoethyltriethoxysilanes with aerosil surface. Teoret. i eksper. khim. 1 no.3:400-405 My-Je '65. (MIRA 18:9)

1. Institut fizicheskoy khimii imeni L.V. Pisarzhevskogo AN UkrSSR, Kiyev.

RASTRENENKO, A.I.; ANTONOVSKAYA, S.N.; NEYMARK, I.Ye.

Hydrophilic properties of ion-exchange derivatives of A-type zeolites. Koll. zhur. 27 no.2:269-273 Mr-Ap '65. (MIRA 18:6)

1. Institut fizicheskoy khimii AN UkrSSR, Kiyev.

CHERTOV, V.M.; DZHAMBAYEVA, D.B.; NEYMARK, I.Ye.

Effect of hydrothermal treatment of the silicic acid hydrogel on the structure and properties of xerogel. Koll. zhur. 27 no.2:279-283 Mr-Ap '65. (MIRA 18:6)

1. Institut fizicheskoy khimii AN UkrSSR imeni Pisarzhevskogo, Kiyev.

SLINYAKOVA, I.B.; BUDKEVICH, G.B.; NEYMARK, I.Ye.

Gels of organosilicon compounds. Part 3: Adsorptive and other properties of a hydrogen-silica adsorbent with a Si-H bond (polysiloxane hydride xerogel). Koll. zhur. 27 no.5:758-764 S-O '65. (MIRA 18:10)

1. Institut fizicheskoy khimii AN UkrSSR imeni Pisarzhevskogo, Kiyev.

PLACHINDA, A.S.; CHERTOV, V.M.; NEYMARK, I.Ye.

Interaction of silica gels of various porosity with $Ca(OH)_2$ solution.
Ukr. khim. zhur. 31 no.6:567-573 '65. (MIRA 18:7)

1. Institut fizicheskoy khimii imeni Pisarzhevskogo AN UkrSSR.

L 1589-66 EWT(m)/T

ACCESSION NR: AP5020950 UR/0073/65/031/008/0761/0767

46

45

B

AUTHOR: Piontkovskaya, M. A.; Neymark, I. Ye.; Tyutyunnik, R. S.; Lukash, A. Ye.; Lantsova, M. A.

TITLE: Properties of magnesium-substituted zeolite 1

SOURCE: Ukrainskiy khimicheskiy zhurnal, v. 31, no. 8, 1965, 761-767

TOPIC TAGS: zeolite, magnesium, adsorption, nuclear magnetic resonance

ABSTRACT: The zeolite was prepared from the molecular sieve NaA or NH_4NaA and magnesium sulfate by cation exchange under static or flow conditions at 20-60 C. The exchange amounted to about 40% for NaA and 58% for NH_4NaA. For the study of properties, the following was determined: isotherms of vapor absorption (for water, benzene and lower alcohols) in the powders under vacuum at 20C, chromatographic data for the heat of adsorption (20-300C) and content in the individual gases (H_2 + CO + CH_4), and nuclear magnetic resonance for elucidating the nature and character of the forces linking adsorbed water molecules in the zeolite. The compositions of the elemental cells of these zeolites, $Mg^{I}NaA$, $Mg^{II}NH_4NaA$ and $Mg^{III}NH_4NaA$ are reported. Adsorption isotherms for the Mg zeolite were

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L 1589-66

ACCESSION NR: AP5020950

located above those for the Na form. Calculation of water vapor molecules per one zeolite cell gave 730 A^3 for pores in NaA and 958 A^3 for Mg^{III}NH$_4$NaA, that is, 30% more for the latter. Tests with alcohols, etc. showed that no molecules with diameters above 5 A were adsorbed. The NMR lines for MgNaA, CaNaA and KNaA are reported. They show that the cations have an essential influence on the magnetic resonance of proton absorption, that is, that upon filling of zeolite pores with water, the latter locates mainly at the metal cations of the individual cells. This supports the assumption of cation participation in the primary adsorption act of polarized water molecules. Adsorption heat was shown to depend upon the individual gas rather than the metal. The heat of adsorption increased by about 2 kcal/mole for each CH$_2$ group. The nature of the cation which compensates the charge of the alumino silicate body influenced the adsorption heat of CO molecules and hydrocarbons with unsaturated bonds. Orig. art. has: 5 figures and 3 tables.

ASSOCIATION: Institut fizicheskoy khimii im. L. V. Pisarzhevskogo AN UkrSSR (Institute of Physical Chemistry, AN UkrSSR)

SUBMITTED: 10Mar64 ENCL: 00 SUB CODE: IC

NR REF SOV: 008 OTHER: 001

Card 2/2

GALICH, P.N.; GOLUBCHENKO, I.T.; GUTYRYA, V.S.; IL'IN, V.G.; NEYMARK, I.Ye.

Catalysis of synthetic zeolites containing cations of group 1 metals. Ukr. khim. zhur. 31 no. 11:1117-1122 '65

(MIRA 19:1)

1. Institut khimii vysokomolekulyarnykh soyedineniy AN UkrSSR.

CHERTOV, V.M.; DZHAMBAYEVA, D.B.; NEYMARK, I. Ye.

