S/032/61/027/011/014/016
B104/B138

AUTHORS: Yagn, Yu. I., Myakinin, L. V., and Kovalov, K. F.

TITLE: An instrument for measuring transverse strain by means of wire-suspended mirrors

PERIODICAL: Zavodskaya laboratoriya, v. 27, no. 11, 1961, 1413 - 1414

TEXT: The authors point out the shortcomings of a device for determining reduction of area in the plastic range in tensile-tested material. This device had been developed by N. N. Aistov (Eksperimentalnoye opredeleniye otnosheniya otnositel'nykh poperechnykh k otnositel'nykh prodol'nym deformatsiyam v plasticheskoy zone (Experimental determination of the relative transverse-to-longitudinal strain ratio in the plastic region). Nauchnyye Trudy Leningradskogo inzhenerno-stroitel'nogo instituta, no. 13 (1952)). The authors of the present paper suggest the arrangement shown in Fig. 2. In this, two mirrors (1) and (2) are attached to rods (3) and (4) which are suspended on capron wires. The levers (7) and (8) are supported on hinge (0) and are depressed edge-on to the specimen (5) by means of rubber band (6). The whole arrangement is suspended on cord (10). Any slight

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An instrument for measuring...

change in the diameter of the specimen is transmitted to the mirrors by the lever system. The weights (9) attached to the mirrors are immersed in oil in order to avoid rotation or oscillation of the mirrors. This instrument, which proved good in practice, was found to have a 12,500 magnification factor in indicating recording the change in diameter. Its great advantage is that its component parts cannot suffer deformation. There are 2 figures and 4 Soviet references.

ASSOCIATION: Leningradskiy politekhnicheskiy institut im. M. I. Kalinina
(Leningrad Polytechnic Institute imeni M. I. Kalinin)

Fig. 2. Schematic representation of the suggested device.

ZAKHAROV, Kirill Vasil'yevich; KUSHELEV, Nikita Yur'yevich; SINITSKIY, Anatoliy Konstantinovich; SEMENOV, V.P., otv. red.; YAGN, Yu.I., prof., red.

[Laboratory manual on the strength of materials] Rukovodstvo k laboratornym rabotam po soprotivleniiu materialov. Izd. 2., Leningrad, Leningr. politekhn. in-t, 1963. 126 p. (MIRA 17:11)

18.8200
24.4200

25712
S/020/61/139/003/011/025
B104/B201

AUTHORS: Izotov, I. N., and Yagn, Yu. I.

TITLE: Study of the plastic deformation of a metal with a deformation anisotropy produced by pre-stressing

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 139, no. 3, 1961, 576-579

TEXT: A study has been made of the development of plastic deformations in the initial stages of a second stressing of material relieved partly or completely from stress after a first plastic deformation. To determine a deformation due to stress it is necessary to examine the relationship between the vector $\vec{\delta\Im}$ of the increment of plastic deformation and the vector $\vec{\delta S}$ of the increment of stress as depending upon the antecedents. The geometric loci constructed according to the allowances of $\Delta\varepsilon_i$ ($\Delta\varepsilon_i$ being the intensity of increase of plastic deformation) are examined, and the possibility of their application for determining the directions of vectors $\vec{\delta\Im}$ are estimated. At the same time, the principles underlying the modulus of plastic deformability are studied, and a utilization of geometric loci of equal h values (h being the modulus of plastic deformability) is

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Study of the plastic deformation...

suggested for the first time to describe plastic deformation processes. Experiments have been conducted, in which thin-walled tubular specimens of commercially pure nickel have been simultaneously strained and twisted. The material concerned and the experimental setup had been described in previous papers(Yu. I. Yagn et al., DAN, 119, no. 1, 46 (1958); DAN, 135, no. 4 (1960); Zav. Lab., no. 10, 1243, (1958)). In these experiments, $\delta\vec{\sigma}$ and h were determined as a function of the direction of $\delta\vec{S}$. Six sample sets were tested (2 - 3 samples per set); each set was subjected to an equal first stressing, then relieved from stress, and, finally, subjected to a second stress causing breakage. As the experiments have shown, it is necessary for the practical application of formula $\delta\vec{\sigma} = h\delta\vec{S}_{\delta\sigma}$ to know the principles enabling one to determine in every point of stress the value of h and the direction of vector $\delta\vec{\sigma}$ as a function of kind and direction of the first stress, those of the second stress, and the state of stress attained. On specimens subjected to an equal first stress, the effect of the second type of stress was studied. The authors also examined the effect of the first stress (linear stretching , torsion, stretching combined with torsion, pressing and stretching in two different directions, torsion in two different directions). The following conclusions are drawn from results: 1) the directions of

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Study of the plastic deformation...

vectors $\delta\vec{\sigma}$ are determined with sufficient accuracy by the direction of the normals on the locus of equal $\Delta\varepsilon_i$. Deviations therefrom rise with increasing distance from the stress at which the first experiment was interrupted. 2) The geometric locus of all equal h is almost a circle, whose center is displaced with respect to the coordinate origin. The direction of this displacement is determined by the component of the first stress; the displacement value depends upon h. The radius R of this circle is not dependent upon the kind of the first stress; it is determined by h and the strain attained with the first stress. 3) The direction of $\delta\vec{\sigma}$ deviates systematically from the normals to the circle of equal h. This deviation (on average 6 - 7°) is only little larger than the change of direction of vectors $\delta\vec{\sigma}$, which is caused by the character of the second stress, and can be neglected in most cases. 4) To calculate the expected plastic deformation with the aid of (1), it is sufficient to construct the family of circles of equal h with the aid of equations

$$\rho_\sigma = \frac{A}{h}\frac{e_0}{e_{i0}}, \quad \rho_{\sqrt{3}\tau} = \frac{A}{h}\frac{\tau_0}{\sqrt{3}e_{i0}}; \qquad (3)$$

$$h = ak\left[\frac{R+B}{\sigma_{i0}+B}D - B\right]^{k-1}, \qquad (4)$$

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Study of the plastic deformation...

which presuppose the knowledge of five constants and of the strained deformed state of the material after the first stress. Here, ρ_6 and $\rho_{\sqrt{3}}$ are the respective projections of vector $\vec{\rho}$ of the displacement of the center of circles of equal h; a, k are constants found from experiments with the first stress; A, B, and D are constants determined with the second stress! The results of numerical integrations of (1) have been compared with results obtained by the above formulas. A deviation of about 8 - 12 % has been found. The present work was the subject of a lecture delivered at the First All-Union Conference on Theoretical and Applied Mechanics in January, 1960. There are 3 figures and 4 references: 3 Soviet-bloc and 1 non-Soviet-bloc. The reference to English-language publications reads as follows: W. Prager, J. Appl. Phys., 20, no. 3, 235 (1949).

PRESENTED: April 10, 1961, by Yu. N. Rabotnov, Academician

SUBMITTED: August 13, 1960

Card 4/4

S/032/62/028/006/016/025
B108/B104

10.7000

AUTHORS: Yagn, Yu. I., and Pavlov, P. A.

