S/128/63/000/001/006/008
A004/A127

AUTHORS: Kuzin, A.V., Voronin, M.P., Borovskiy, Yu.F.

TITLE: Investment casting with soluble inserts of pump and compressor impellers

PERIODICAL: Liteynoye proizvodstvo, no. 1, 1963, 32 - 33

TEXT: To obtain a high surface finish of the inner hollow of impellers, they are cast in metal boxes with soluble carbamide cores according to the investment process. An allowance of 0.2 mm is left for polishing and a 1.5% shrinkage allowance of the steel. A brief description of core and model making is given. The models are made of the КПЦ (KPTs) compound whose melting point is by 35 - 40°C higher than that of the carbamide cores. To prevent cracking of the mold, marshallit and quartz sand are replaced by fused quartz of a corresponding fraction. The castings shaken out are cleaned in a sandblast apparatus after anodic-mechanical cutting of the risers. This casting technology ensures cast impellers with minimum allowances on the inner surface and dimensional tolerances corresponding to the 2nd class of accuracy according to ГОСТ (GOST) 2009-55. Then

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Investment casting with soluble inserts of ....

S/128/63/000/001/006/008
A004/A127

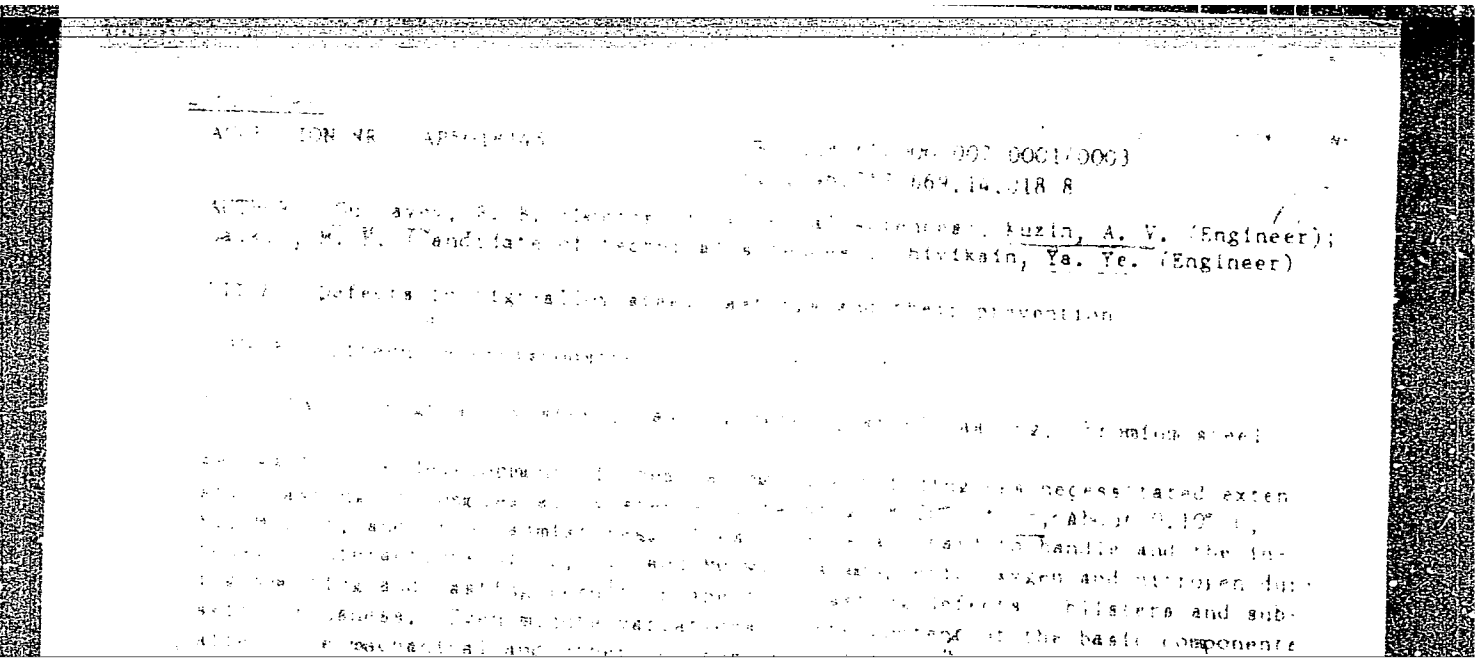
the authors describe the casting of open compressor impellers which is carried out in a similar way. The models are melted out according to the following method: 3 hours at 150°C, 3 hours at 200°C and 3 hours at 250°C. The molds are roasted for 20 hours in a continuous electric furnace of the pusher type. After pouring the molten metal, the risers are covered with an exothermic mixture. There are 8 figures.

Card 2/2

GULYAYEV, B.B., doktor tekhn. nauk, prof., otv. red.; GET'MAN, A.A., kand. tekhn. nauk, red.; [illegible], Yu.F., kand. tekhn. nauk, red.; [illegible], kand. tekhn. nauk, red.; KUZIN, A.V., inzh., red.

[Gases in cast metal] Gazy v litom metalle. Moskva, Izd-vo "Nauka," 1964. 262 p. (MIRA 17:6)

1. Moscow. Institut mashinovedeniya.



Kuzin, A. Y. (Engineer);
Sivtkain, Ya. Ye. (Engineer)

... which prevent the appearance of

Card 1/2

... 10 figures, and 2 tables.

ASSOCIATION: None

SUB CODE: MM

L 11661-65

ACCESSION NR: AP5005849 S/0148/65/000/002/00142/0147

AUTHOR: Gulyayev, B.B.; Kuzin, A.V.; Kaplun, R.I.

TITLE: Decreasing the number of scabs and nonmetallic inclusions in Kh18N9TL steel castings

SOURCE: IVUZ. Chernaya metallurgiya [illegible]

TOPIC TAGS: [illegible] steel casting Kh18N9TL

formed on the surface at any holding time. The most intensive oxidation takes place at

Card 1/2

L 33964-65

ACCESSION NR: AP5003844

1500C. The conclusion is that casting should be done at 1600-1630C. Foundry practice showed that casting [illegible] this info

ASSOCIATION: [illegible] The Norwegian

Card 2/2

ACC NR: AP7002565 SOURCE CODE: UR/0413/66/000/023/0053/0053

INVENTOR: Suminov, V.M.; Promyslov, Ye.V.; Kuzin, B.G.; Skvorchevskiy, A.K.; Barbashin, N.N.

ORG: none

TITLE: Pneumatic sizing of microholes. Class 21, No. 189083. [Announced by the Moscow Aircraft Technological Institute (Moskovskiy aviatsionnyy tekhnologicheskiy institut)]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 23, 1966, 53

TOPIC TAGS: microhole drilling, laser drilling, laser machining, microhole sizing, LASER APPLICATION, DRILLING MACHINE

ABSTRACT: This Author Certificate introduces a method of sizing microholes made with a laser beam. To improve the precision of the microhole, the material melted or vaporized by a laser beam is removed from the hole with a compressed air jet. [ND]

SUB CODE: 13/ SUBM DATE: 10Nov65/ ATD PRESS: 5113

Card 1/1 UDC: 621.375.8:621.735.6

KUZIN, B.I.

Minimizing intraoperational surpluses on straight lines where one worker attends several machine tools. Trudy LPI no.244: 114-119 '65. (MIRA 18:5)

L 24310-66 EWT(1)/FCC/EWA(h) GW

ACC NR: AR6005254 SOURCE CODE: UR/0058/65/000/009/H020/H020

AUTHORS: Zelenkov, V. Ye.; Yakovets, A. F.; Kuzin, B. I.; Drobzhev, V. I. 39 B

TITLE: Measurement of collision frequency in the F2 layer 12

SOURCE: Ref. zh. Fizika, Abs. 9Zh153

REF. SOURCE: Tr. Sibirsk. fiz.-tekhn. in-ta pri Tomskom un-te, vyp. 45, 1964, 236-239

TOPIC TAGS: ionospheric radio wave, ionospheric physics, particle collision, F layer

ABSTRACT: The method of measuring the coefficient of reflection of radio waves from an ionosphere layer is used to determine the effective collision frequency in the F_2 layer. For measurements over the period from 18 through 25 April 1962, a value $\nu_{ef} = 0.5 - 5.5 \cdot 10^3$ sec^{-1}. It is noted that with increase in ν_{ef} the degree of turbidity of the atmosphere increases and the velocity v_0 of random motion decreases. [Translation of abstract]

SUB CODE: 04, 20

Card 1/1 FV

DORZHIYEV, M.N.; KUZIN, B.M.; SHUVAYEV, E.A.

Thermal insulation of graphitizing furnaces. TSvet. met. 38 no.4: 57-58 Ap '65. (MIRA 18:5)

CHUKAN, B. K., kand. tekhn. nauk; TAMBIYEV, A. A., gornyy inzh.; KUZIN, B. N., gornyy inzh.; BIRYUKOV, Yu. M., gornyy inzh.

Experimental use of rod bolting with sprayed concrete in mines of the Rostov Economic Region. Gor. zhur. no.10:24-27 O '62. (MIRA 15:10)

1. Nauchno-issledovatel'skiy institut po stroitel'stvu, Rostov-na-Donu.

(Rostov Province—Mine roof bolting)
(Concrete construction)

CHUKAN, B.K., kand. tekhn. nauk; ALIMOV, Sh.S., inzh.; KUZIN, B.N., inzh.

Gunite in construction. Prom. stroi. 42 no.3:27-28 '65. (MIRA 18:7)

KUZIN, B.P.

Practice in using semiconductor devices in field-geophysical apparatus. Razved.geofiz no.2:99-101 '64. (MIRA 18:5)

KUZIN, B.S., doktor biologicheskikh nauk.