Kinetics of hydrothermal aging of silicic acid hydrogel. Part 1: Kinetics of aging of silica hydrogel in a neutral medium. Ukr. khim. zhur. 31 no. 11:1149-1157 '65 (MIRA 19:1)

1. Institut fizicheskoy khimii AN UkrSSR imeni Pisarzhevskogo.

CHERTOV, V.M.; DZHAMBAYEVA, D.B.; NEYMARK, I. Ye.

Kinetics of the hydrothermal aging of silicic acid hydrogel. Part 2: Kinetics of aging of silica hydrogel in alkaline and acid media. Ukr. khim. zhur. 31 no. 12:1253-1258 '65 (MIRA 19:1)

1. Institut fizicheskoy khimii AN UkrSSR. Submitted May 30, 1964.

GELLER, B.A.; NEYMARK, I.Ye.; RUBANIK, M.Ya.; GRAGEROV, I.P.; POLYAKOV, M.V.; RUSOV, M.T.; DAIN, B.Ya.; REKASHEVA, A.F.; STRAZHESKO, D.N.; LUNENOK, V.A.; ROYTER, V.A.; SULIMA, L.V.; FOMENKO, A.S.

Aleksandr Il'ich Brodskii, 1895- ; on his seventieth birthday. Zhur. fiz. khim. 39 no.6:1540-1541 Je '65.

(MIRA 18:11)

GALICH, P.N.; GOLUBCHENKO, I.T.; GUTYRYA, V.S.; IL'IN, V.G.; NEYMARK, I.Ye.

Zeolite catalysts with cations of the first group of metals. Dokl. AN SSSR 161 no.3:627-628 Mr '65. (MIRA 18:4)

1. Institut khimii vysokomolekulyarnykh soyedineniy AN UkrSSR i Institut fizicheskoy khimii im. Pisarzhevskogo AN UkrSSR.
2. Chlen-korrespondent AN SSSR (for Gutyrya).

CHERTOV, V.M.; DZHAMBAYEVA, D.B.; PLACHINDA, A.S.; NEYMARK, I.Ye.

Intraglobular and surface silanol groups of silical gels obtained by the hydrothermal method. Dokl. AN SSSR 161 no.5: 1149-1151 Ap '65. (MIRA 18:5)

1. Institut fizicheskoy khimii im. L.V.Pisarzhevskogo AN UkrSSR. Submitted October 27, 1964.

CHUYKO, A.A.; TERTYKH, V.A.; .LAVNIK, G.Ye.; NEYMARK, I.Ye.

Amino-organosilicas as chemically active sorbents and fillers of polymeric materials. Part 1. Interaction of γ-aminopropyltriethoxysilane with the surface of SiO_2, and the adsorption properties of amino-organoaerosils. Koll. zhur. 27 no.6 903-907 N-D '65. (MIRA 18:12)

1. Institut fizicheskoy khimii AN UkrSSR imeni L.V. Pisarzhevskogo, Kiyev. Submitted July 22, 1964.

[illegible]

[illegible]

[illegible]

L 15332-66 EWT(m)/ETC(f)/EWG(m)/EWP(j) DS/RM

ACC NR: AP6000988 SOURCE CODE: UR/0286/65/000/022/0060/0060

AUTHORS: Chuyko, A. A.; Pavlik, G. Ye.; Artemov, V. A.; Neymark, I. Ye.

31
B

ORG: none

TITLE: A method for obtaining cation exchangers containing carboxyl groups. Class 39, No. 176414 /announced by Institute for Physical Chemistry im. L. V. Pisarzhevskiy, AN UkrSSR (Institut fizhicheskoy khimii AN UkrSSR)/

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 22, 1965, 60

TOPIC TAGS: ion exchange resin, polymer, copolymerization, copolymer, resin

ABSTRACT: This Author Certificate presents a method for obtaining cation exchangers containing carboxyl groups derived from methacrylic acid copolymers. To obtain thermostable and chemically stable products, methacrylic acid is copolymerized with a methacrylic acid-vinyl silicon dioxide copolymer. The synthesized products described above are used as active rubber fillers. 5 44,55

SUB CODE: 11/ 07/ SUBM DATE: 12Jul63

Card 1/1 BC UDC: 661.183.123.2:678.744.332.678.84

L 34420-66 EWT(m)/EWP(j) RM

ACC NR: AP6010549 SOURCE CODE: UR/0069/65/027/006/0903/0907

AUTHOR: Chuyko, A. A.; Tertykh, V. A.; Plavnik, G. Ye.; Neymark, I. Ye.