TITLE: Study of stress concentration on shafts of variable cross section during twist

PERIODICAL: Zavodskaya laboratoriya, v. 28, no. 6, 1962, 719 - 721

TEXT: A method of determining the local stresses in a shaft of varying diameter during twist is presented. It consists in determining the angle of displacement γ_s (in the plane tangential to the surface) from the measured twist angle ω_r: $\gamma_s \cos\alpha = -2\omega_r$, where α is the angle between the radius vector and the normal of the surface. There are 3 figures.

ASSOCIATION: Leningradskiy politekhnicheskiy institut (Leningrad Polytechnic Institute)

Card 1/1

YAGN, Yu.I., PAVLOV, P.A.

Study of the concentration of stresses in the torsion of shafts of variable cross section. Zav.lab. 28 no.6:719-721 '62. (MIRA 15:5)

1. Leningradskiy politekhnicheskiy institut.
(Strength of materials) (Strains and stresses)

YAGN, Yuliy Ivanovich; SEMENOV, V.P., otv. red.

[Abstract of lectures for a course in the mechanics of a solid and deformable body] Konspekt lektsii po kursu mekhaniki tverdogo i deformiruemogo tela. Leningrad, Leningr. politekhn. in-t im. M.I.Kalinina. 1965 167 p. (MIRA 18:12)

YAGNAKOV, A.F., inzh.; PAVLOV, A.I., inzh.; TARANUKH, L.S., inzh.

Pilot plant testing of the auger boring method for mining coal at the No.1 "Begichevskaya" Mine of the Tula-ugol' Combine. Ugol' 39 no.10:25-30 O '64. (MIRA 17:12)

1. Podmoskovnyy nauchno-issledovatel'skiy i proyektno-konstruktorskiy ugol'nyy institut i Trest Kalininugol'.

YAGNICH, M.M.

TEYTEL', N.S.; YAGNICH, M.M.

Application of magnetic starters for electric motors used in agriculture. Sel'khozmashina no.12:25-27 D '53. (MLRA 6:12)
(Electric motors)

RESHETNIKOV, N.P.; PODUSOVSKAYA, M.V.; YAGNISHCHAK, I.V.

Practices in drilling wells 5000 m. deep in Ukrainian geological formations. Trudy UkrNIGRI no.7:75-85 '63.
(MIRA 19:1)

YANISHEVSKIY, Yuriy Dmitriyevich; KUZ'MIN, P.P., otv.red.; YAGNOGORODSKAYA, M.M., red.; FLAUM, M.Ya., tekhn.red.

[Actinometric instruments and methods of observation] Aktinometricheskie pribory i metody nabliudenii. Leningrad, Gidrometeor. izd-vo, 1957. 414 p. (MIRA 11:2)
(Actionometer) (Solar radiation)

YAGNOV, A.I., inzh.

Modernizing pipe lines of the DA-3 milking unit. Mekh. i elek. sots.sel'khoz. 17 no.3:44 '59. (MIRA 12:8)

1. Zavod im. Maslennikova.
(Milking machines)

NAZARENKO, V.A.; SHUSTOVA, M.B.; SHITAREVA, G.G.; YAGNYATINSKAYA, G.Ya.; RAVITSKAYA, R.V.

Determination of impurities in titanium. Zav.lab. 28 no.6: 645-648 '62. (MIRA 15:5)

1. Institut obshchey i neorganicheskoy khimii AN USSR.
(Titanium--Analysis)

L 38116-66 EWT(m)/EWP(t)/ETI IJP(c) JD/JG

ACC NR: AP6015723 (N) SOURCE CODE: UR/0032/66/032/005/0510/0512

AUTHOR: Yagnyatinskaya, G. Ya.; Nazarenko, V. A.

ORG: Institute of General and Inorganic Chemistry AN UkrSSR (Institut obshchey i neorganicheskoy khimii AN UkrSSR)

TITLE: Photometric determination of microamounts of niobium in titanium and titanium tetrachloride

SOURCE: Zavodskaya laboratoriya, v. 32, no. 5, 1966, 510-512

TOPIC TAGS: photometric analysis, niobium, titanium, titanium compound

ABSTRACT: The proposed method for determination of niobium in metallic titanium and titanium tetrachloride is based on separation by extraction with a solution of tribenzylamine in $CHCl_3$ from 11 M HCl and final determination photometrically using orthonitrophenylfluorone. The method makes it possible to determine down to 0.02 micrograms of niobium in 1 ml. The determination of niobium is not interfered with by the following other impurities (in micrograms/ml); Ta--0.4; Ti--4; Zr--8; Sn--2; Mo--2; W--1; Ga--4; Sb $>$ 40; Fe $>$ 300. With the use of extraction with an 8% solution of tribenzylamine in chloroform, a check using the radioactive isotope Nb^{95} showed that in a single extraction from 11 M

Card 1/2 UDC: 543.7

L 38116-66

ACC NR: AP6015723

hydrochloric acid, at a ratio of 100:25 between the aqueous and organic phases, 87% of the niobium went over into the organic phase. 0.1 M hydrochloric acid was a better extracting reagent. In a single extraction, with a phase ratio of 50:50, 94% of the niobium was extracted. Titanium was not extracted and its presence in the solution in the amount of more than 0.5 grams did not interfere with the extraction of niobium. Orig. art. has: 1 table.

SUB CODE: 07/ SUBM DATE: none/ ORIG REF: 003/ OTH REF: 001

Card 2/2

YAGNYATINSKAYA, R. Ya.

5(2) PHASE I BOOK EXPLOITATION SOV/1727

Akademiya nauk SSSR. Institut geokhimii i analiticheskoy khimii

Redkozemel'nyye elementy; polucheniye, analiz, primeneniye (Rare Earth Elements; Extraction, Analysis and Application) Moscow, Izd-vo AN SSSR, 1958. 331 p. 2,200 copies printed.

Resp. Ed.: D. I. Ryabchikov, Professor; Editorial Board: I. P. Alimarin, Corresponding Member, USSR Academy of Sciences, I. Z. Zaozerskiy, Doctor of Chemical Sciences, R. V. Koglyarov, Candidate of Technical Sciences, V. I. Kuznetsov, Doctor of Chemical Sciences, M. M. Senyavin, Candidate of Chemical Sciences, and Yu. S. Sklyarenko, Candidate of Chemical Sciences; Eds. of Publishing House: D. N. Trifonov and T. G. Levi; Tech. Ed.: S. G. Markovich.

PURPOSE: This book is intended for scientists, chemists, teachers and students of higher educational institutions, chemical and industrial engineers, and other persons concerned with the extraction, preparation, use, or study of rare earth elements.

COVERAGE: This collection contains reports presented at the June 1956 Conference on Rare Earth Elements at the Institute of Geochemistry and Analytical Chemistry imeni V. I. Vernadskiy of the Academy of Sciences USSR. The articles treat chemical methods of separating rare earth mixtures, methods of processing rare earth ores, ion exchange chromatography, chemical analysis, and some industrial applications of rare earths. Aside from contributing authors, the editors mention the following Soviet scientists, who are studying rare earth elements, rare earth deposits, extraction methods, and the preparation of oxides and salts: Martynov, Mel'nikov, Khrushchev, Malikov, Pisarzhevskiy, Chernyak, Tanatar, Belousov, Zhukov and especially, N. A. Orlov, who first obtained the majority of rare earth elements in the pure state, separated many complex molecular compounds of these elements, and determined their specific properties. References are given at the end of each article.