Tasks in biological investigations of reservoirs. Vest.AN SSSR 25 no.8:20 Ag '55. (MLRA 9:1)
(Fresh-water biology) (Reservoirs)

AUTHORS: Zhadin, V. I., Doctor of Biological Sciences, 30-12-28/45
Kuzin, B. S., Doctor of Biological Sciences.

TITLE: Problems of the Biology of Inland Waters (Problemy biologii vnutrennikh vod).
Conference at Leningrad and Borok (Soveshchaniye v Leningrade i Borke).

PERIODICAL: Vestnik AN SSSR, 1957, Vol. 27, Nr 12, pp. 96-98 (USSR).

ABSTRACT: During post-war years it became a tradition that every 2 years conferences were held for the discussion of the problems of inland water biology. Until 1955 they had been convened by the Zoological Institute of the AN USSR, which has a large hydrobiological department. In 1957 the conference was attended by two institutes: The zoological and the institute for the biology of water reservoir which had been founded a short time ago at the Borok biological station. Accordingly, the conference was divided into 2 parts: the I. part took place in Leningrad at the Zoological Institute, and the 2. part in Borok on the banks of the reservoir of Rybinsk, where the newly established institute is situated. The conference was attended by 60 institutions of the country: hydrobiologists, hydrochemists, fishery workers, and workers of other economic branches, concerned with the utilization of inland

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waters. Also a number of institutes of the German Democratic Republic, Hungary and Bulgaria were represented. At Leningrad 36 lectures were held, They dealt with problems of hydrobiology, the fertilization of fish ponds, the hydrobiological investigation of lakes, inland seas limanes and inland seas as well as with general and methodical problems of hydrobiology. The conference welcomed the initiative taken by professor of the Institute for Pedagogy imeni A. I. Gertsen, S. V. Gerd, who suggested a biolimnological division of the territory of the USSR into sections. It requested hydrobiologists and ichthyologists to take part in this work. The wish was expressed to found a special biolimnological institution within the organization of the department for biological sciences of the AN USSR, i. e. the Institute for the Biology of Inland Waters, and to establish a number of small biological stations on lakes. The All-Union hydrobiological Society was requested to work out the principles and the programs for biological regioning as well as for the typology of rivers. Considerable interest was aroused also by the lectures on the utilization of biological factors for the purification of water. In this field the laboratory of Uchinsk of the Moscow water supply line achieved undoubted success. At Borok 80 lectures were held. They dealt with problems of the hydrobiological, ichthyological, hydrological and

hydrochemical study of water reservoirs. The conference requested the department for biological sciences of the AN USSR to confer upon the institute for biology of water reservoirs the function of a coordinating institution in the field of biological research. It is further intended to establish a special commission at the institute, the task of which will be to work out uniform methods for biological, hydrological and hydrochemical research. A number of measures for the improvement of the information service concerning the research work carried out in water reservoirs was planned. Numerous participants drew the attention of the conference to the unsatisfactory manner in which the important problem of protecting water reservoirs from being dirtied or contaminated was being examined. Repeatedly the necessity was pointed out of making more use of experimental methods in the investigation of the processes of life in inland waters as well as of introducing new and improved field methods. At the same time the difficulty of providing the necessary apparatus that are not produced in series was mentioned. The conference requested the Institute for the Biology of Water Reservoirs to organize a special workshop for the production of instruments and apparatus for biological and hydrobiological research work. The participants in the conference were offered the opportunity

Problems of the Biology of Inland Waters. 30-12-28/45
Conference at Leningrad and Borok.

of inspecting the methods of field research and the apparatus used by the Institute. For this purpose several excursions were organized in the Rybinsk reservoir with expedition ships belonging to the Institute.

AVAILABLE: Library of Congress.

1. Inland waterways--Biology

Card 4/4

PAVLOVSKIY, Ye.N., akademik, otv.red.; AKATOVA, M.A., red.izdaniya; SHTEGMAN, B.K., red.izdaniya; ZHADIN, V.I., red.; KUZIN, B.S., red.; KUZNETSOV, S.I., red.; KEL'NER, A.G., red.

[Transactions of the Sixth Conference on Problems of the Biology of Inland Waters (June 10-19, 1957)] Trudy VI soveshchaniia po problemam biologii vnutrennikh vod.(10-19 iiunia 1957 g.) Moskva, Izd-vo Akad.nauk SSSR, 1959. 659 p. (MIRA 12:8)

1. Soveshchaniye po problemam biologii vnutrennikh vod. 6th, 1957. 2. Zoologicheskiy institut AN SSSR (for Zhadin).
(Fresh-water biology--Congresses)

MORDUKHAY-BOLTOVSKOY, Filaret Dmitriyevich; KUZIN, B.S., otv.red.; SHTEGMAN, B.K., red.; KOZLOVA, G.I., red.izd-va; BOCHEVER, V.T., tekhn.red.

[Caspian fauna in the Azov-Black Sea Basin] Kaspiiskaia fauna v Azovo-Chernomorskom basseine. Moskva, Izd-vo Akad.nauk SSSR, 1960. 286 p. (MIRA 13:10)
(Black Sea--Marine fauna)
(Azov, Sea of--Marine fauna)

KUZNETSOV, Sergey Ivanovich; ROMANENKO, Vitaliy Ivanovich; KUZIN, B.S., otv. red.; SHTEGMAN, B.K., red.; STRELKOV, A.A., red. izd-va; AREF'YEVA, G.P., tekhn.red.

[Microbiological study of inland bodies of water; a laboratory manual] Mikrobiologicheskoe izuchenie vnutrennikh vodoemov; laboratornoe rukovodstvo. Moskva, Izd-vo Akad. nauk SSSR, 1963. 128 p. (MIRA 16:4)
(WATER--MICROBIOLOGY)
(BACTERIOLOGY--CULTURES AND CULTURE MEDIA)

KRAYUKHIN, Boris Vladimirovich; KUZIN, B.S., glav. red.; SHTEGMAN, B.K., red.; PUKHAL'SKAYA, L.F., red.izd-va; VINOGRADOVA, N.F., tekhn. red.

[Physiology of digestion of freshwater bony fishes] Fiziologiia pishchevareniia presnovodnykh kostistykh ryb. Moskva, Izd-vo AN SSSR, 1963. 137 p. (MIRA 16:10)
(Fishes, Freshwater—Physiology) (Digestion)

KUZIN, B.S., doktor biol. nauk, glav. red.; ZHITEGMAN, B.K., doktor biol. nauk, red.; STRELKOV, A.A., red. izd-va; AREF'YEVA, G.P., tekhn. red.

[Materials on the biology and hydrology of Volga reservoirs] Materialy po biologii i gidrologii volzhskikh vodokhranilishch; sbornik statei. Moskva, 1963. 142 p. (MIRA 16:7)

1. Akademiya nauk SSSR. Institut biologii vnutrennikh vod.
(Volga Valley—Hydrobiology)

KUZIN, B.S., doktor biol. nauk, glav. red.; SHTEGMAN, B.K., doktor biol. nauk, red.

[Biology of Dreissena and its control] Biologiia dreisseny i bor'ba s nei; sbornik statei. Moskva, Nauka, 1964. 134 p. (MIRA 18:2)

1. Akademiya nauk SSSR. Institut biologii vnutrennikh vod.

KUZIN, B.S., doktor biol. nauk, otv. red.; BRAGINSKIY, L.P., kand. biol. nauk, red.; GUSEVA, K.A., doktor biol. nauk, red.; SMIRNOV, N.N., kand. biol. nauk, red.; TOPACHEVSKIY, A.V., red.

[Ecology and physiology of blue-green algae; characteristics of their mass development in bodies of water] Ekologiia i fiziologiia sinezelenykh vodoroslei; zakonomernosti ikh massovogo razvitiia v vodoemakh. Moskva, Nauka, 1965. 272 p. (MIRA 18:2)

1. Akademiya nauk SSSR. Institut biologii vnutrennikh vod.
2. Chlen-korrespondent AN SSSR (for Topachevskiy).

KUZIN, B.S., doktor biol.nauk

Ivan Dmitrievich Papanin (1894-), organizer and director of the Institute of the Biology of Inland Waters of the Academy of Sciences of the U.S.S.R. Trudy Inst.biol.vnutr.vod. no.9: 5-18 '65. (MIRA 19:1)

KUZIN, B.V., inzh.

Strength analysis of some parts of turbodrill engines.
Rasch. na pochm. no.9:48-55 '63 (MIRA 16:12)

KUZIN, B.V., inzh.; MALYSHEV, D.G., inzh.

Load distribution in multirow power-transmission mechanisms.
Vest.mashinostr. 45 no.8:3-8 Ag '65.
(MIRA 18:12)

Kuzin, D. V.

137-1958-3-4783

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 3, p 46 (USSR)

AUTHOR: Kuzin, D. V.