ORG: Institute of Physical Chemistry im. L. V. Pisarzhevskiy, AN USSR, Kiev (Institut fizicheskoy khimii AN USSR)

TITLE: Aminoorganosilicas as chemically active adsorbents and fillers for polymeric materials. Part 1. Study of the interaction of gamma-aminopropyltriethoxysilane with SiO_2 surface and adsorptive properties of aminoorganoaerosils

SOURCE: Kolloidnyy zhurnal, v. 27, no. 6, 1965, 903-907

TOPIC TAGS: silane, silica, IR spectrum, organic nitrogen compound, organosilicon compound, adsorption, hydroxyl group, heptane, methanol

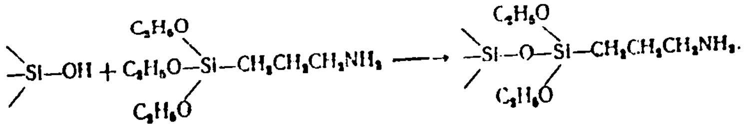
ABSTRACT: The interaction of γ-aminopropyltriethoxysilane with the hydroxyl groups of aerosil (powdered silica) surface was investigated by means of IR absorption spectra. Aminoorganosilicas with various contents of amino groups on their surfaces were synthesized, and their adsorptive properties were determined. The decrease in the concentration of hydroxyl groups on the silica surface, the simultaneous increase in the concentration of aminoorganosilyl groups, and the irreversibility of the phenomena occurring during the modification process are accounted for by the following surface chemical reaction:

UDC: 541.18.02

Card 1/2

L 4420-66

ACC NR: AP6010549



$$>Si{-}OH + C_2H_5O{-}Si(OC_2H_5)_2{-}CH_2CH_2CH_2NH_2 \longrightarrow >Si{-}O{-}Si(OC_2H_5)_2{-}CH_2CH_2CH_2NH_2.$$

The adsorption of heptane, benzene, and methanol vapors was studied on aminoorganoaerosils in a vacuum adsorption apparatus. The replacement of a part of the hydroxyl groups of the aerosil surface by the aminoorganic radicals was found to decrease the adsorption of not only methanol and benzene, which are adsorbed owing to electrostatic forces, but also that of heptane, which is adsorbed by a dispersion mechanism. It is concluded that the interaction of an aminoethoxysilane with the aerosil surface involves the formation of an aminoorganosilica whose surface has a complex chemical character and should react with acidic substances, for example, polymers containing acidic functional groups. Authors thank Academician A. N. Terenin for interest in this work and A. N. Sidorov for assistance. Orig. art. has: 5 figures.

SUB CODE: 07/ SUBM DATE: 22Jul64/ ORIG REF: 007/ OTH REF: 003

Card 2/2

IL'IN, V.G.; ANTONOVSKAYA, S.N.; RASTRENENKO, A...; NEYMARK, I.Ye.

Some features of the crystallization and properties of high-silica faujasites. Dokl. AN SSSR 166 no.3: [illegible] Ja '66 (MIRA 19:1)

1. Institut fizicheskoy khimii im. L.V.Pisarzhevskogo AN UkrSSR. Submitted May 15, 1965.

L 24659-66 EWT(m)/T/EWP(t) IJP(c) JD/DJ

ACC NR: AP6010208 (A) SOURCE CODE: UR/0419/66/000/001/0102/0113

36
27
B

AUTHOR: Neymark, I. Ye.

ORG: Institute of Physical Chemistry im. L. V. Pisarzhevskiy, AN UkrSSR (Institut fizicheskoy khimii AN USSR)

TITLE: Synthesis and property of chemically modified silica 27

SOURCE: AN BSSR. Vestsi. Seryya khimichnykh navuk, no. 1, 1966, 102-113

TOPIC TAGS: silica, silica filler, absorption, polymer chemistry, surface modification

ABSTRACT: A systematic investigation of the effect of various chemical compounds on absorption and other properties of silica has been carried out. Modified silica types were investigated by absorption, infrared spectroscopy, EPR and other methods. For a detailed analysis of the effect of the chemical state of the surface of mineral sorbents on absorption properties, isotherms of water vapor absorption, methyl alcohol, benzene, heptane, nitrogen, argon, and acid were investigated. The data presented indicate a possibility of improving the chemical and physical properties of adsorbents, fillers of polymer materials, jelling agents of lubricants 14 liquid and solid phase carriers for gas chromatography, etc. by using chemical surface modification. Chemical surface modification of silica fillers also permits a change in the physical and mechanical properties of polymer materials. The author acknowledges the

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L 24659-66

ACC NR: AP6010208

9

participation of G. B. Butkevich, T. N. Burushkina, G. Ye. Pavlik, A. N. Sidorov, I. B. Slinyakova, V. A. Tertykh, V. M. Chertov, A. A. Chuyko, and R. Yu. Sheynfayn in the investigations. Orig. art. has: 9 figures and 3 tables. [NT]

SUB CODE: 07/ SUBM DATE: none/ ORIG REF: 025/

Card 2/2

L 41266-66 EWT(m)/EWP(j)/T IJP(c) WW/JWD/RM
ACC NR: AP6022447 (A) SOURCE CODE: UR/0069/66/028/002/0278/0282

AUTHOR: Tertykh, V. A.; Chuyko, Ye. A. -- Chuiko, E. A.; Chuyko, A. A. -- Chuiko, A. A.; Neymark, I. Ye. -- Neimark, I. E. 38 36 B

ORG: Institute of Physical Chemistry, AN UkrSSR, Kiev (Institut fizicheskoy khimii AN UkrSSR)

TITLE: Amino-organo silicas 1 as chemically active sorbents 1 and fillers 15 of polymer materials

SOURCE: Kolloidnyy zhurnal, v. 28, no. 2, 1966, 278-282

TOPIC TAGS: organosilicon compound, polymer physical chemistry, chemical absorption