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(10)

RAYEVSKIY, V.G.; VOYUTSKIY, S.S.; YAGNYATINSKAYA, S.M.; SHTEYNBERG, Z.D.

Adhesive strength of rubber coatings on a textile carcass as dependent on the rate of casing in calendars. Kauch.i rez. 21 no.9:8-12 S '62. (MIRA 15:11)

1. Nauchno-issledovatel'skiy institut rezinovoy promyshlennosti.

(Rubberized fabrics)
(Adhesion)

ACCESSION NR: AR4040827 S/0058/64/000/005/E009/E010

SOURCE: Ref. zh. Fizika, Abs. 5E61

AUTHOR: Voyutskiy, S. S.; Rayevskiy, V. G.; Yagnyatinskaya, S. M.

TITLE: Influence of the physical state of polymers on their adhesion

CITED SOURCE: Sb. Vy*sokomolekul. soyedineniya. Adgeziya polimerov, M., AN SSSR, 1963, 128-133

TOPIC TAGS: polymer, adhesion, polyethylene, elastomer, diffusion theory

TRANSLATION: There is investigated with dependence of resistance to stratification P of compounds of polyethylene with elastomers of different chemical nature on the time of forming of a splice τ at room temperature and a temperature of fusing of polyethylene of 120°C. During preparation of the splice, elements of the compound were placed in contact after achievement of the given temperature. It is shown that with an increase of τ, adhesion is increased. Increase of tempera-

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ACCESSION NR: AR4040827

ture of splice forming to 120°C increases the adhesion 40 - 70-fold. At 120°C curves $P - \tau$ for all elastomers have the form $P = k\tau^{\alpha}$ (k and α — parameters). With increase of number of polar groups in elastomers, adhesion decreases and can attain practically zero values. The results are explained from the point of view of the diffusion theory of adhesion on the basis of the idea of local diffusion, introduced by the authors, explaining the formation of an adhesional bond between polar and nonpolar polymers.

SUB CODE: OC, GC ENCL: 00

Card 2/2

VOYUTSKIY, S.S.; RAYEVSKIY, V.G.; YAGNYATINSKAYA, S.M.

Adhesion between polymers as influenced by their physical state. Dokl. AN SSSR 150 no.6:1296-1299 Je '63. (MIRA 16:8)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii im. M.V. Lomonosova i Problemnaya laboratoriya pererabotki i modifikatsii polimerov Moskovskogo tekhnologicheskogo instituta myasnoy i molochnoy promyshlennosti. Predstavleno akademikom S.S.Medvedevym.
(Polymers) (Adhesion)

ACCESSION NR: AP4042339 S/0138/64/000/007/0016/0020

AUTHOR: Voyutskiy, S. S.; Rayevskiy, V. G.; Yagnyatinskaya, S. M.

TITLE: Role of adhesion in the elastomer reinforcement phenomenon

SOURCE: Kauchuk i rezina, no. 7, 1964, 16-20

TOPIC TAGS: elastomer, rubber, rubber reinforcement, filler, active filler, adhesion, adhesive joint, microscopic adhesive joint

ABSTRACT: It is hypothesized that mixtures of elastomers and active fillers consist of a great number of microscopic particles of the solid filler bonded with rubber (adhesive joints). An attempt is made to substantiate the hypothesis by the following considerations: 1) rubber can be reinforced only with fillers the strength and hardness of which are higher than those of the rubber; 2) carbon black reinforces only elastomeric (and not resinous) butadiene-styrene rubbers; 3) flocculation or adhesion of active filler particles resulting in the formation of a "carbon-black gel" plays an important role in the reinforcement of rubber; 4) phenomena of elastomer reinforcement and phenomena of adhesion or bonding follow identical laws,

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ACCESSION NR: AP4042339

and factors such as glue-line thickness, contact time, temperature, and vulcanization time which increase the strength of the microscopic adhesive joints increase the reinforcement of rubber and vice versa. The hypothesis on the adhesive nature of rubber reinforcement does not contradict either the chemical theory of reinforcement (because, in many instances, adhesion is caused by chemical reactions) or the theory that reinforcement is a result of the formation of filler particle chains (because two individual filler particles can be bonded by sections of one and the same polymer macromolecule). The electric conductivity of rubber mixes and vulcanizates containing certain blacks can be explained by the formation of point contacts between neighboring filler particles. Orig. art. has: 4 figures.

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii im. M. V. Lomonosova (Moscow Institute of Fine Chemical Technology)

SUBMITTED: 00 / ATD PRESS: 3054 ENCL: 00

SUB CODE: MT NO REF SOV: 013 OTHER: 016

Card 2/2

ACCESSION NR: AP4021969 S/0063/64/009/001/114/115

AUTHOR: Voyutskiy, S. S.; Rayevskiy, V. G.; Yagnyatinskaya, S. M.

TITLE: The role of adhesion in the reinforcement phenomena of elastomers.

SOURCE: Vsesoyuznoye khimicheskoye obshchestvo. Zhurnal, v. 9, no. 1, 1964, 114-115

TOPIC TAGS: elastomer, reinforcement, rubber, adhesion, reinforcement mechanism, filled resin, active filler, filler adhesion, resin strength, particle size

ABSTRACT: Experimental data and observations from the literature are offered to substantiate the belief that the reinforcement of elastomers filled with active fillers is directly associated with adhesion of the particles. Measurements show a linear function between the coefficient of reinforcement of rubbers and their resistance to lamination from glass of unmodified and modified (dimethyldichlorosilane, vinyltrichlorosilane and allyltrichlorosilane) SKB and SKN-40. The adhesive strength of polymeric adhesives increases as thickness decreases, to a limit, after which the strength decreases. The same relationship exists in reinforcing resin with filler, where the strength of the resin increases as filler

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ACCESSION NR: AP4021969

content increases (thickness of resin layer between particles decreases), to a limit, and with overloading the filled resin strength decreases. Decreasing particle size, to a limit approaching molecular dimensions, also increases reinforcement of the resin. Adhesion of polymers increases with prolonged contact with the substrate and with increased temperature. The addition of filled resin and preheating of the fillers are known to strengthen the resin. The strength of adhesion increases with vulcanization time and goes through a maximum. The same relationship in the change of filled resin strength is observed by increasing the extent of vulcanization. It is concluded that the adhesive approach does not contradict present theories on reinforcement, and in fact, partially explains the reinforcement phenomenon. The average distance between particles in filled reinforced resins is considered to be not more than 200Å, with the elastomer macromolecule connecting the surfaces of several particles. Orig. art. has: 2 figures.

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii M. V. Lomonosova (Moscow Institute of Fine Chemical Technology)

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ACCESSION NR: AP4021969

SUBMITTED: 29Oct63 DATE ACQ: 08Apr64 ENCL: 00

SUB CODE: PH, MA NO REF SOV: 003 OTHER: 005

Card 3/3

VOYUTSKIY, S.S.; YAGNYATINSKAYA, S.M.; FRUNKIN, L.S.; YEPISEYEVA, S.N.; RAYEVSKIY, V.G.

Method for determining polymer adhesion to powdered fillers. Zav. lab. 30 no.10:1222-1223 '64. (MIRA 18:4)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni Lomonosova.