TITLE: Utilization of Fire-tube Type Recovery Boilers (Opyt ekspluatatsii kotlov-utilizatorov s dymogarnymi trubami)

PERIODICAL: V sb.: Kotly-utilizatory martenovsk. pechey. Moscow, Metallurgizdat, 1957, pp 189-201

ABSTRACT: In 1940, two recovery boilers (RB), equipped with fire tubes (FT) having 470 m^2 of heating surface and operating at 12 atu gage pressure, were installed to operate in conjunction with the open-hearth furnaces of the Magnitogorsk metallurgical combine. The RB is equipped with a coil-type steam superheater of 50 m^2 heating surface, mounted in a flue leading to the RB. During the operation of the RB a considerable amount of soot is deposited in the FT within three to four days after cleaning. The heating surfaces are cleaned every 10 days by means of compressed air (4-5 atu), which necessitates a six-hour stoppage. The FT's are scraped clean once a year. As the contamination of the RB progresses, the temperature of the escaping gases increases from 235°-268° to 245°-300°, while the temperature of the

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Utilization of Fire-tube Type Recovery Boilers

superheated steam is reduced from 275°-331° to 258°-280°, and the steam generating capacity of the boiler is diminished from 6.2-7.7 t/hr to 3.8-5.8 t/hr. The generation of steam per ton of steel amounts to 290-478 kg/t. The period of initial operation and adaptation of the RB was accompanied by the formation of numerous flakes, which were caused by the sucking in of air through leaks in the gas lines, and by improper switching of valves. The formation of flakes was eliminated after special gas burners were installed in the smoke flue in order to effect complete combustion of gases. A comparison of the operation of Martin furnaces operating with and without the RB's produced the following conclusions: in the furnace equipped with an RB the time of smelting was reduced from 14.1 hr to 12 hr, and the specific fuel consumption decreased from 137.3 kg to 130.1 kg per ton of steel; the specific productivity of the furnace increased from 8.15 t/m^2 per day to 9.68 t/m^2 per day, and the number of smeltings (durability of the furnace roof) increased from 273 to 309.

Ye. N.

Card 2/2

BARAM, Kh.; KUZIN, F.

Study of time expended on tractor work in agriculture. Sots.trud 5 no.1:88-92 Ja '60. (MIRA 13:6)
(Agriculture--Production standards)

KUZIN, I.

School for retraining leading skilled workers. Sel'.stroi.10 no.2:9 F '55. (MIRA 8:4)

1. Direktor Kurskoy mezhoblastnoy shkoly perepodgotovki rukovodyashchikh rabotnikov po stroitel'stvu v kolkhozakh.
(Kursk—Technical education)

KUZIN, I. A.

USSR/Chemistry - Aromatic Hydrocarbons Apr 51

"Study of the Process of Separating Xylene Isomers by the Adsorption Method," T. G. Glachenov, I. A. Kuzin

"Zhur Prik Khim" Vol XXIV, No 4, pp 421-432

In study of aborption properties of carbon, silica gel and ferrogel on vapor of xylene isomers and ethylbenzene, and in examn of effect of concn, of proportion of xylene isomers in vapor-air mixts, and of rate of flow on deg of sepn of 2- and 3-component mixts, found mixt of ortho- and meta-xylene is separable by adsorption method.

182T45

CA

Separation of the isomers of xylene by adsorption T. G. Plachenov and I. A. Kuzin. *Zhur. Prikład. Khim.* 24, 421–32; *J. Applied Chem. U.S.S.R.* 24, 457-69(1951) (Engl. translation).—Solid adsorbents (2 kinds of charcoal, industrial silica gel, and a synthetic ferrogel) were used in lab. expts. in an attempt to isolate xylene isomers from admixts. with each other or with PhMe. The expts. were carried out in the vapor phase. The results, reported in tables, indicate relative sepn. of the individual constituents from binary, ternary, and quaternary mixts., but in no case was a pure isomer isolated in a single pass. It is suggested that sepn. of pure isomers from a mixt. of *m*- and *p*-xylene may be possible by a multistage adsorption process.

D. F. Brown

CR

A study of separation of technical xylene by the adsorption method. T. G. Plachenov and I. A. Kuzin. *Zhur. Prikład. Khim.* (*J. Applied Chem.*) 25, 224–8(1952). — Tech. xylene adsorbed on activated charcoal (vapor phase) and desorbed by the previously outlined technique (cf. preceding abstr.), can be gradually sepd. into moderately pure *o*-, *m*-, *p*-isomers and ethylbenzene (?) and in 7 stages or cycles the sepn. of *I* and *p*-xylene [illegible] quite complete. The process is best used with a 10-se[illegible]ion column used in a countercurrent manner. G. M. Kosolapoff

KUZIN, I.A.

Chemical Abst.
Vol. 48 No. 9
May 10, 1954
Organic Chemistry

A study of separation of technical xylene by the adsorption method. II. T. G. Plachenov and I. A. Kuzin. *J. Appl. Chem. U.S.S.R.* 25, 241-5(1952)(Engl. translation).—See *C.A.* 46, 7532d. H. L. H.

5(2), 5(3) SOV/153-58-2-12/30

AUTHORS: Kuzin, I. A., Taushkanov, V. P.

TITLE: Investigation of the Separation Processes of Uranium and Thorium on Alginic Acid (Issledovaniye protsessa razdeleniya urana i toriya na al'ginovoy kislote)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya tekhnologiya, 1958, Nr 2, pp 70 - 74 (USSR)

ABSTRACT: The process mentioned in the title was investigated with a weakly acid cationite, alginic acid, and a highly acid "wofatite" KS (Ref 1). After the survey of publications (Refs 1-5) the authors found that alginic acid represents a mixture of polycarboxylic acids of different degrees of polymerization (Ref 6); it may be used as sorbent for the separation of polyvalent cations from cations of lower valence. In the experimental part the production of alginic acid and the determination of uranium and thorium are described. In another chapter the sorptive power of alginic acid and of "wofatite" KS are discussed at different pH-values. Figure 1 shows

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Investigation of the Separation Processes of Uranium and Thorium on Alginic Acid

the dependence of the sorptive power of these two substances on the pH value of a solution of the same concentration (per cent by weight) with regard to the ions UO_2^{2+}, Th^{4+} and Na^+. The sorption of sodium ions by alginic acid stops at pH 1.8-2.0, of uranyl ions at pH 0.5; at the same time a considerable sorptive power is maintained for thorium ions. Under the same conditions "wofatite" KS remains capable of sorbing all cations. At a pH below 2 mainly thorium is adsorbed by alginic acid and "wofatite" KS, at higher values it is uranium. Thorium adheres better to either of the sorbents than uranium (Fig 2). The apparatus for separating uranium and thorium on every sorbent, as well as its operation are described. The accuracy of this separation depends on the pH value which should be 2 or less in the initial solution. The selection of the washing out agents is important; the authors used 0.02N solutions of nitric acid,

hydrochloric acid, and sulfuric acid as well as 2.0 N acetic acid. From figure 4 it may be seen that the most efficient separation was obtained when using 0.02 N hydrochloric acid or nitric acid. Table 1 shows that in the washing out of uranium with 0.02 N nitric acid the main mass of thorium remains back in the two first columns whereas there is no thorium in the fourth column. Uranyl is separated from thorium by washing out with 3 liters 0.02 N HNO_3. Table 2 shows the results of the separation of uranium and thorium on "wofatite" KS. As the bond of the two metals with "wofatite" KS is stronger than with alginic acid higher acid concentrations are needed for its washing out. The experiments proved the usefulness of either sorbent for the separation of uranium and thorium. There are 4 figures, 2 tables, and 8 references, 2 of which are Soviet.

Investigation of the Separation Processes of Uranium and Thorium on Alginic Acid SOV/153-58-2-12/30

ASSOCIATION: Leningradskiy tekhnologicheskiy institut im.Lensoveta (Leningrad Technological Institute imeni Lensovet)Kafedra yestestvennykh radioaktivnykh i redkikh elementov (Chair of Natural Radioactive and Rare Elements)

SUBMITTED: September 18, 1957

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5(4)

AUTHORS: Kuzin, I. A., Plachenov, T. G., Taushkanov, V. P.

SOV/153-58-3-11/30

TITLE: Investigation of the Structure and Sorption Capacity of Coal Oxidized at Low Temperature (Izucheniye struktury i sorbtsionnykh svoystv ugley okislennykh pri nizkikh temperaturakh) Communication I (Soobshcheniye I.)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya tekhnologiya, 1958, Nr 3, pp 61 - 65 (USSR)

ABSTRACT: The sorption capacity of coal depends on the surface property, the pore volume and the distribution of the pores with effective radii. In the course of the coal activation oxides are formed at the surface which, according to the conditions of the treatment, either adopt an alkaline or acid character. In aqueous solutions such oxides can be hydrated by forming surface compounds which dissociate under splitting off of hydrogen ions or hydroxyl ions (Refs 1,2). There are no data available in publications on the

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secondary structure and the sorption capacity of the coal under review. The study of these properties will, however, extend the knowledge of the surface property of the coal and clarify the possibilities of a manufacture of more acid- and alkaliproof ion-exchange sorbents than those which have been known so far. Activated birch charcoal of the type BAU was chosen as test material. The low-temperature oxidation was performed with nitric acid on warming. The coal structure was studied by pressing in mercury (Ref 3). The maximum value of the sorption range was studied as well. The results are given in table 1 and figure 1. It can be seen from them that the oxidation process exerts a considerable influence upon the distribution of macropores at the effective radii. The redistribution of the macro- and transition pores occurring during the oxidation influences the variation of the specific pore surface. The increase in space of pores with effective radii $1.1.10^{-4}$ - $3.2.10^{-4}$ cm causes in oxidized coal a decrease of the specific total surface

of the macropores and transition pores. The sorption qualities of the coal were investigated with regard to Ba^{2+}, Na^{+} and Cl^{-}-ions. Figure 2 presents titration curves of different samples of oxidized coal as compared with the titration curve of the solution without coal. The difference between the ordinates of the curves of the coal titration and those of the "pure" solution, in mg-equivalents NaOH or HCl per 1 g of coal, illustrates the absorption capacity of the coal with respect to Na^{+} or Cl^{-}-ions at a certain pH value. The dependence of the absorption capacity of the coal on the pH value of the medium is given in figure 3. The increase in concentration of HNO_3 during the coal treatment increases the degree of oxidation. This increases the total absorption capacity of the coal with regard to cations and decreases this capacity as far as anions are concerned; i.e., a transformation of the alkaline surface compounds into acid ones takes place. Thus, the authors

Investigation of the Structure and Sorption Capacity of Coal Oxidized at Low Temperature. Communication I

SOV/[illegible]-58-3-11/30

succeeded in producing oxidized coal with a high ion-exchange capacity regarding barium and sodium cations. In the oxidation of BAU with HNO_3 coal can be obtained which is similar to the weakly acid "cationites" as far as their ion-exchange properties are concerned. There are 4 figures, 2 tables and 4 Soviet references.