ABSTRACT: Clarification of mechanisms by which acid substances react with an adsorbent surface was sought through an analysis of infrared absorption spectra for the adsorption of hydrogen chloride on amino organosilica and of methacrylic acid on an amino organoaerosil. A supplementary analysis concerned adsorption of methacrylic acid 7 on the named aerosil from an aqueous solution. Another aspect of the study involved reinforcement of the carboxyl-containing polymer SKS 30-1 by dispersion type amino organosilicic fillers. Results indicate that chemisorption occurs, with an accompanying formation of chemical compounds on the adsorbent surface. Amino and vinylamino derivatives of silica white A, used as fillers, reinforced the carboxyl-containing polymer through interaction of functional groups and the accompanying

Card 1/2 UDC: 541.183.23

L 41266-66

ACC NR: AP6022447

2

crosslinking of polymer and filler. With great satisfaction, the authors express their gratitude to Candidate of Physical-Mathematical Sciences A. N. Sidorov and Academician A. N. Terenin for their advice and assistance in performing the work. Orig. art. has: 1 table and 3 figures.

SUB CODE: 07/ SUBM DATE: 22Jul64/ ORIG REF: 002/ OTH REF: 001

Card 2/2

L 43772-66 EWT(m)

~~ACC NR:~~ AP6015622 (A) SOURCE CODE: UR/0413/66/000/009/0015/0015 48

B

INVENTOR: Neymark, I. Ye.; Piontkovskaya, M. A.; Shameko, G. S.

ORG: none

TITLE: Method of obtaining synthetic zeolite. Class 12, No. 181051 15 [announced by Institute of Physical Chemistry im. L. V. Pisarzhevskiy (Institut fizicheskoy khimii)]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 9, 1966, 15

TOPIC TAGS: ~~synthetic~~ zeolite, gel, sodium, aluminate, ~~sodium~~ silicate, sodium ~~beryllate~~ compound

ABSTRACT: An Author Certificate has been issued for a method of obtaining synthetic zeolite by crystallizing gel at a high temperature. The gel is obtained by mixing sodium aluminate and sodium silicate solutions followed by washing and drying. To obtain a zeolite with increased absorption capacity, a sodium beryllate solution is introduced into the composition of starting materials. Sodium beryllate, sodium

UDC: 661.183.6

Card 1/2

L 43772-66

ACC NR: AP6015622

aluminate, and sodium silicate solutions are taken in the proportion of 3:1:1. [Translation] [NT]

SUB CODE: 11/ SUBM DATE: 08Jul63/

Card 2/2

L 00733-67 EWT(m)/EWP(j)/T IJP(c) WW/RM

ACC NR: AP6024846 (A) SOURCE CODE: UR/0073/66/032/004/0371/0377

AUTHOR: Chuyko, A. A.; Pavlik, G. Ye.; Tertykh, V. A.; Chuyko, Ye. A.; Artemov, V. A.; Neymark, I. Ye.; Tsipenyuk, E. V.

ORG: Institute of Physical Chemistry, AN UkrSSR (Institut fizicheskoy khimii AN UkrSSR) 43 B

TITLE: Carboxylorganosilicas - chemically active fillers for polymers. Report No. 1. Synthesis and adsorption properties of carboxylorganosilicas, and their use in the reinforcement of vinylpyridine rubber 15 17

SOURCE: Ukrainskiy khimicheskiy zhurnal, v. 32, no. 4, 1966, 371-377

TOPIC TAGS: silica, graft copolymer, synthetic rubber, filler

ABSTRACT: Carboxyl derivatives of SiO_2 were synthesized by copolymerization of methacrylic acid with vinyl silicas having various quantities of grafted vinyl groups on their surface. IR spectroscopic and ion exchange methods confirmed the grafting of methacrylic acid to the surface of vinyl silica. A study of the surface characteristics showed that methanol, diethylamine, and pyridine are chemisorbed on the acid functional groups of the carboxylorganosilicas, forming the corresponding surface compounds. Filling of a vinylpyridine polymer (SKMVP-15) with carboxylorganosilicas caused a reinforcement of the polymer system, probably because of a chemical interaction between the carboxyl groups of the filler and the basic pyridine groups of the rubber macromol-

Card 1/2 UDC: 541.182.23

L 06733-67

ACC NR: AP6024846 0

ecules, resulting in the formation of cross linkages. Orig. art. has: 3 figures and 1 table.

SUB CODE: 11/ SUBM DATE: 22Jul64/ ORIG REF: 006/ OTH REF: 006

Card 2/2

NEYMARK, L.

"Production of the Preparation Krysid," by L. Neymark, Obmen Peredov. Proizv.- tekhn. Opytom Tsentr. Sovet. Promysl. Kooperatsii SSR (Exchange of Advanced Production-Engineering Experience of the Central Council of Trade Cooperation USSR), No 34, 1955, pp 32-47 (from Referativnyy Zhurnal -- Khimiya, No 12, Jun 56, Abstract No 36455)

"Describes production of technical grade alpha-naphthylthiourea (I). Sodium thiocyanate is used in an improved synthesis of (I) (naphthalene---→ alpha-nitronaphthalene ---→ alpha-naphthylamine + NaCNS ---→ (I)). The sodium thiocyanate is a by-product in the nitrogen-fertilizer industry from the purification of coke gas of sulfur by the arsenic-soda method. It was found that penylthiourea is selectively toxic for Microtus arvalis Pall., and is five to six times more toxic than (I)." (U)

Sum 1322

NEYMARK, L.I., inzh.