L 12018-65 EWT(m)/EPF(c)/EWP(j)/T Pc-4/Pr-4 ASD(m)-3 RM
ACCESSION NR: AP4046467 S/0032/64/030/010/1222/1224

AUTHOR: Voyutskiy, S. S.; Yagnyatinskaya, S. M.; Frumkin, L. S.; Yepiseyeva, S. N.; Rayevskiy, V. G.

TITLE: Method for determining the adhesion of polymers to powder fillers

SOURCE: Zavodskaya laboratoriya, v. 30, no. 10, 1964, 1222-1224

TOPIC TAGS: adhesion, polymer, filler, powder filler, sodium butadiene rubber, nitrite rubber, chalk, chemical black

ABSTRACT: A new method has been developed for determining the adhesion of polymers to any powder filler. The method is based on the use of substrates prepared from mixtures of various amounts of a powder filler with a binder. The surface of the substrate must be mechanically pretreated and cleaned to ensure close contact between the filler particles and the polymer. The adhesion of the polymer to the pure filler was determined by graphic extrapolation of experimental curves of adhesion values versus binder/filler ratio to a zero binder content. The results of experiments conducted with: 1) sodium buta-

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L 12015-65
ACCESSION NR: AP4046467

diene (CKB-35) rubber as the polymer and mixtures of poly(vinyl alcohol) (binder) and chalk (inactive filler) as the substrate, and 2) with nitrile (CKN-40) rubber as the polymer and mixtures of poly(vinyl alcohol) (binder) and chemical black (active filler) as the substrate are given in Figs. 1 and 2 of the Enclosure. The dotted lines are the curve sections extrapolated to a zero binder content. Their intersections with the ordinate indicate the adhesion of the polymer to the pure filler. Orig. art. has: 2 figures.

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii im. M. V. Lomonosova (Institute of Fine Chemical Technology)

SUBMITTED: 00 ENCL: 02 SUB CODE: GC

NO REF SOV: 003 OTHER: 004 ATD PRESS: 3124

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L 12015-65
ACCESSION NR: AP4046467

ENCLOSURE: 01

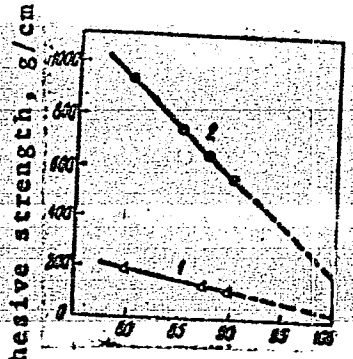

Fig. 1. Adhesive strength of CKB-35 to substrate depending on its chalk content

1 and 2 - adhesive joints prepared at 20 and 70C, respectively.

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L 12015-65
ACCESSION NR: AP4046467

ENCLOSURE: 02

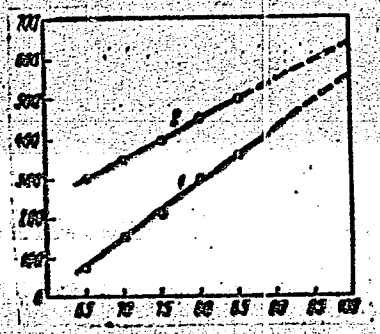

Fig. 2. Adhesive strength of CKN-40 to substrate depending on its carbon black content

1 and 2 - adhesive joints prepared at 20 and 70C, respectively.

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L 1447-66 EWT(m)/EPF(c)/EWP(j) RM

ACCESSION NR: AP5022591 UR/0190/65/007/009/1504/1509
678.01:53

AUTHOR: Rayevskiy, V. G.; Yagnyatinskaya, S. M.; Yepiseyeva, B. N.; Voyutskiy, S. S.

TITLE: Tear resistance of filled rubber mixtures and adhesion of elastomers to fillers as a function of elastomer-filler contact time and temperature

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 7, no. 9, 1965, 1504-1509

TOPIC TAGS: filler, elastomer, adhesion, adhesion strength

ABSTRACT: A comparative study has been made of the effect of the molding time and temperature of filled elastomers on their tear resistance, and of the effect of compression time and temperature on elastomer-to-filler adhesion, which was determined by a method developed by the authors (S. S. Voyutskiy, et. al. Zavodsk. lab. 1964, no. 10, 1222). The experiments were conducted with nitrile (SKN-40) and sodium butadiene (SKB-35) rubbers, and such fillers as chalk or channel black. It was shown that there exists a correlation between tear resistance and elastomer-to-filler adhesion. This correlation has confirmed the authors' idea that the tear

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L 1447-66

ACCESSION NR: AP5022591

6

resistance of filled systems is determined by elastomer-to-filler adhesion strength. Orig. art. has: 7 figures. [BO]

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ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii im. M. V. Lomonosova (Moscow Institute of Fine Chemical Technology); Moskovskiy tekhnologicheskiy institut myasnoy i molochnoy promyshlennosti (Moscow Technological Institute of the Meat and Dairy Industry)

44,55

SUBMITTED: 19Sep64 ENCL: 00 SUB CODE: MT

NO REF SOV: 006 OTHER: 001 ATD PRESS: 4097

Card 2/2

L 1721-66 EWT(m)/EPF(c)/EWP(j). RM

ACCESSION NR: AP5022592 UR/0190/65/007/009/1510/1514
678.01:53

AUTHOR: Yagnyatinskaya, S. M.; Rayevskiy, V. G.; Frumkin, L. S.; Voyutskiy, S. S.

TITLE: Effect of vulcanization on the tear resistance of filled rubber mixtures and on elastomer-to-filler adhesion

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 7, no. 9, 1965, 1510-1514

TOPIC TAGS: filler, elastomer, vulcanizate, adhesion, adhesion strength, vulcanizate strength

ABSTRACT: A study has been made of the effect of vulcanization on the tear resistance of filled elastomers and on the elastomer-to-filler adhesion strength. The experiments were conducted with sodium butadiene (SKB-35), butadiene-methylstyrene (SKMS-30) and nitrile (SKN-40) rubbers, and with such fillers as chalk, channel black, or furnace black. A comparison was made of the effect of structure formation in the course of vulcanization on elastomer-to-filler adhesion with this effect on the tear resistance of filled and unfilled elastomers. It was shown that the elastomer-to-filler band strength is one of the factors which determine the strength of filled elastomers. It is stressed, therefore, that improvement of elastomer-to-filler ad-

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L 1721-66

ACCESSION NR: AP5022592

6

hesion should be given greater weight as a means of increasing the strength of filled vulcanizates. Orig. art. has: 5 figures. [BO]

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ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii im. M. V. Lomonosova (Moscow Institute of Fine Chemical Technology); Moskovskiy tekhnologicheskiy institut myasnoy i molochnoy promyshlennosti (Moscow Institute of the Meat and Dairy Industry)

4456

SUBMITTED: 19Sep64 ENCL: 00 SUB CODE: MT

NO REF SOV: 009 OTHER: 001 ATD PRESS: 4096

Card 2/2

L 41187-66 EWT(m)/T/EWP(v)/EWP(j) IJP(c) WW/RM/JWD

ACC NR: AP6023431 SOURCE CODE: UR/0190/66/008/007/1247/1251

AUTHOR: Korenevskaya, N. S.; Lavrent'yev, V. V.; Yagnyatinskaya, S. M.; Rayevskiy, V. G.; Voyutskiy, S. S.