ASSOCIATION: Leningradskiy tekhnologicheskiy institut imeni Lensoveta (Leningrad Technological Institute imeni Lensovet) Kafedra yestestvennykh radioaktivnykh i redkikh elementov (Chair of Natural Radioactive and Rare Elements)

SUBMITTED: September 18, 1957

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APPROVED FOR RELEASE: Monday, July 31, 2000 CIA-RDP86-00513R000928010

KUZIN, I.A.; PLACHENOV, T.G.; TAUSHKANOV, V.P.

Structure and sorptive properties of coals, oxidized by hydrogen peroxide. Zhur. prikl. khim. 31 no.9:1318-1322 S '58. (MIRA 11:10)
(Sorbents)

KUZIN, I.A.; SEMUSHIN, A.M.

Apparatus for the continuous recording of the electric conductivity of flowing liquids. Trudy LTI no.48:204-208 '58. (MIRA 15:4)
(Liquids--Electric properties)

SOV/81-59-15-52582

Translation from: Referativnyy zhurnal. Khimiya, 1959, Nr 15, p 40 (USSR)

AUTHORS: Kuzin, I.A., Semushin, A.M.

TITLE: The Application of the Ion Exchange Method for Separating Isotopes

PERIODICAL: Tr. Leningr. tekhnol. in-ta im. Lensoveta, 1958, Nr 48, pp 209-218

ABSTRACT: A review of works on the separation of the isotopes of Li, Na, K, Ca, N, Cl and Ti by the method of ion exchange chromatography. There are 22 references.

V. Lyubimov

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5.4500,5.5700

75662
SOV/80-32-10-11/51

AUTHORS: Semushin, A. M., Kuzin, I. A.

TITLE: Effect of γ-Radiation on the Physical-Chemical Properties of Certain Cation Exchange Resins

PERIODICAL: Zhurnal prikladnoy khimii, 1959, Vol. 32, Nr 10, pp 2193-2197 (USSR)

ABSTRACT: This is a study of the effect γ-radiation has on the pH-capacity relation, swelling, and weight-losses of the sulfonate resins KU-1, KU-2, SBS-1, and the carboxylic resins KFU (phenoxyacetic acid-formaldehyde based), KMT and KB-4P-2 (methacrylic acid based). The hydrogen forms of the resins were irradiated in water at 78 to 200 roentgen/sec from a Co^{60} source of activity 1400 g-eq Ra; maximum integral dose 1.38×10^8 roentgen. The properties were determined after resin separation from the solution and from resin-decomposition products. The net capacity drop was considered

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the result of two factors: resin dissolution and functional-group decomposition. The sulfonate resins were more stable to γ-radiation than the carboxylic resins; at 6.7×10^7 roentgen, the capacity of KU-1 and SBS-1 remained unchanged, that of KU-2-8 and KU-2-24 decreased slightly, and that of KFU, KMT, and KB-4P-2 decreased by 4, 7, and 19%, respectively. Study of swelling increases in water and NaOH indicates polymer chain breakup in all the resins. The higher stability of KU-1, SBS-1, KU-2, and KFU is due to the ability of the aromatic rings in their structures to absorb radiation energy without decomposing. The divinylbenzene content of KU-2 affected solubility, but had little influence on the capacity drop per gram of bone-dry resin. Comparison with literature data shows that high γ-stability does not necessarily imply high chemical and thermal stability: KU-1 is highly radiation-stable but less chemically and thermally stable than KU-2 and SBS-1; while KU-2 with 8 to 10% divinylbenzene is stable in all

Effect of γ-Radiation on the Physical-Chemical Properties of Certain Cation Exchange Resins

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three respects. There are 2 tables; 3 figures; and 11 references, 2 U.S., 1 Japanese, 8 Soviet. The U.S. references are: Tompkins, E., Khym, J., Cohn, W., J. Am. Chem. Soc., 69, 2769 (1947); and Parker, G., Higgins, J., Roberts, J., Ion-Exchange Technology, N. Y., 442 (1956).

ASSOCIATION: Leningrad Institute of Technology imeni Lensovet (Leningradskiy tekhnologicheskiy institut imeni Lensoveta)

SUBMITTED: January 29, 1959

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S/080/60/033/010/021/029
D216/D306

AUTHORS: Semushin, A.M., and Kuzin, I.A.

TITLE: Radiation-chemical stability of resin KU-2 in different ionic forms

PERIODICAL: Zhurnal prikladnoy khimii, v. 33, no. 10, 1960, 2323 - 2329

TEXT: The present work supplies data on the effect of the nature of the sorbed ion on the radiation-chemical stability of cationite KU-2. The resin, in spherical form, with particle size 0.6 - 0.8 mm was freed from impurities by washing with hydrochloric acid, alkaline solution and distilled water. Air-dryed resin in the N-form was saturated with a solution of the salts of following ions: Li^+, Na^+, NH_4^+, K^+, Rb^+, Cs^+, Mg^{2+}, Ca^{2+}, Sr^{2+}, Ba^{2+}, Ag^+, Co^{2+}, Cu^{2+}, Fe^{3+} and Tb^{3+}. The treated resin was sealed in ampules, placed in water medium and exposed to a Co^{60} γ-source, equivalent to 1400

Card 1/3

Radiation-chemical stability ...

gm. eq.^{6} of Ra, with dosages of 0.76 x 10^{8} - 8.5 x 10^{8} roentgens at 18-20°C. After treatment the resin was filtered off, washed well with water and transformed into the hydrogen form with a 2N solution of HCl. The total acidity of wash liquor was determined volumetrically using methyl orange as indicator and concentrations of the ions by complexometric methods. The moisture and hydration of the resin were determined by a centrifugal method. The reduction ability of the resin was found by determining the quantity of ferrous iron formed after seven days interaction of 1 gm of the resin with 100 mls. of 0.01 molar-solution of ferric chloride. The results obtained show that γ-irradiation of resin KU-2 saturated with ions of different metals and for the integral dosages of 0.76- - 8.5 x 10^{8} roentgens, results in a change of the physical-chemical properties of sorbed ions. The exposure of resin in the hydrogen form decreases its exchange capacity, forms new inorganic groups, increases hydration state and reduction ability of the resin. This indicates destruction of the polymer by the radiation. The radiation-chamical behavior of resin KU-2, saturated with ions

of alkaline and alkaline-earth metals does not differ appreciably from the behavior of the resin in hydrogen form. Some ions with higher valencies in sorbed states have shown a stabilizing effect on cationite KU-2-8. The various phenomena resulting on exposure to radiation of resin KU-2 in presence of different cations show that the conditions of ionic exchange at sorption and desorption of radioactive isotopes differ fundamentally from the exchange conditions for stable isotopes. This should be verified by work with radioactive isotopes. There are 3 tables, 3 figures, and 8 references: 7 Soviet-bloc and 2 non-Soviet-bloc. The reference to the English-language publication reads as follows: H. Gregor, K. Held, L. Bellin, Anal. Chem., 23, 4, 620, 1951.

ASSOCIATION: Leningradskiy tekhnologicheskiy institut imeni Lensoveta (Leningrad Technological Institute imeni Lensovet)

SUBMITTED: May 11, 1960

Card 3/3

27066
S/080/61/034/003/006/017
A057/ A129

5.3831 also 1526, 1581

AUTHORS: Kuzin, I. A., Semushin, A. M.

TITLE: Radiochemical resistance of carboxylic resins and oxidized carbon

PERIODICAL: Zhurnal prikladnoy khimii, v. 34, no. 3, 1961, 577 - 580

TEXT: Resistance of oxidized carbon and weakly acidic КФУ (KFU), КБ-4П-2 (KB-4P-2), and КМТ (KMT) cation exchange resins against gamma-radiation emitted by a ^{60}Co source was investigated. In former papers [Ref. 1: ZhPKh, 32, 2193 (1959), and Ref. 2: Tezisy dokladov nauchno-tekhnicheskoy konferentsii LTI im. Lensoveta (Theses of Reports of the Scientific and Technical Conference of the Leningrad Technological Institute imeni Lensovet), Goskhimizdat, 139 (1960)] the present authors demonstrated that resistance of swollen cation exchange resins against radioactive radiation and chemical agents depends on the structure of the resin, and the exchanged ion. The lowest resistance was observed in weakly acidic ion exchange resins. Exposed to an integral dosis of $1.38 \cdot 10^8$ roentgen the capacity of the KB-4P-2 exchange resin was decreased to 40%. Also other authors, like Vedemeyer [Ref. 3: Ionoobmennaya tekhnologiya (Ion exchange technology), Metallurgizdat, 442 (1950)], and A. P. Polevodov et al. [Ref. 4: NDVSh., Khim. i khim. tekhn.,

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Radiochemical resistance of carboxylic resins and...