Water-air systems for air conditioning. Vod. i san. tekh. no.2:18-23 F '65. (MIRA 18:4)

NEYMARK, L.Ye.

USSR/ Miscellaneous - Spectral analysis

Card 1/1 Pub. 43 - 92/97

Authors : Kalinin, S. K.; Yavnel', A. A.; and Neymark, L. E.

Title : Atlas of Fe arc and spark spectra

Periodical : Izv. AN SSSR. Ser. fiz. 18/2, page 297, Mar-Apr 1954

Abstract : Notice is given about the publication in 1953 of an atlas listing all the arc and spark spectra for iron.

Institution : ......

Submitted : ......

L 3503-66 EWT(d)/EWT(m)/EWP(w)/EWA(d)/EWP(v)/T/EWP(t)/EWP(k)/EWP(h)/EWP(z)/
EWP(b)/EWP(l)/EWA(c) MJW/JD/HM
ACCESSION NR: AP5023078 UR/0125/65/000/009/0008/0012 49
621.791.762 46 B

AUTHOR: Kuchuk-Yatsenko, S. I. 44,55 (Candidate of technical sciences); Forostovets, B. A. 44,55 (Engineer); Cherednichok, V. T. 44,55 (Engineer); Neymark, L. S. 44,55 (Engineer)

TITLE: Continuous flash welding 44,55, 15 of large work parts of 34KhN1M steel 15

SOURCE: Avtomaticheskaya svarka, no. 9, 1965, 8-12

TOPIC TAGS: flash welding, engine crankshaft, power welding equipment

ABSTRACT: 34KhN1M steel is of a type that is difficult to weld. Its overheating, as well as accelerated cooling, lead to the formation of hot cracks, particularly if the products made of this steel have a large cross sectional area, e.g. the crankshafts of heavy-duty engines and compressors, etc. Hence, the authors investigated the possibility of the flash-butt welding of these work parts -- a technique normally employed in the welding of rails, rolled stock, etc. The work parts investigated consisted of 100x100 mm specimens as well as natural 220-mm diameter crankshaft billets, welded in the K-190 flash-butt welding machine 14 and postheated (heating to 860-870°C with subsequent oil quenching and high-tempera-

Card 1/2

L 3503-66

ACCESSION NR: AP5023078

3

ture tempering at 620-630°C). In the course of the experiments the feasibility of the flash-butt welding of compact work parts measuring as much as 40,000 mm^2 in cross-sectional area, without the formation of hot cracks, was established. This method makes it possible to weld work parts measuring 30,000 to 40,000 mm^2 in cross sectional area by means of programmed-control welding machines with the relatively low power of 400-600 kva. Orig. art. has: 6 figures, 3 tables.

ASSOCIATION: Institut elektrosvarki im. Ye. O. Patona AN UkrSSR (Electric Welding Institute, AN UkrSSR) 44,55

SUBMITTED: 12Jan65 ENCL: 00 SUB CODE: IE, MM

NO REF SOV: 006 OTHER: 000

Card 2/2 DP

BIRSHTEYN, Mariya Mironovna; NEYMARK, Mariya Moiseyevna;
TIMOFEYEVSKIY, T.P., red.; FREGER, D.P., red.izd-va;
BELOGUROVA, I.A., tekhn. red.

[Mechanized system of mass documentation for enterprises (Soviet and foreign practices)] Mekhanizirovannoe sostavlenie massovoi dokumentatsii na predpriiatiiakh (sovetskii i zarubezhnyi opyt); obzor. Leningrad, 1962. 111 p. (MIRA 16:3)

(Information storage and retrieval systems)

N[illegible]MARK M S

NEYMARK, M.S.

Auditory asymmetries in spacial sound perception. Uch.zap.Len.un.
no.185:135-142 '54. (MLRA 8:10)
(Sound, Localization of)