ORG: 2nd Moscow State Medical Institute (2-y Moskovskiy gosudarstvennyy meditsinskiy institut); Moscow Institute of Fine Chemical Technology im. M. V. Lomonosov (Moskovskiy institut tonkoy khimicheskoy tekhnologii)

TITLE: Effect of degree of contact on the strength of adhesive bonds between an elastomer and a solid substrate

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 8, no. 7, 1966, 1247-1251

TOPIC TAGS: elastomer, adhesive bonding

ABSTRACT: An optical method was used to study the effect of the conditions under which elastomer - solid substrate and elastomer - elastomer adhesive bonds are formed on the strength of the bonds and the degree of the contact between adhesive and substrate. The adhesive employed was SKN-40 butadiene-acrylonitrile copolymer, and the substrate was a polished part of a paste prepared from a mixture of channel-black powder and polyvinyl alcohol binder. The optical instrument used for determining the area of actual contact is described. The effect of pressure and duration of the contact on the extent of the adhesive - substrate contact was determined. It is shown that in both types of adhesive bonds studied, the increase of adhesive strength with

Card 1/2 UDC: 678.01.53

L 43157-66

ACC NR: AP6023431

the observation time continues even after the equilibrium value of the degree of contact has been established. It is postulated that the discrepancies observed between the course of the kinetic relationships and the strength of the self-adhesive elastomer - elastomer bond is due to volume diffusion processes, and in the case of the adhesive elastomer - solid substrate bond, to microrheological processes and surface diffusion. Authors thank V. F. Mal'tsev for carrying out a part of the work at the colloid chemistry department of MITKhT im. M. V. Lomonosov. Orig. art. has: 5 figures.

SUB CODE: 11/ SUBM DATE: 23Jun65/ ORIG REF: 007/ OTH REF: 001

Card 2/2

L 07881-67 EWT(m)/EWP(j) IJP(c) RM

ACC NR: AP6031155 SOURCE CODE: UR/0190/66/008/009/1493/1500

37
36
B

AUTHOR: Rayevskiy, V. G.; Yagnyatinskaya, S. M.; Voyutskiy, S. S.

ORG: Moscow Institute of Fine Chemical Technology im. M. V. Lomonosov (Moskovskiy institut khimicheskoy tekhnologii); Moscow Technological Institute of the Meat and Dairy Industry (Moskovskiy tekhnologicheskiy institut myasnoy i molochnoy promyshlennosti)

TITLE: Adhesion of elastomers to powder fillers and reinforcement of filled systems. Third report from the series Reinforcement of Polymers

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 8, no. 9, 1966, 1493-1500

TOPIC TAGS: adhesion, elastomer, powder filler, polymer, polyisobutylene, polymer reinforcement

ABSTRACT: The effect was studied of various additives, which change the adhesion of SKN-40 rubber to chalk, on the strength of chalk-filled vulcanization of SKN-40. It was found that there is a linear correlation between adhesion and the reinforcement of vulcanized rubber according to rupture and tearing. The

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L 07881-67

ACC NR: AP6031155

effect of the molecular weight of the elastomer on the tear of polyisobutylene and butyl rubber samples and their mixtures with DG-100 carbon black was analyzed. There is a good correlation between the reinforcement and adhesion to carbon black of polyisobutylenes of different molecular weight. The dependences confirm the assumptions that the adhesion of elastomers to the particle surface of the filler determines the effect of the rubber reinforcement. Orig. art. has: 7 figures and 1 table. [Based on authors' abstract]

SUB CODE: 11/ SUBM DATE: 05Jun65/ ORIG REF: 008/ OTH REF: 003/

Card 2/2 bc

YAGNYATINSKAYA, Yevgeniya Grigor'yevna

Laboratory Diagnosis of scarletina by the method of precipitation.

Dissertation for candidate of a Medical Science Degree
Chair of Nursery Infectious Diseases (head prof. I.V. Rubin) Saratov Medical Institute, 1948.

YAGNYATINSKAYA, Ye. G.

YAGNYATINSKAYA, Ye.G.

Laboratory diagnosis of dysentery. Pediatriia no.8:78-79 Ag '57.
(MIRA 10:12)

1. Iz 5-y detskoy infektsionnoy bol'nitsy Saratova.
(DYSENTERY)

SOV/16-59-9-5/47

17(2,12)

AUTHOR: Yagnyatinskaya, Ye.G.

TITLE: The Toxigenicity of Corynebacterium Diphtheria Strains Isolated From Patients and Carriers

PERIODICAL: Zhurnal mikrobiologii, epidemiologii i immunobiologii, 1959, Nr 9, pp 23-25 (USSR)

ABSTRACT: M.P. Gluzman held the opinion that the toxigenic properties of Corynebacterium diphtheriae determine its virulency. A.S. Krutkova, V.S. Suslova, N.I. Volovich, M.M. Lelkina, A.P. Marisova and others consider the method of cultivating the diphtheria strains on solid nutrient media to be just as effective and sensitive as the method in vivo cultivation. Subject author reports on his use of the solid media method in the laboratory of the V detskaya infektsionnaya bol'nitsa Saratova (V Hospital of Children's Infectious Diseases) in Saratov. The toxigenic properties of 416 pure diphtherial strains were tested in parallel experiments in guinea pigs and on 3% Martin agar. The results coincided in 89% of the cases. Toxigenic strains were isolated in 200 of the 247 patients with diphtheria and in carriers toxigenic strains were isolated in 55.8%. In nidi of diphtheria, toxigenic strains were

Card 1/2

The Toxigenicity of Corynebacterium Diphtheria Strains Isolated From Patients and Carriers

isolated twice as often as outside the nidi. The tests showed that it is quite feasible to use mixed bacterial cultures for the rapid determination of Corynebacterium diphtheriae.
There are: 1 table and 9 references, 6 of which are Soviet, 2 English and 1 Scandinavian.

ASSOCIATION: 5-aya infektsionnaya detskaya bol'nitsa, Saratov (Nr 5 Hospital of Children's Infectious Diseases, Saratov)

SUBMITTED: January 16, 1959

YAGNYATINSKIY, S.O.; MUSIN, M.M.; KRAVTSOV, V.S., vedushchiy redaktor; DUGINA, N.A., tekhnicheskiy redaktor.

[Automatic lines for grinding bearing parts] Avtomaticheskie linii dlia shlifovaniia detalei podshipnikov. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1954. 31 p. (MIRA 8:1)
(Grinding and polishing) (Roller bearings)

YAGNYATINSKIY, S. O.

USSR/Miscellaneous - Industrial Processes

Card 1/1

Authors : Yagnyatinskiy, S. O., and Musin, M. M.

Title : Automatic conveyer production system composed of universal centerless grinding machines

Periodical : Stan. i Instr., No. 5, 1 - 4, May 1954

Abstract : Brief description is given of automatic conveyer production systems used for grinding bearing components. The systems are made up of universal centerless grinding machines. This system can be successfully adopted in factories having analogous equipment, regardless of the configuration of the parts machined. Drawings, illustrations.

Institution : ...

Submitted : ...

KULIK, M., starshiy nauchnyy sotrudnik; YAGNYATINSKIY, V., mladshiy nauchnyy sotrudnik

Use electric fences. Nauka i pered. op. v sel'khoz. 8 no.4:27-29 Ap '58. (MIRA 11:5)
(Electric fences)

YAGNYSHEV, V., gornyy inzhener.