4, 761 (1958)] published corresponding data. Since all these results concern carboxylic resins based on methacrylic acid and divinylbenzene, in the present work the resistance of exchange resins with different structure against gamma-radiation was compared, maintaining in all experiments exactly the same conditions. Oxidized carbon was prepared by a method described by I. A. Kuzin et al. [Ref. 5: Polucheniye, struktura i svoystva sorbentov (Manufacture, Structure and Properties of Sorbents), Goskhimizdat, 86 - 93 (1959)], i.e., by heating preliminarily activated carbon in nitric acid and subsequent washing and drying. Thus a weakly acidic ion exchanger was obtained with a mean particle size of 0.8 mm and a static exchange capacity of 3.8 corresponding to 0.1 N NaCl solution in mg equ/g or a dynamic exchange capacity of 0.83. KFU is an ion exchange resin based on phenoxyacetic acid and formaldehyde, while KMT resin is based on methacrylic acid. KB-4P-2 is a copolymer of methacrylic acid and (2.5%) divinylbenzene. The carbon and resin samples were irradiated in sealed glass ampoules by a ^{60}Co source with 1,400 g equ Ra activity. The usual methods for ion exchangers were applied to determinations of the physico-chemical properties of the irradiated samples and the obtained data are shown in tables. It can be seen from these data that the KFU exchange resin and oxidized carbon are considerably resistant against gamma-irradiation. KMT and

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A057/A129

Radiochemical resistance of carboxylic resins and...

KB-4P-2 resins, which differ only in the type of the cross-linking agent, show low resistance. Resistance of carboxylic resins in H-form depends generally on the structure of the sorbent's skeleton to which the -COOH group is linked. For this reason a more detailed investigation on KB-4P-2 resin in H-form was carried out. It was observed that irradiation causes gas evolution, scraps of the polymethacrylic acid chain are formed and are transferred into the aqueous phase. By evaporating this aqueous extract, a transparent film with an exchange capacity of 8 mg.eq/g is obtained. Also the total acidity of the aqueous phase is lower than the capacity lost by the cation exchange resin. These results indicate that by irradiation of resins swollen in water ion exchange groups are destroyed and a rupture of the main chains of the polyelectrolyte occurs. Swelling and water capacity of the resin in water increase initially with the irradiation dose, but decrease slowly afterwards. This would indicate that cross-linking processes prevail for an irradiation dose of $> 10^8$ roentgen. Corresponding tests carried out in alkaline solutions proved the predomination of destruction processes in the resin and loosening of the space lattice of the copolymer. The slow decrease in swelling capacity in water for $> 10^8$ roentgen is explained by the present authors with a considerable decrease of the number of ion exchange groups per 1 g of absolutely dry resin. Results obtained with irradiated dry resin indicate that the radiation effect on

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Radiochemical resistance of carboxylic resins and...

exchange and the swelling capacity of the resin is due to a direct influence of the radiation on the copolymer. The data in the table demonstrate also the much greater effect of gamma-radiation on the KB-4P-2 exchange resin in the Na-form. After irradiation a transparent substance is obtained which swells considerably in alkaline solutions. KB-4P-2 resin showed the highest radiation resistance in the H^+-form. One of the factors increasing the irradiation effect on the Na-form is the high water content for the resin in this form. Also products of radiolysis of water formed by irradiation may effect destruction of cross links in the copolymer. Tests carried out with H^+, Na^+, Mg^{2+}, Co^{2+} and Fe^{3+} saturated KB-4P-2 resin showed the highest resistance to be in the H^+ form. The obtained results are in agreement with data presented by P. Alexander et al. [Ref. 6: J. Chim. phys., 52, 694 (1955); Ref. 7: Nature, 169, 572 (1952); Ref. 8: Trans. Faraday Soc., 50, 605 (1954)]. Concluding the present authors thank A. A. Vansheydt, O. I. Okhrimenko and N. N. Kuznetsova for the ion exchange resins. There is 1 figure, 1 table and 8 references: 5 Soviet-bloc and 3 non-Soviet-bloc. The references to the English-language publications read as follows: P. Alexander, A. Charlesby, J. Chim. phys., 52, 694 (1955); P. Alexander, M. Fox, Nature, 169, 572 (1952); P. Alexander, M. Fox, Trans. Faraday Soc., 50, 605 (1954).

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Radiochemical resistance of carboxylic resins and...

ASSOCIATION: Leningradskiy tekhnologicheskiy institut imeni Lensoveta (Leningrad Technological Institute imeni Lensovet)

SUBMITTED: September 30, 1960

Table. Effect of gamma-radiation on physico-chemical properties of some sorbents

Legend: (1) sorbent, (2) medium, (3) dose (roentgen·10^8), (4) lost in capacity (%), (5) absolute swelling capacity (ml/g), (6) water capacity (g H_2O/g resin), (7) hydration capacity (millimole/mg·eq), (8) total, (9) per 1 g of absolutely dry resin, (10) in H_2O, (11) in 0.1 N NaOH solution, (12) oxidized carbon in H-form, (13) KFU resin in H-form, (14) KMT resin in H-form, (15) KB-4P-2 resin in H-form, (16) KB-4P-2 resin in Na-form, (17) KB-4P-2 in H-form, (18) air

Card 5/6

KUZIN, I.A.; SEMUSHIN, A.M.

Effect of moisture on the radiochemical stability of the cation exchanger KU-2. Zhur.prikl.khim. 34 no.8:1710-1714 Ag '61. (MIRA 14:8)

1. Leningradskiy tekhnologicheskiy institut imeni Lensoveta.
(Ion exchange resins)
(Radiochemistry)

KUZIN, I.A.; PLACHENOV, T.G.; TAUSHKANOV, V.P.

Sorption of molybdenum by activated charcoals and anion exchangers. Zhur. prikl. khim. 34 no.11:2426-2430 N '61. (MIRA 14:6)

1. Leningradskiy tekhnologicheskiy institut imeni Lensoveta.
(Molybdenum) (Sorption)

S/081/62/000/004/010/087
B149/B101

5.3931

AUTHORS: Kuzin, I. A., Taushkanov, V. P.

TITLE: Change in the physicochemical properties of anionites under the action of gamma-radiation

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 4, 1962, 74-75, abstract 4B519 (Tr. Leningr. tekhnol. in-ta im. Lensoveta, no. 55, 1961, 72-74)

TEXT: The influence of Co^{60} gamma-radiation on the solubility, swelling, ion-exchange capacity, and specific gravity of the anion-exchange resins ЭАЭ-10П (EDE-10P) (I) and АН-2Ф (AN-2F)(II) in an aqueous medium was investigated. The total exchange capacity of I and II with respect to the chloride ion decreased with increasing doses; the loss in weight was up to 40% for I and up to 12% for II. The swelling capacity of I increased by 4 times, that of II by 72%. The authors ascribe this effect to the destruction of the three-dimensional structure of the resins. The radiation had no influence on the specific gravity of II, but the specific

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gravity of I was somewhat increased. It was observed that the presence of benzene rings in II led to the stabilization of the spatial structure of the resin, and that in this case chiefly the amino groups were destroyed. [Abstracter's note: Complete translation.]

32317
S/020/61/141/005/010/015
B103/B110

5.4600 (also 1304)

AUTHORS: Yevdokimov, V. F., Poddubnyy, I. Ya., and Kuzin, I. A.

TITLE: Titanium and tin tetrachlorides as acceptors of radicals in the radiolysis of hydrocarbons

PERICIDICAL: Akademiya nauk SSSR. Doklady, v. 141, no. 5, 1961, 1097-1100

TEXT: The radiochemical reduction of $TiCl_4$ and $SnCl_4$ dissolved in hydrocarbons by Co^{60} gamma radiation and the possibilities of using this reaction for initiating the polymerization were studied. The following mixtures were irradiated in glass ampullas. (1) $TiCl_4$ - n-octane; (2) $TiCl_4$ - benzene; (3) $SnCl_4$ - n-octane; and (4) $SnCl_4$ - octamethyl cyclotetrasiloxane. The solutions were degassed; then, the ampullas were evacuated and sealed. After removal of the liquid products of radiolysis and drying in vacuo at 120°C the subchloride precipitations were analyzed by potentiometric titration with silver chloride and platinum electrodes. The quantity of the energy absorbed was determined by ferrous sulfate dosimetry. The yield of the reaction was assumed to be 15.6 molecules per

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S/020/61/141/005/016/018
B103/B110

Titanium and tin tetrachlorides ..

100 ev. The apparatus has been described previously (Ref. 1: A. Kh. Breger, V. A. Belynskiy et al., Sborn. Deystviye ioniziruyushchikh izlucheniy na neorganicheskiye i organicheskiye sistemy (Effect of ionizing radiations on inorganic and organic systems), Izd. AS SSSR 1958, p. 379). A loose gradually concentrating brown precipitation forms on irradiation of the mixture (1)-(4). Fig. 1 (curve 2) shows the radiochemical yield G of the reduction of $TiCl_4$ in n octane solutions. In benzene solutions G_{TiCl_4} is smaller by one power of ten, whereas its maximum value reaches 0.75 (in agreement with literature data). The ultimate analysis shows that the precipitations formed are $TiCl_3$ and may be completely dissolved in dry N,N-dimethyl formamide. The brown β-$TiCl_3$ modification produced was used as component of a Ziegler catalyst (β-$TiCl_3$ + $(iso\text{-}C_4H_9)_2AlCl$)) and showed normal catalytic activity in the polymerization of diolefins. The epr spectrum of the mixtures (1) irradiated at 77°K belongs presumably to Ti^{3+} and is stable at 77°K. The width of the lines between the two maxima was 22 oersted. The g factor of the signal center is 1.91. The relevant sensitivity was [illegible] M 1 phase [illegible]

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Titanium and tin tetrachlorides ..