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

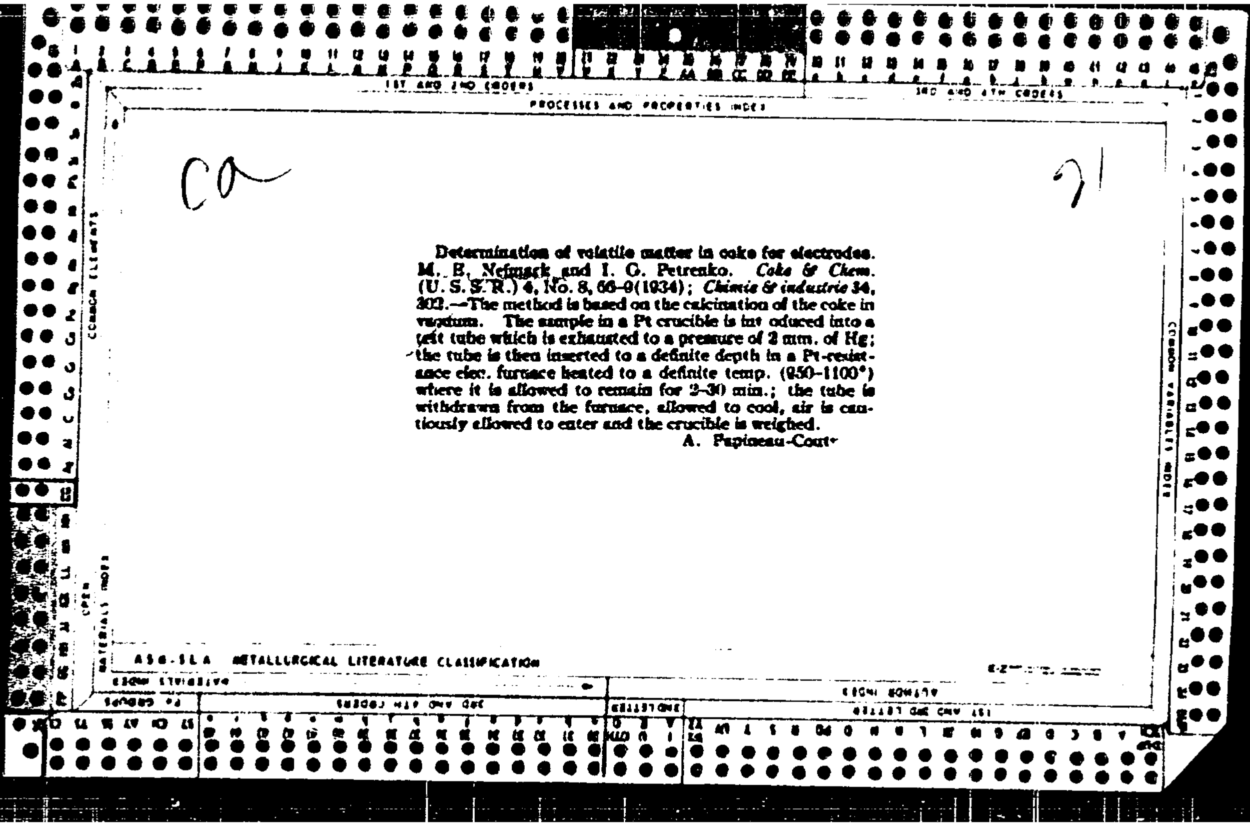
BC

B-1-2

RAPID DETERMINATION OF WATER CONTENT OF COAL MIXTURES. M. E. Neimark (Koks i Chim., U.S.S.R., 1933, 3, No. 8, 41-44).--To 50 g. of coal in a dry 200-c.c. stoppered flask are added 100 c.c. of 0.5N-$NaHCO_3$. After shaking and filtering, 50-c.c. aliquot portions of filtrate are titrated with 0.5N-H_2SO_4, the H_2O content being calc. from the dilution of the $NaHCO_3$.

Chi. Abs (c)

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



Ca

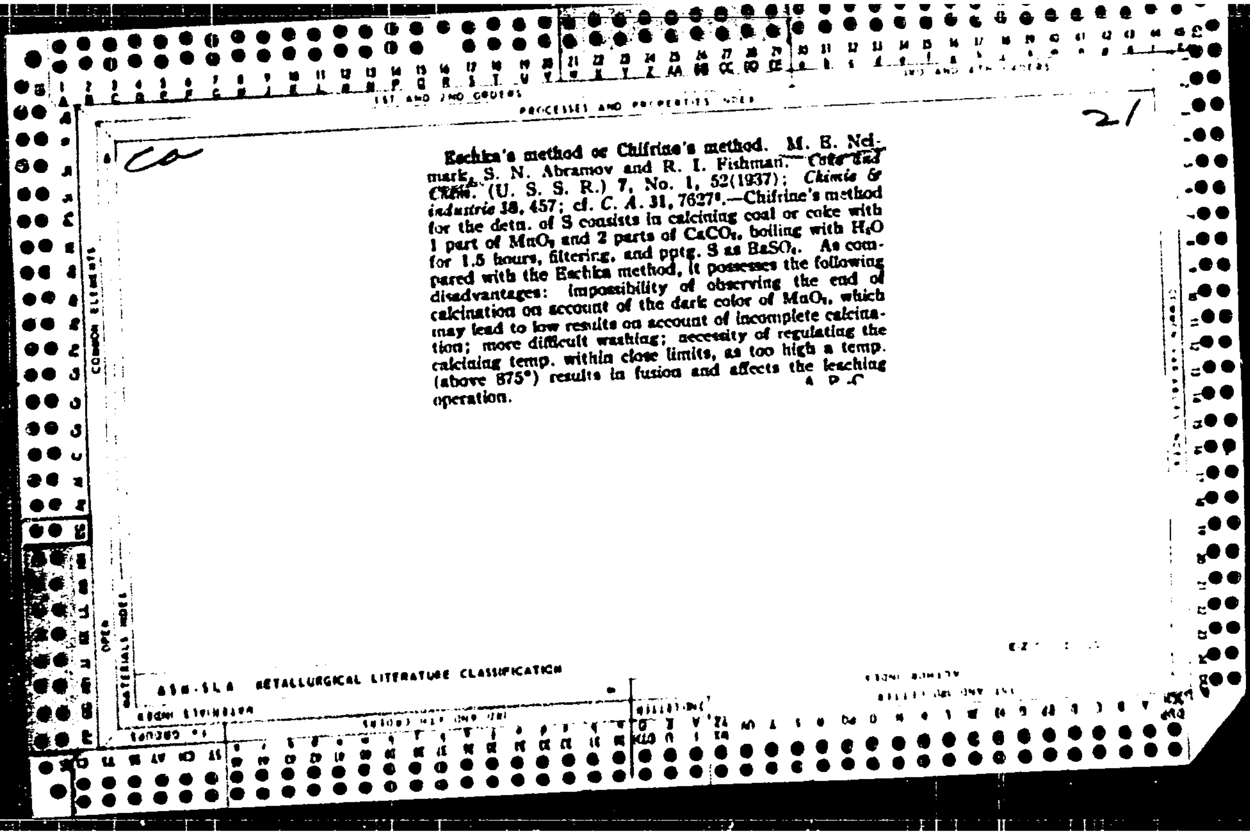
Determination of volatile matter in coke for electrodes. M. B. Nefmark and I. G. Petrenko. *Coke & Chem.* (U. S. S. R.) 4, No. 8, 66–9(1934); *Chimie & industrie* 34, 302.—The method is based on the calcination of the coke in vacuum. The sample in a Pt crucible is introduced into a test tube which is exhausted to a pressure of 2 mm. of Hg; the tube is then inserted to a definite depth in a Pt-resistance elec. furnace heated to a definite temp. (950–1100°) where it is allowed to remain for 2–30 min.; the tube is withdrawn from the furnace, allowed to cool, air is cautiously allowed to enter and the crucible is weighed.