Noise mufflers. Mast.ugl. 2 no.10:20-21 O '53. (MLRA 6:10)
(Coal-mining machinery) (Noise)

BURTSEV, I. F., inzh.; YAGNYSHEV, V. T., inzh.

The KN-3 coal-cutting combine. Mekh.i avtom.proizv.18 no. 5: 41 My '64. (MIRA 17:5)

VECHER, N.A., inzh.; GERMAIDZE, G. Ye., inzh.; PANFILOV, M.I., dotsent; KHIL'KO, M.M., inzh.; MERSHCHIY, N.P., inzh.; ALFEROV, K.S.., inzh.; ANTONOV, S.P.; DIKSHTEYN, Ye.I.; YAGNYUK, M.I.; BELIKOV, K.N.; GONCHAREYSKIY, Ya.A.; TRIFONOV, A.G.; SEDACH, G.A.

"Open-hearth plants with large-capacity furnaces" by D.A. Smoliarenko, N.I. Efanova. Reviewed by N.A. Vecher and others. Stal' 21 no.2:125-126 F '61. (MIRA 14:3)

1. Sverdlovskiy sovet narodnogo khozyaystva (for Vecher, Germaidze, Panfilov).

(Open-hearth furnace—Design and construction)
(Smoliarenko, D.A.) (Efanova, N.I.)

OVECHKIS, Ye.S., kand.tekhn.nauk; SHIFMAN, R.O., inzh.; YAGODA, L.A., inzh.

Analyzing the chemical composition of leather by the separate topographical sections. Nauch.-issl.trudy Ukr NIIKP no.13:222-236 '62. (MIRA 18:2)

OVECHKIS, Ye.S.; YAGODA, L.Ya.; SVISHCHEVA, E.I.

Method for determining the strength of leather for shoe uppers, lining, and accessories. Kozh.-obuv. prom. 7 no.1:20-23 Ja '65.
(MIRA 18:3)

BOUCHEK, Ya.; BURESH, E.; YAGODA, M.

Sensitometry of color multilayer materials. Zhur.nauch.i prikl.fot. i kin. 10 no.3:161-169 My-Je '65. (MIRA 18:11)

1. Kinofakul'tet Akademii iskusstv Chekhoslovatskoy SSR (AMU) i Nauchno-issledovatel'skiy institut tekhniki zvuka i izobrazheniya (VUZORT).

IL'YASOV, Ye.P.; ALEKSEYEV, M.V.; YAGODENKO, V.V.

Investigating and cementing circulation-loss and water-bearing horizons using a hydromechanical packer designed by the Tatar Oil Well Drilling Trust. Burenie no.4:20-24 '65. (MIRA 18:5)

1. Gosudarstvennyy trest po neftepurovym rabotam Tatarskoy ASSR.

MAKSIMOV, V. A.; KOSTYLEV, A. D.; GURKOV, K. S.; VOLOD'KO, K. P.; YUSHCHENKO, A. I.; SEDYSHEV, V. F.; KOLESNIKOV, A. T. YAGODIN, A. I.; PONOMARENKO, Yu. F.; FOLKOV, A. N.; BELAK, N. A.

BPM-1 vibrating drill and loader. Gor. zhur. no.10:53-56 O '62. (MIRA 15:10)

(Mining machinery)

STANISHEVSKIY, A.S.; RUDENKO, A.P.; YAGODIN, A.N.

Methods for calculating a heavy drill-stem bottom. Trudy VITR no.3:39-69 '61. (MIRA 15:7)
(Boring machinery)

YAGODIN, B.A.

Effect of trace elements on the germination and growth of certain plants. Biul.Glav.bot. sada no.39:83-86 '60. (MIRA 14:5)

1. Botanicheskiy sad Penzenskogo gosudarstvennogo pedagogicheskogo instituta imeni V. G. Velinskogo.
(Field crops—Fertilizers and manures)
(Trace elements)

YAGODIN, B.A.

Effect of manganese, cobalt, and zinc on the intesity of photosynthesis and chlorophyll accumulation in the leaves of tomatoes and cabbage. Nauch. dokl. vys. shkoly; biol. nauki no.4:146-151 '63 (MIRA 16:11)

1. Rekomendovana kafedroy botaniki Moskovskogo oblastnogo pedagogicheskogo instituta.

YAGODIN, G.A.

7

[illegible] coefficient in the liquid [illegible]

C_2H_6, and CH_4 was detd. with the [illegible] and final vols. and the tion for the ratio of the initial and final vol. The app. used by increased concn. in the final vol. Devyatykh and Zorin (C.A. 50, 16233b) was used in the detn. The gases were purified by low-temp. rectification with 80 theoretical plates. The results [illegible] that the partition coeffs. are strongly affected by temp.: (log $P_{C_4H_6}$/$P_{C_3H_8}$) = 0.00127 − (0.0316/T); log $P_{C_4H_6}$/$P_{C_2H_6}$ = (0.03985/T) − 0.00213; and log $P_{C_2H_6}$/P_{CH_4} = [illegible] reached

[illegible] Carbon - Isotopes)

YAGODIN, G. A.

YAGODIN, G. A. -- "Investigation of the Isotope Composition of Equilibrium Phases in the Distillation of Ethylene, Ethane, and Methane." Min Higher Education USSR. Moscow Order of Lenin Chemicotechnological Inst imeni D. I. Mendeleyev. Order of Labor Red Banner Physicochemical Inst imeni L. Ya. Karpov. Moscow, 1955. (Dissertation for the Degree of Candidate of Chemical Sciences.)

SO: Knizhnaya letopis', No. 4, Moscow, 1956

S/078/60/005/009/005/017
B015/B064

AUTHORS: Yagodin, G. A., Tarasov, V. I.

TITLE: Thermal Stability of Potassium Fluozirconate

PERIODICAL: Zhurnal neorganicheskoy khimii, 1960, Vol. 5, No. 9, pp. 1987-1992

TEXT: The thermal stability of potassium fluozirconate was thermogravimetrically examined as well as by X-ray structural analysis, and by methods of optical crystal examination. The first-mentioned analyses were carried out with the Kurnakov pyrometer, the second on thermally pre-treated samples in different gas media (Fig. 5). A. A. Mayer carried out the optical crystal examination. Heating of potassium fluozirconate entails a number of conversions. Five endothermal effects occur when heating up to 1000°C. The effects at 285-330°C characterize the process of reversible distortions of the crystal lattice and lead to a reduction of the crystals. The effect at 465°C is due to the reversible decomposition in potassium fluoride and zirconium tetrafluoride, whereas at approximately 600°C melting and formation of a mixture takes place. This depends on the heating

conditions, since the composition of the melt changes due to zirconium volatility. Annealing of potassium fluozirconate in undried air during four hours over 600°C (Table) leads to the formation of zirconium dioxide. Annealing at 800°C in dried argon or hydrogen does not change the properties of potassium fluozirconate. V. A. Plotnikov and Ye. B. Gitman are mentioned in the paper. There are 5 figures, 1 table, and 7 references: 3 Soviet, 1 German, 1 French, and 2 US.

SUBMITTED: March 7, 1960

SOV/78-3-8-42/48

AUTHORS: Yagodin, G. A., Fomin, G. S., Nisel'son, L. A.