picryl hydrazyl. The intensity of the spectrum increases linearly with increasing $TiCl_4$ concentration. At the same time, the existence of the epr spectrum of the hydrogen atom stabilized on the quartz surface was confirmed $SnCl_2$ is precipitated by irradiation of the mixtures (3) and (4). G_{SnCl_4} is shown in Fig. 1 (curve 1). Since it was shown by K. A. Andrianov, S. Ye. Yakushkina (Ref. 13: Vysokomolek. soyed., v. 10, 1508 (1960)), that the polymerization of octamethyl cyclotetrasiloxane is effected by $SnCl_4$ at 120-150°C with simultaneous breaking of the ring, this reaction was performed under the effect of ionizing radiation at room temperature. Simultaneously the polymer formed was chlorinated by reduction of $SnCl_4$ to $SnCl_2$. The Cl content in the polymer reached 3 mole-% with radiation doses of about 30,000,000 r. The molecular weight of the polymer increases with increasing $SnCl_4$ concentration. The CH_4/H_2 ratio in the gases escaping on irradiation of octamethyl cyclotetrasiloxane remains constant in a wide range of doses up to 45,000,000 r. Addition of $SnCl_4$ increases the CH_4/H_2 ratio in this range of doses. Thus, the H atom

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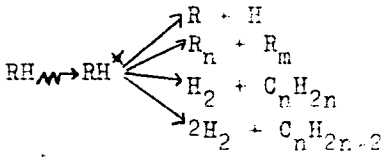
Titanium and tin tetrachlorides .

is more active than the CH_3 radical in $SnCl_4$ reduction effected by irradiation. The following possible types of initial reactions are indicated:



(1)
(2)
(3)
(4)

The free radicals formed according to (1) and (2) may interact with $TiCl_4$ and $SnCl_4$: $TiCl_4 + H \longrightarrow TiCl_3 + HCl$, $TiCl_4 + R' \longrightarrow TiCl_3 + RCl$. Moreover, a redistribution of the energy absorbed is not impossible in the relevant two-component system, if the tetrachloride concentrations are increased. There are 4 figures and 14 references: 10 Soviet and 4 non-Soviet. The three most recent references to English-language publications read as follows: H. A. Schwarz, J. Am. Chem. Soc., 79, 334 (1957); Krebs, H. Dewhurst, J. Chem. Phys., 17, 1337 (1949); C. H. Bamford, A. D. Jenkins, R. Johnston, Proc. Roy. Soc., A 241, 364 (1957).

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S/020/61/141/005/010/018
B103/B110

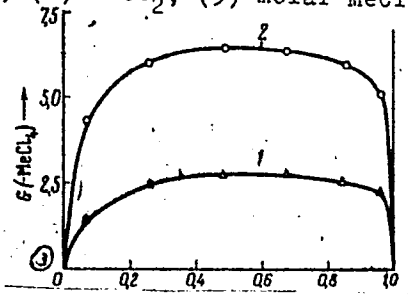
Titanium and tin tetrachlorides ...

ASSOCIATION: Nauchno-issledovatel'skiy institut sinteticheskogo kauchuka im. S. V. Lebedeva (Scientific Research Institute of Synthetic Rubber imeni S. V. Lebedev)

PRESENTED: July 14, 1961, by S. S. Medvedev, Academician

SUBMITTED: July 14, 1961

Fig. 1: Radiochemical yield of the reduction of $SnCl_4$ and $TiCl_4$ dissolved in n-octane.
Legend: (1) $SnCl_4$; (2) $TiCl_2$; (3) molar $MeCl_4$ component.



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S/844/62/000/000/103/129
D204/D307

AUTHORS: Kuzin, I. A. and Semushin, A. M.

TITLE: A study of the influence exerted by the nature of the adsorbed ion on the radiochemical behavior of certain cationites

SOURCE: Trudy II Vsesoyuznogo soveshchaniya po radiatsionnoy khimii. Ed. by L. S. Polak. Moscow, Izd-vo AN SSSR, 1962, 611-615

TEXT: The behavior was studied of КУ-2-8 (KU-2-8) and КБ-4П-2 (KB-4P-2) saturated with H^+, alkali metal ions, NH_4^+, Mg^{2+}, Ca^{2+}, Sr^{2+}, Ba^{2+}, Ag^+, Cu^{2+}, Tl^{3+} and Fe^{3+}, and γ irradiated in water, at 15 - 20°C, owing to a lack of knowledge in this field. After irradiation the resins were converted to the H^+ form and their physicochemical properties were determined by the methods described earlier (ZhPKh, 32, 2193 (1959)). On irradiation, Ku-2-8 (sulfonated copolymer of styrene and divinylbenzene) changed both its physical

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A study of the ...

and chemical properties. Some sulfo groups and polystyrene chains split off, the sulfonic acids and H_2SO_4 passing into the aqueous solution; a certain proportion of $-SO_3H$ was also changed into a form incapable of ion-exchange. The quantities $R_t = \frac{(g_o - g_t)}{g_o} 100\%$ and $R'_t = (1 - \frac{g_t a_o}{g_o a_t} 100\%$ (where g_o and g_t denote capacities and a_o and a_t the weights of resin before and after irradiation) and also the amount of acids formed, weight-loss, water capacity and absolute swelling capacity (ml/g) increased with increasing dose of the γ rays (0 - 4.10×10^8 r). The radiation stability was practically unchanged when H^+ was replaced by an ion of constant valency, and a certain protective action was exerted by Cu^{2+} and Fe^{3+}. Some reducing processes took place with irradiated Ag^+, Cu^{2+}, Tl^{3+} and Fe^{3+} forms, resulting in Ag, Cu, Tl and Fe^{2+}. Irradiation of the

A study of the ...

S/844/62/000/000/103/129
D204/D307

H^+ form of KB-4P-2 produced, in general, changes corresponding to those in KU-2-8. Replacement of H^+ by metallic ions lowered the radiation stability of this resin. There are 4 tables.

ASSOCIATION: Leningradiskiy tekhnologicheskiy institut im. Lensoveta (Leningrad Technological Institute im. Lensovet)

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S/186/62/004/006/009/009
E075/E436

AUTHORS: Kuzin, I.A., Taushkanov, V.P., Aleshechkin, V.S.

TITLE: Sorption of uranium by activated carbons from the solutions of sodium rodanide

PERIODICAL: Radiokhimiya, v.4, no.6, 1962, 732-737

TEXT: The sorption of U was investigated on activated carbons БАУ (BAU), СКТ (SKT) and СКЛТ(SKLT), carbon being a substance stable to radiation and chemical action. The maximum sorption of U occurs in 0.22 M NaSCN. The specific sorption of U ions decreases with the increasing pH of the solutions. The sorption of U from nitrate and sulphate solutions at pH 1 to 2 varies from 0.001 to 0.15 mM/g, but in NaSCN solution it reaches 1 mM/g. Adsorption isotherms of U on the three carbons from 0.22 M NaSCN at pH = 2 shows that the capacity of the carbons increases in the order SKLT, SKT, BAU and is 254, 215 and 107 mg/g respectively for the solutions containing 3 g of U per litre. As the sorption of Th, Ce and Ba occurs only at pH > 2, the carbons were used successfully for the separation of U from these elements. Chromatographic separation of binary mixtures of U with

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the above elements was carried out using carbons BAU and SKLT. The coefficients of purification (the ratio of the concentration of separated element in the original solution to the concentration of the element after desorption of U) were found to be higher than 10^2 to 10^3. It is concluded that the activated carbons can be used for the purification of U from a number of elements such as Al, Th, Ni, alkali and alkali earth metals, which do not form strong complexes with rodanide ions. There are 7 figures and 3 tables.

SUBMITTED: June 21, 1961

Card 2/2

KUZIN, I.A.; GALITSKAYA, I.A.; TAUSHKANOV, V.P.

Precipitation of ammonium uranyl disulfate from nitrate solutions. Radiokhimiia 5 no.1:89-93 '63. (MIRA 16:2)
(Ammonium uranyl sulfates)
(Nitrates)

KUZIN, I.A.; TAUSHKANOV, V.P.; BOSHINA, B.

Sorption of metals by the SKT activated carbon from acetate solutions. Zhur.prikl.khim. 36 no.3:604-608 My '63. (MIRA 16:5)

(Metals) (Carbon, Activated)

L 13568-63 EPR/EPF(c)/EWP(q)/EWT(m)/BDS AFFTC/ASD Ps-4/Pr-4 JAJ/WH/
ES/JD/AT
ACCESSION NR: AP3000180 S/0080/63/036/004/0703/0707

AUTHOR: Tseng Hsien-Fu; Kuzin, I. A.; Taushkanov, V. P.

TITLE: Purifying uranium from heavy metals on activated carbon

SOURCE: Zhurnal prikladnoy khimii, v. 36, no. 4, 1963, 703-707

TOPIC TAGS: absorption of uranium, nitrate solutions, activated carbon, thorium, zirconium, iron, vanadium, tributylphosphate (TBF)

ABSTRACT: For absorption of uranium from nitrate solutions, brand BAU activated carbon (previously treated by 1 m of chloride solution, with prior surface application of tributylphosphate (TBF), was used. Absorption of uranium and other heavy metals was carried out under static conditions by bringing 1 g of carbon in contact with 100 ml of solution for a period of 4-5 days. To estimate uranium, thorium, zirconium, iron, and vanadium, the authors used gravimetric, volumetric, and colorimetric analyses. Evaluation of pH of solutions was using an 4-5 bulb potentiometer with a glass electrode. The authors conclude that it is possible to separate uranium from thorium, zirconium, iron, and vanadium by the described method. Orig. art. has: 8 figures, 1 formula, and 1 table.

ASSOCIATION: none

SUBMITTED: 03 Dec 62 DATE ACQ: 12 Jun 63 ENCL: 00
SUB CODE: CH NO REF SOV: 007 OTHER: 003
Card 1/1

L 13577-63 EPR/EPF(c)/EWP(q)/EWT(m)/BDS AFFTC/ASD Ps-4/Pr-4 WH

ACCESSION NR: AP3000191 S/0080/63/036/004/0914/0917

AUTHOR: Kuzin, I. A.; Semushin, A. M.; Taushkanov, V. P.