A. Papineau-Couture

PROCESSES AND PROPERTIES INDEX

Comparison of methods of technical analysis of coke for standardization purposes. M. R. Neimark, S. N. Abramov and R. J. Fishman. *Coke and Chem.* (U. S. S. R.) 6, No. 10, 54-61(1936). Standard methods for detn. of the content of H_2O, ash, S, P, volatile constituents, of the fusibility of the ash, and of the porosity of the coke are discussed. B. C. A.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



1ST AND 2ND GROUPS

PROCESSES AND PROPERTIES INDEX

Ca

21

Eschka's method or Chifrine's method. M. B. Neimark, S. N. Abramov and R. I. Fishman. ~~Coke and~~ Chem. (U. S. S. R.) 7, No. 1, 52(1937); *Chimie & industrie* 38, 457; cf. *C. A.* 31, 7627⁹.—Chifrine's method for the detn. of S consists in calcining coal or coke with 1 part of MnO_2 and 2 parts of $CaCO_3$, boiling with H_2O for 1.5 hours, filtering, and pptg. S as $BaSO_4$. As compared with the Eschka method, it possesses the following disadvantages: impossibility of observing the end of calcination on account of the dark color of MnO_2, which may lead to low results on account of incomplete calcination; more difficult washing; necessity of regulating the calcining temp. within close limits, as too high a temp. (above 875°) results in fusion and affects the leaching operation.