TITLE: The Determination of the Relative Volatility of the Products of the Interaction Between $ZrCl_4$, $HfCl_4$, and $POCl_3$ (Opredeleniye otnositelnoy letuchesti produktov vzaimodeystviya $ZrCl_4$ i $HfCl_4$ s $POCl_3$)

PERIODICAL: Zhurnal neorganicheskoy khimii, 1958, Vol. 3, Nr 8, pp. 1971-1972 (USSR)

ABSTRACT: In the present study the amount of the relative volatility of the products of the interaction between $ZrCl_4$ and $HfCl_4$ with $POCl_3$ was determined by means of a re-circulating apparatus. The hafnium content in the samples was determined by radioactive Hf^{181}. The basic materials were purified by means of the sublimation method. The hafnium content in the basic material HfO_2 amounts to 0,8 per cent.
The relative volatility (α) of the materials investigated amounts to 1,160 ± 0,005 at the pressure of one atmosphere.
There are 1 figure, 1 table, and 3 references, 1 of which is

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SOV/78-3-8-42/48

The Determination of the Relative Volatility of the Products of the Interaction Between $ZrCl_4$, $HfCl_4$, and $POCl_3$

Soviet.

ASSOCIATION: Moskovskiy khimiko-tekhnologicheskiy institut im. D. I. Mendeleyeva (Chemical-Technological Institute imeni D. I. Mendeleyev, Moscow) Moskovskiy institut tsvetnykh metallov i zolota im. M. I. Kalinina (Institute for Non-Ferrous Metals and Gold imeni M. I. Kalinin, Moscow)

SUBMITTED: December 12, 1957

Card 2/2

YAGODIN, G.A.; MOSTOVAYA, O.A.; CHEKMAREV, A.M.

Separating hafnium and zirconium by extracting their nitrates with the diisoamul ester of methylphosphonic acid. Izv.vys.ucheb.zav.; khim.i khim tekh. 3 no.1:135-137 '60. (MIRA 13:6)

1. Kafedra tekhnologii radioaktivnykh, redkikh i rasseyannykh elementov Moskovskogo khimiko-tekhnologicheskogo instituta imeni D.I. Mendeleyeva.

(Hafnium)
(Zirconium)
(Chemical tests and reagents)

~~5699~~ 69035

S/078/60/005/05/10/037
B004/B016

21.1320
5.2200

AUTHORS: Yegorov, G. F., Fomin, V. V., Frolov, Yu. G., Yagodin, G. A.

TITLE: Solvate Forms of Zirconium- and Hafnium Nitrates With Tributyl Phosphate

PERIODICAL: Zhurnal neorganicheskoy khimii, 1960, Vol. 5, No. 5, pp. 1044-1050

TEXT: In the introduction, the authors mention in brief the problems dealt with: preparation of zirconium with a minimum hafnium content, investigation of the mechanism of the $(C_4H_9O)_3PO$ (TBP) extraction, investigation of the solvate form. Next, they describe the purification of the reagents. The partition coefficients of Zr and Hf were determined by means of Zr^{95} and Hf^{181}. The resultant Nb^{95} was separated from Zr^{95} by means of MnO_2. The extractions were carried out at 20° and at a zirconium- and hafnium concentration of 10^{-5} moles/l. First of all, the extraction of nitric acid by tributyl phosphate (TBP) at different acidity and concentration of the NO_3^-

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~~65935~~ 69535

Solvate Forms of Zirconium- and Hafnium Nitrates With Tributyl Phosphate

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B004/B016

ions was investigated. In this connection, the authors refer to papers by A. S. Solovkin (Ref. 2), A. M. Rozen (Ref. 6), V. V. Fomin, and Ye. P. Mayorova (Refs. 3,4,7). The existence of the complexes $TBP.HNO_3$ and $TBP.2HNO_3$ assumed by the last-mentioned authors in Ref. 7, and the values of their instability constants (0.22 and 0.00044) were confirmed experimentally (Table 1). Xylene was used as the solvent for TBP. The dependence of the nitric-acid extraction on the concentration of hydrogen ions and in the presence of $NaNO_3$, NH_4NO_3, $LiNO_3$ or $Mg(NO_3)_2$ is shown in table 2. The mechanism assumed of HNO_3 extraction holds in a wide range also in the presence of an excess of NO_3^- ions. It is proved for the extraction of Zr and Hf that the partition coefficients α are proportional to the concentration of free TBP in the organic phase. The number of solvating TBP molecules was determined from the dependence of $\log\alpha$ on $\log(TBP)_{org}$. Experimental data for zirconium are presented in table 3, for hafnium in table 4. It resulted that partition coefficients of Zr and Hf increased with increasing TBP con-

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Solvate Forms of Zirconium- and Hafnium Nitrates With Tributyl Phosphate

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S/078/60/005/05/10/037
B004/B016

centration in the organic phase. On the basis of the diagram log α, log(TBP) (Fig. 1), the formation of the solvate $Me(NO_3)_4 \cdot TBP$ results, for low TBP concentrations and the solvate $Me(NO_3)_4 \cdot 2TBP$ for higher TBP concentrations. At HNO_3 concentrations of 5 moles/l the formation of more complicated complexes is assumed, which, however, was not further investigated. Figs. 2,3 depict the dependence of the partition coefficients of Zr and Hf on the hydrogen-ion concentration and the concentration of the added nitrates. The α-values decrease with decreasing hydrogen-ion concentration. This decrease, however, depends on the type of the added nitrate. In the presence of NH_4^+ and Na^+, bivalent ions, ZrO^{2+}, or $Zr(OH)_2^{2+}$ are dissolved. The deviation of the dependence of α from linearity in the presence of Li^+ and Mg^{2+} is explained by a stronger hydration of these ions. There are 3 figures, 4 tables, and 7 references, 6 of which are Soviet.

SUBMITTED: February 4, 1959

Card 3/3

85445
S/080/60/033/011/002/014
A003/A001

5.2200 1273, 1087, 1228

AUTHORS: Yagodin, G. A., Mostovaya, O. A.

TITLE: Extraction of Zirconium and Hafnium From Nitrate and Sulfate Solutions by the Diisoamyl Ester of the Methylphosphonic Acid

PERIODICAL: Zhurnal prikladnoy khimii, 1960, Vol. 33, No. 11, pp. 2459-2466

TEXT: The extraction methods used for separating zirconium and hafnium are very promising. In the experiments diisoamyl ester of the methylphosphonic acid was used. Chemically pure zirconium nitrate and sulfate solutions containing 1.8% hafnium, nitric and sulfuric acids of the grade "chemically pure for analysis" were also employed. The distribution of hafnium was determined with the aid of radioactive Hf^{181} with a half-life of 40 days, in some cases the distribution of zirconium was determined by radioactive Zr^{95} with a half-life of 65 days. It was shown that the distribution coefficient of zirconium and hafnium is higher than in the case of using tributylphosphate. The extraction capacity of the diisoamyl ester of methylphosphonic acid in dependence on its concentration in xylene was studied. It was shown that already the 80%-ester extracts zirconium and hafnium completely from a nitrate solution with a content of 5 g/l based on metal and 6.7

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S/080/60/033/011/002/014
A003/A001