TITLE: The effect of Co sup 60 Gamma radiation on the ion-exchange properties of oxidized coals

SOURCE: Zhurnal prikladnoy khimii, v. 36, no. 4, 1963, 914-917

TOPIC TAGS: Gamma radiation, ion-exchange properties, cation-exchange property, anion-exchange property, hydrochloric acid, cation-exchange capacity, sodium ion, NaOH, anion-exchange, chlorine ion

ABSTRACT: The radiation stability of activated coals of various compositions with cation and anion exchanging properties was studied. The test samples of coal were treated with 1N hydrochloric acid and, after that, by a 1 N solution of ammonia, distilled water, and then were dried to a constant weight. The cation-exchanging capacity of the coals was determined by the sodium ion by bringing 0.5 g of coal in contact with a 50 ml 0.1 solution of NaOH. The anion-exchanging capacity was determined by the chlorine ion in 0.1 N solutions of hydrocloric acid. Coals which were charged into OH form and oxidized coals which were charged into the H and Na forms were subjected to irradiation in

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L 13577-63
ACCESSION NR: AP3000191

water. In the latter case, the weighed portions of coal which were preliminarily oxidized by nitric acid were saturated by sodium ions from 0.2 N of NaOH. The coal was irradiated at room temperature by a Co sup 60 Gamma-radiating source. The study of the physico-chemical properties of the coals up to and after irradiation was done in accordance with a previously described method (Semushin, A. M., Kuzin, I. A.; Zhurnal prikladnoy khimii, v. 32, 1959, p. 2193). Ion exchangers with cation capacity from 2.41 to 4.87 mg-equi/g were obtained by oxidizing brand BAU, KAU, SKT, and SKLT activated coals with nitric acid. The physico-chemical and ion-exchanging properties of the oxidized coals do not change with radiation doses of 1.5 x 10 sup 8 to 1.9 x 10 sup 8 roentgens. Orig. art. has: 4 tables.

ASSOCIATION: none

SUBMITTED: 21Jun62 DATE ACQ: 12Jun63 ENCL: 00

SUB CODE: CH NO REF SOV: 007 OTHER: 000

Card 2/2

KUZIN, I.A.; ANDRONOV, Ye.A.

Effect of the porosity structure of activated carbon on molybdenum sorption. Zhur. prikl. khim. 36 no.12:2600-2604 D'63. (MIRA 17:2)

ACCESSION NR: AP4032497 S/0080/64/037/004/0760/0764

AUTHOR: Semushin, A. M.; Kuzin, I. A.

TITLE: The effect of the structure of weakly acid cationites on their resistance to the action of radiation.

SOURCE: Zhurnal prikladnoy khimii, v. 37, no. 4, 1964, 760-764

TOPIC TAGS: cationite, weakly acid cationite, structure, radiation resistance, radiation stability, swelling, ion exchange capacity, ion exchange capacity loss, cross linkage, aliphatic cationite resin, aromatic cationite

ABSTRACT: The influence of radiation on weakly acid cationites and the effect of the structure of these cationites on their radiation chemical stability was investigated. The cationites were irradiated in their hydrogen and sodium forms with cobalt-60 in doses up to 1.7×10^8 roentgens; the changes in their physical, chemical properties (amount of swelling and loss in exchange capacity) were recorded. The cationites KMT, SG-1, KB-4P-2, aliphatic polymers based on methacrylic acid, lose 17-66% of their exchange capacity on radiation with 1.5×10^8 roentgens. It was established that this loss and swelling on irradiation depends

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on the amount and the nature of the cross-linkage of the resin, but significant stabilization to radiation of polymethacrylic acid resins does not appear possible. A study of cationites KS, KFU and Vofatit"S", containing macromolecules of the benzene ring in their elementary chains, are resistant to the given irradiation. They do not lose their exchange capacity; it is even increased somewhat. Thus the skeletal structure of the ion exchange resin has a greater effect on the radiation chemical stability than cross-linkage of the resin. "We take the opportunity to thank A. S. Tevlino for supplying the sample of cationite KS." Orig. art. has: 1 table and 2 figures.

ASSOCIATION: None

SUBMITTED: 30Dec62 DATE ACQ: 11May64 ENCL: 00

SUB CODE: GC NO REF SOV: 005 OTHER: 003

Card: 2/2

KUZIN, I.A.; TAUSHKANOV, V.P.

Sorption of uranium and thorium from ammonium thiocyanate solutions by anion exchanger EDE-10P. Zhur. prikl. khim. 37 no. 4:764-768 Ap '64. (MIRA 17:5)

LOU YUN'-SHEN [Low Yun-sheng]; KUZIN, I.A.; SEMUSHIN, A.M.

Study of the radiation stability of some monofunctional anion exchangers. Zhur. prikl. khim. 37 no. 4:893-895 Ap '64. (MIRA 17:5)

ACCESSION NR: AP4038561 S/0080/64/037/005/1005/1009

AUTHOR: Kuzin, I. A.; Taushkanov, V. P.

TITLE: Sorption of uranium by anionites from sulfuric acid solutions.

SOURCE: Zhurnal prikladnoy khimii, v. 37, no. 5, 1964, 1005-1009

TOPIC TAGS: uranium, iron, vanadium, copper, manganese, aluminum sorption, ion exchange, chemical separation, anionites, chromotography

ABSTRACT: The separation of uranium by sorption on anionites from sulfuric acid solutions experiences interference from elements which are in solution in the form of anions or negatively charged complex ions. In this work an investigation was made of the sorption of uranium and base elements which accompany uranium in nature by the following anionites: AMP, EDE-10P and AN-2F. The sorption of uranium, aluminum, iron, copper, manganese and vanadium was conducted under static conditions in 100 ml flasks containing 0.5 of anionite (in recalculation to dry weight) and 50 ml of the investigated solution. The solution was filtered after 7 days and the equilibrium concentrations of these elements were determined gravimetrically, volumetrically or colorimetrically. It was found that aluminum and

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ACCESSION NR: AP4038561

manganese are not sorbed by the anionites and that copper is sorbed only by the EDE-10P and AH-2F anionites. The maximum sorption of uranium by EDE-10P and AN-2F was observed from 0.05 M solution and by AMP from 0.025 M solution with respect to sulfuric acid. The sorption of iron, vanadium and copper is a function of the pH of the solution. When the concentration of sulfuric acid is 0.25 m/l, absorption of these elements does not exceed 0.1 mM/g. At the same time the capacity of EDE-10P with respect to uranium is 223 mg/g, the capacity of AN-2F is 198 mg/g and that of AMP is 88 mg/g. Orig. art. has: 1 table and 4 figures.

ASSOCIATION: None

SUBMITTED: 090ct62 ENCL: 00

SUB CODE: IC, MM NO REF SOV: 008 OTHER: 002

Card 2/2

ACCESSION NR: AP4032504

AUTHOR: Tsay Yan-shang; Kuzin, I. A.; Semushina, A. V.

TITLE: Investigation of the radiation stability of several monofunctional anionites

SOURCE: Zhurnal prikladnoy khimii, v. 37, no. 4, 1964, 893-895

TOPIC TAGS: polystyrene anionite, monofunctional anionite, radiation stability, quaternary ammonium containing anionite, ion exchange capacity, anionite decomposition

ABSTRACT: The effect of the structure of the quaternary ammonium groups in polystyrene anionites on the stability of the anionites to irradiation was studied because of the scar of published data on the subject. Waterswelling anionite resins AV-17, AV-3, EDE-10, VP-1P and VP were subjected to radiation [illegible] x 10^8 roentgens. The results of the [illegible] radicals [illegible] the quaternary [illegible] radiation-chemical stability, [illegible] are stable. Since [illegible] anionites [illegible] is only 5-7%, as compared with [illegible]

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L 21771-65

ACCESSION NR: AP4032504

basic process in swelled anionites, resulting directly or indirectly from the action of irradiation, is the splitting off of the ion exchange groups. "The