A. P.-C.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

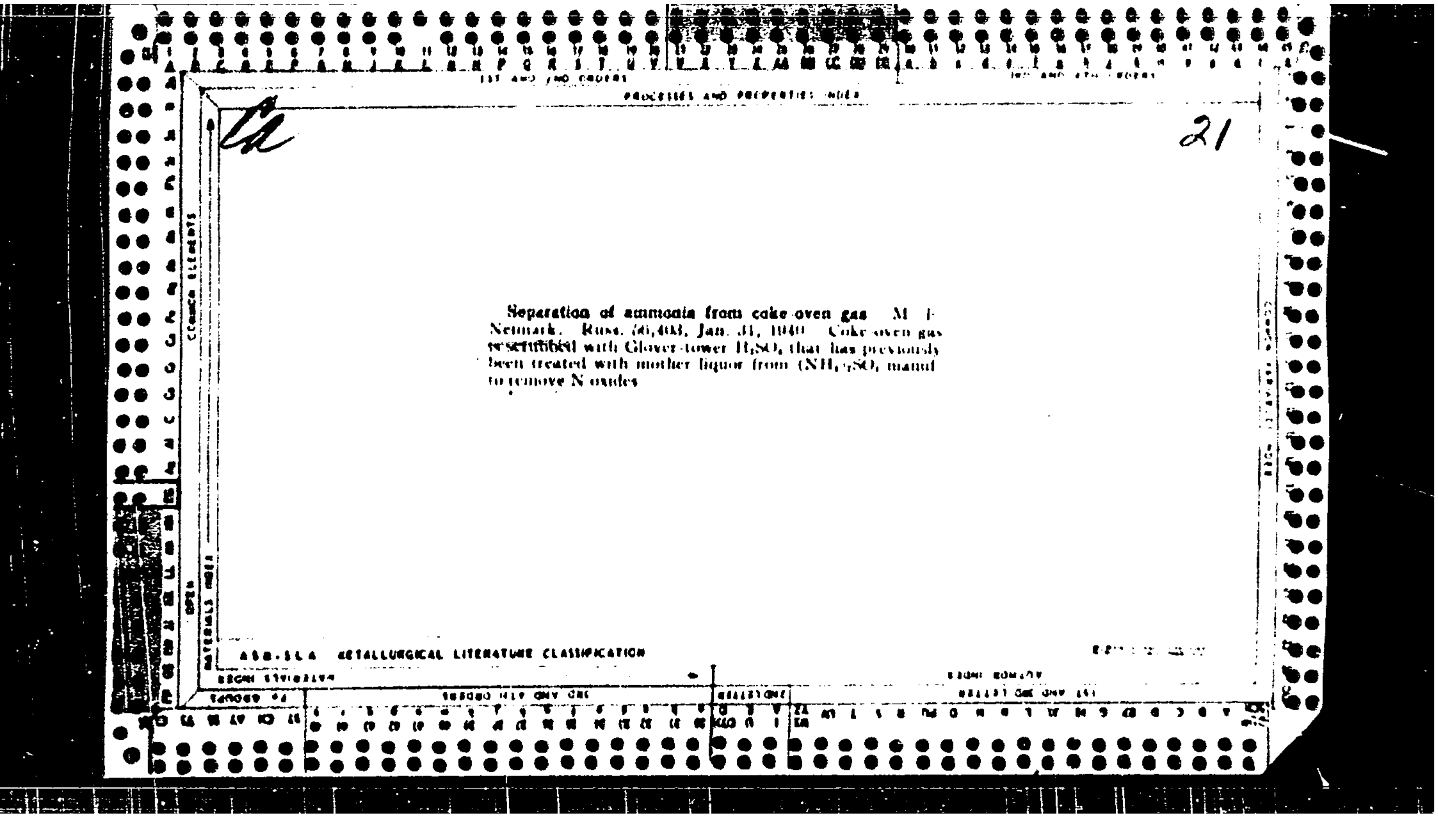
CA

18

Denitration of sulfuric acid M. E. Nelmark. Russ 51,707, April 30, 1939. The H_2SO_4 is treated with NH_3 or NH_3 salts and [illegible]

ASA-SLA METALLURGICAL LITERATURE CLASSIFICATION

MATERIALS INDEX



Ca

21

Separation of ammonia from coke-oven gas. M. I. Neimark. Russ. 60,403, Jan. 31, 1940. Coke-oven gas is scrubbed with Glover-tower H_2SO_4 that has previously been treated with mother liquor from $(NH_4)_2SO_4$ manuf. to remove N oxides.

PROCESSES AND PROPERTIES INDEX

CA

7

Determination of pyridine bases in products containing ammonia or ammonium salts. M. E. Neimark. *Zavod. Lab.* 12, 851-2(1946).—Dissolve the sample contg. approx. 0.15 g. of pyridine bases in 150-200 ml. of water, make the soln. basic to phenolphthalein, and distil the pyridine bases and NH_3 into a receiver contg. 10 ml. of 15% H_2SO_4 and 10 drops of suitable acid base indicator. Neutralize the distillate, transfer it to a Kjeldahl flask, add 20 ml. of satd. Na_2HPO_4 soln., distil into a receiver contg. 30 ml. of 0.1 N H_2SO_4 and a suitable indicator. Collect pyridine bases free from NH_3 and det. by titrating with 0.1 N base contg. no CO_2. Accurate and reproducible results were obtained. 5 references. W. R. H.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

NEYMARK M Ye

AUTHORS: Neymark, M.Ye. and Bragilevskaya, M.M. 68-12-14/25

TITLE: On Standardisation of the Method of Determining Pyridine Bases (K voprosu unifikatsii metoda opredeleniya piridinovykh osnovaniy)

PERIODICAL: Koks i Khimiya, 1957, No.12, pp. 38 - 39 (USSR)

ABSTRACT: The accuracy of two methods of determining pyridine bases in products containing ammonia, namely hypobromite (Ref.2) and buffer (Ref.3) was investigated. The first method is used on eastern coke oven works and the second on southern works. The results obtained indicated that the first method is not accurate and therefore general use of the buffer method is advocated. As a buffer, NaH_2PO_4 is proposed. There are 1 table and 6 references, 4 of which are Slavic.

ASSOCIATION: UKhIN

AVAILABLE: Library of Congress

Card 1/1

AUTHORS: Neymark, M. Ye. and Kogan, I.Ye. 68-58-3-10/22

TITLE: Photo-colorimetric Determination of the Content of Hydrogen Sulphide in Coke Oven Gas After Fine Purification (Fotokolorimetricheskoye opredeleniye soderzhaniya serovodoroda v koksovom gaze posle tonkoy ochistki)

PERIODICAL: Koks i Khimiya, 1958, Nr 3, pp 38 - 40 (USSR)

ABSTRACT: A photo-colorimetric method of determining small quantities of hydrogen sulphide based on the reaction of hydrogen of ion chloride is described. The experimental procedure is described in some detail. There are 2 tables, 3 Figs. and 12 references, 6 of which are Soviet, 1 German and 5 English.

ASSOCIATION: UKhIN

Card 1/1