NO REF SOV: 005 OTHER: 002

Card 2/2

EWT(1)/EWT(m)/EPF(c)/EPR(n)-2/EWP(j)/EWA(h)/EWA(1) Pc-4/Pr-4/

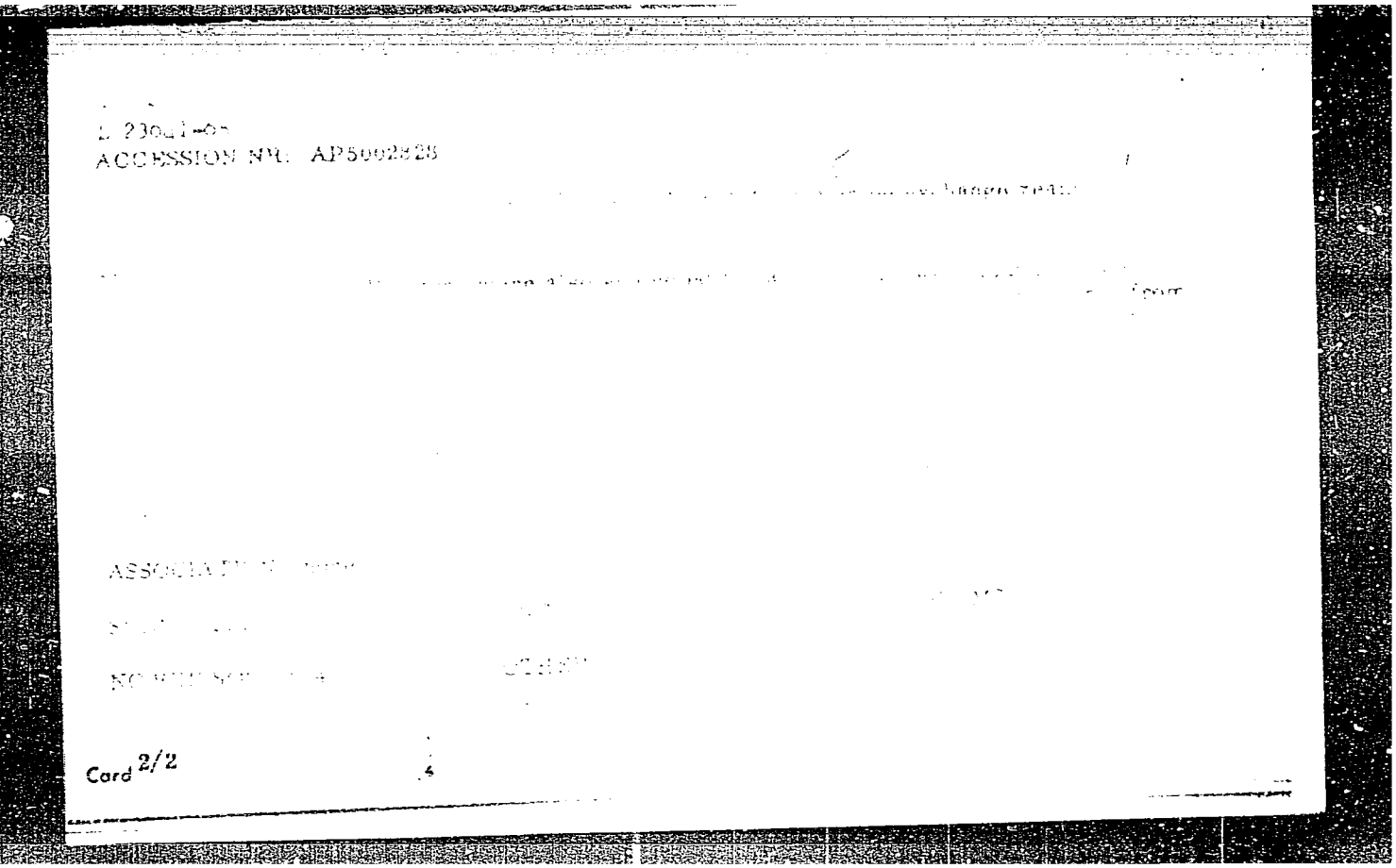
0041/0044

AUTHOR: Lou, Yun-sheng; Ku n, I.A.; Semushin, A.M.; Kushchev, N.I.

TITLE: Radiation degradation of some ion exchange resins

SOURCE: Plasticheskiye massy, no. 1, 1965, 41-44

exchange resin, radiochemical stability, polyfunctional resin, poly- ... phenol formaldehyde ... divinylbenzene



L 23041-65
ACCESSION NR: AP5002828

Card 2/2

TULYAKOV, Ye.N.; KUZIN, I.A.; PLACHENOV, T.G.

Effect of inorganic additions on carbon oxidation process. Izv. vys. ucheb. zav.; khim. i khim. tekh. 8 no.3:416-420 '65. (MIRA 18:10)

1. Permskiy filial Gosudarstvennogo instituta prikladnoy khimii i Leningradskiy tekhnologicheskiy institut imeni Lensoveta.

YEVDOKIMOV, V.F.; PODDUBNYY, I.Ya.; KUZIN, I.A.

Apparatus for automatic potentiometric and conductometric titration. Zav.lab. 31 no.10:1274-1275 '65. (MIRA 19:1)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut sinteticheskogo kauchuka.

TAUSHKANOV, V.P.; KUZIN, I.A.; OSTAPENKO, Yu.V.

Sorption of metals from hydrochloric acid solutions by activated carbon SKT. Zhur. prikl. khim. 38 no.5:1048-1053 My '65.
(MIRA 18:11)

1. Leningradskiy tekhnologicheskiy institut imeni Lensoveta.

KUZIN, I.A.; PLACHENOV, T.G.; ALEKSANDROVA, N.S.; TAUSHKANOV, V.P.

Effect of the porous structure of lignin coals on uranium sorption. Zhur.prikl.khim. 38 no.9:2026-2030 S '65.
(MIRA 18:11)

1. Leningradskiy tekhnologicheskiy institut imeni Lensoveta.

L 11025-66 EWT(m)/EPF(n)-2/EWP(t)/EWP(b) IJP(c) JD/WW/JG

ACC NR: AP5025660 SOURCE CODE: UR/0080/65/038/010/2332/2334

AUTHOR: Kuzin, I. A.; Andronov, Ye. A.; Taushkanov, V. P.

ORG: Leningrad Technological Institute im. Lensovet (Leningrad'skiy tekhnologicheskiy institut)

TITLE: Sorption of uranium by platinized charcoal

SOURCE: Zhurnal prikladnoy khimii, v. 38, no. 10, 1965, 2332-2334

TOPIC TAGS: sorption, uranium compound, platinum, charcoal, thermal decomposition, acetic acid, hydrochloric acid, sodium hydroxide, hydrogen, oxygen

ABSTRACT: The property of platinized charcoal to recharge in response to changes in the gas atmosphere was utilized in this work to study the sorption mechanism of complex ions of U (VI). The charcoal was prepared by thermal decomposition of phenylformaldehyde resin with subsequent activation at 800° C in a CO_2 stream until 50% was burned out. The residue upon ignition of activated charcoal was 0.08% and the amount of deposited platinum on the charcoal comprised 0.25%. To determine the sorption capacity of the platinized charcoal and its ability to change its surface charge in hydrogen and oxygen atmosphere, sorption of HCl, HSCN, NaOH and CH_3COOH from 0.5 N solutions was investigated. Sorption on 0.25 g of charcoal from 25 ml of solution for 4 hours was conducted. In an oxygen atmosphere platinized charcoal absorbs HCl and absorbs no NaOH whatsoever while the reverse is true in a hydrogen atmosphere.

UDC: 541.183.5+661.183.2+546.791

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L 11025-66

ACC NR: AP5025660

HSCN and CH_3COOH are absorbed in both hydrogen and oxygen atmospheres. This is explained by the fact that acetic acid is absorbed to a significant extent by the platinized charcoal in a molecular form. HSCN on the other hand is adsorbed in a hydrogen atmosphere due to specific sorption of thiocyanide ions. It is thus demonstrated that HCl is absorbed by platinized charcoal through the ion-exchange mechanism while thiocyanic acid is absorbed by a mixed mechanism. Absorption of uranium by platinized charcoal in the absence of complex forming additives and in the presence of 1 M ammonium chloride in an oxygen atmosphere is not observed and in a hydrogen atmosphere it does not exceed 5 mg/g. Negatively charged uranium complexes are absorbed by platinized charcoal from concentrated hydrochloric acid by the ion exchange mechanism. Complex uranium ions with acetate and thiocyanide ions are sorbed on platinized charcoal through the mixed ion exchange and specific mechanism. Orig. art. has: 2 tables.

SUB CODE: 07/ SUBM DATE: 01Jun64/ ORIG REF: 012/ OTH REF: 002

HW

Card 2/2

KUZIN, I.A.; CHUCHALIN, L.K.

Extraction of trivalent thalliym with tributyl phosphate from chloride-sulfate aqueous solutions. Zhur. prikl. khim. 38 no.11: 2422-2429 N '65. (MIRA 18:12)

1. Vsesoyuznyy nauchno-issledovatel'skiy gornometallurgicheskiy institut tsvetnykh metallov. Submitted July 3, 1964.

L 40004-66 EWT(m)/EWP(t)/ETI IJP(c) JD/WW/RM/JG

ACC NR: AP6008272 (N) SOURCE CODE: UR/0080/66/039/002/0359/0362

48

AUTHOR: Kuzin, I. A.; Taushkanov, V. P.; Leonov, B. M.; Boganch, Ya.

B

ORG: none

27

TITLE: Sorption of metals from an acetate solution by SKT activated charcoal

SOURCE: Zhurnal prikladnoy khimii, v. 39, no. 2, 1966, 359-362

TOPIC TAGS: sorption, chemisorption, acetic acid, ammonium compound, URANIUM

ABSTRACT: The sorption of zirconium, chromium, cadmium, zinc, lead, manganese, nickel, cobalt, uranium, barium, and cesium by activated SKT charcoal from solutions of acetic acid and ammonium acetate was studied. It was found that uranium is more readily sorbed by the charcoal than any of the other metals. The optimum mixture of acetic acid and ammonium acetate for the sorption of uranium is 0.45 mol acetic acid and 0.05 mol ammonium acetate. Addition of the latter to the acetic acid solution immediately increased the sorption by the charcoal; however, continued increase in the concentration of ammonium acetate beyond 0.05 mol reduced the sorptive capacity of the charcoal exponentially. It was found that NH_4NO_3 in a pH solution of 2.4-3.0 slightly increased the sorptive capacity of charcoal above a salt concentration of 1 mol/dm^3. Experimental data was obtained on a bed of charcoal 60 mm high. Passage of the acetate so-

UDC: 661.183.2+547.292

Card 1/2

L 40004-66

ACC NR: AP6008272

lution through the bed occurred at a rate of 1 $cm^3/cm^2 \cdot min$. Orig. art. has: 2 tables, 2 figures.

SUB CODE: 07, 11/ SUBM DATE: 19Apr65/ ORIG REF: 006/ OTH REF: 002

Card 2/2 11b

KUZIN, I.F. (Gor'kiy)

Role of heredity in the origin of myopi.. Vest. oft. 33 no.5: 20-25 S-O '54. (MLRA 7:10)
(MYOPIA, heredity,
of myopia)

KUZIN, I.F.

KUZIN, I.F. (g.Gor'kiy)

Titov's method for the surgical correction of epiphora. Vest.oft. 69 no.4:25-29 Jl-Ag '56. (MLRA 10:9)
(LACRIMAL APPARATUS, dis.
epiphora, surg., Titov's method)