Extraction of Zirconium and Hafnium From Nitrate and Sulfate Solutions by the Diisoamyl Ester of the Methylphosphonic Acid

mole based on the nitric acid. The separation of zirconium and hafnium from sulfate media using extraction with solutions of the diisoamyl ester in benzene preliminarily saturated with HCNS was studied. The dependence of the HCNS quantity passing into the organic phase on the initial concentration of NH_4CNS is shown on Figure 6. The results show that at a concentration of HCNS in the organic phase of approximately 0.5 mole/l saturation begins. The molar ratio of the diisoamyl ester and HCNS at saturation is 0.79. With an increase in the concentration of the sulfuric acid to 2.5 mole/l in the aqueous phase a precipitate is formed, prussic acid is separated and the equilibrium acidity of the aqueous phase drops sharply. The experiments of separating zirconium and hafnium were carried out in a 10%-ester solution in benzene preliminarily saturated with HCNS. The phase ratio was 1:1, the content of NH_4CNS in the solution 2 mole. In the moment of contact between the ester solution and the solution of zirconium and hafnium sulfates mainly hafnium is extracted into the organic phase. The distribution coefficients decrease with an increase in the metal concentration. At a metal concentration of 20 g/l the coefficient of hafnium distribution is still high enough for practical purposes. The effect of the temperature on hafnium extraction

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A003/A001

Extraction of Zirconium and Hafnium From Nitrate and Sulfate Solutions by the Diisoamyl Ester of the Methylphosphonic Acid

was studied up to 60°C.

Temperature (in °C)	0	20	30	40	50	60
Concentration [H] in the organic phase (in mole/l)	0.51	0.49	0.51	0.50	0.51	0.51

The extraction of zirconium and hafnium in tributylphosphate is cited for comparison. It is shown that the coefficients of hafnium and zirconium separation and distribution are considerably lower for tributylphosphate than for diisoamyl ester. Even for 40%-tributylphosphate the results are lower than for 10%-diisoamyl ester.

Figure 6:

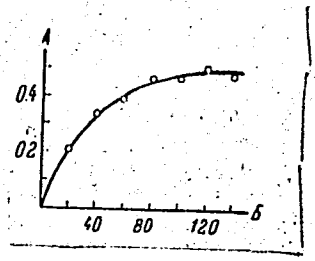

Figure 6: Dependence of the Quantity of HCNS Passing Into the Organic Phase on the Initial Concentration of NH_4CNS. The Initial Acidity is 2 m. H_2SO_4.
A - concentration (Hf) in the organic phase (in moles);
B - concentration (NH_4CNS) (in g/l).

There are 11 figures, 3 tables and 11 references: 6 Soviet, 3 English, 2 American.

SUBMITTED: April 4, 1960

Card 3/3

89662

S/149/61/000/002/008/017
A006/A001

5.2300

AUTHORS: Yagodin, G.A., Orlov, K.V.

TITLE: Investigating Zirconium and Hafnium Separation on Anion-Exchanging Resins

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Tsvetnaya metallurgiya, 1961, No. 2, pp. 92 - 96

TEXT: The use of anion-exchanging resins for separating zirconium and hafnium is of interest, since fluoro-zirconate solution may be directly used, which is a technical product of the fluoro-silicate method of zircon decomposition. There are several literature data available on the separation of zirconium and hafnium using Dowex-1 and amberlite IRA-400 resins (Ref. 1 - 5). The authors of the present article used domestic anion-exchanging resins such as НО(NO) ЭДЭ -10П (EDE-10P), ММГ -1 (MMG-1) АВ-16 (AV-16) and ТН (TN). The American IRA-400 resin was used as comparison element. V.V. Novikov participated in the experiments, which were conducted to determine the full exchange capacity of the aforementioned ion-exchanging resins in respect to ZrF_6^{2-} ions by the following method. A batch of 3 g dry resin of -0.25+0.15 mm grain size, was subjected to triple treatment

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S/149/61/000/002/008/017
A006/A001

Investigating Zirconium and Hafnium Separation on Anion-Exchanging Resins

during mixing 500 ml of K_2ZrF_6 solution saturated at 18°C. Each contact lasted 3 hours. K_2ZrF_6 concentration during the second and third contact was checked by the weight method and was equal to the initial concentration. The resin was then filtrated and washed until a negative reaction on fluoro-zirconate ions took place. The sorbed fluoro-zirconate ions were washed out of the resin with 2 n. sulfuric acid. Zirconium hydroxide was precipitated from the solution by ammonia, roasted to ZrO_2, and weighed. The full exchange capacity in respect to ZrF_6^{2-} per gram of dry resin (in sulfate form) was (in grams of ZrO_2): 0.074 for TN; 0.0093 for MMG-1; 0.142 for NO; 0.260 for AV-16; 0.262 for EDE-10P; 0.193 for IRA-400; and 0.149 for AN-9F. Zirconium and hafnium separation was investigated on columns of 45 m length and 1 cm diameter and 1.7 m length and 2.5cm diameter. The resins were preliminarily converted into sulfate form and washed up to pH=4.5. A certain amount of K_2ZrF_6 solution of 18.4 g/l concentration was passed through the column at a rate of 1 ml/cm^2 per minute. Subsequently the column was washed and 1 n. sulfuric acid was passed through it, at a rate of 1 ml/cm^2. The solution flowing out was divided into fractions. After completed washing-out of zirconium and hafnium the column was washed with 1.5 liters of distilled water to pH=4.5. The summary content of Zr and Hf in each fraction was determined by weight analysis

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S/149/61/000/002/008/017
A006/A001

Investigating Zirconium and Hafnium Separation on Anion-Exchanging Resins

on the ИСП -22 (ISP-22) spectrograph. Table 2 shows the results of one of the experiments, which was performed under the following conditions: resin weight 11.5 g; height of layer - 43 cm; amount of ZrO_2 equivalent to the sorbed amount of ZrF_6^{2-} - 0.448 g; content of HfO in ZrO_2 4%; desorbtion rate 1 ml/cm^2 per minute. It was found that all the anion-exchanging resins can be used to obtain partial separation of Zr and Hf during one cycle. EDE-10P resin was found to be the most effective one. During washing of sorbed ions with n. H_2SO_4 at a rate of 0.5 ml/cm^2 per minute, the hafnium content in the initial fraction was 30% with 52% yield of hafnium oxide; in the subsequent fractions zirconium oxide of high purity was obtained ($<$ 0.05% HfO_2). It was found that the order of washing Zr and Hf with sulfuric acid changed in the presence of KCl in the solution (Table 4). This is apparently connected with the formation of mixed fluoride-chloride Zr and Hf_2 complexes. When washing the sorbed ions with 0.5 n. H_2SO_4 at a rate of 0.5 ml/cm^2 per minute, the HfO_2 content in the last fraction was 40 - 50% with 60 - 90% yield. On the basis of results obtained the EDE-10P anion-exchanging resin can be recommended for the partial separation of Zr and Hf and for the relatively simple production of Zr-Hf concentrates with up to 50% HfO_2 content in relation to MeO_2.

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89662

S/149/61/000/002/008/017
A006/A001

Investigating Zirconium and Hafnium Separation on Anion-Exchanging Resins

Table 2:

Separation of zirconium and hafnium on EDE-10P resin during desorbtion with mono-normal sulfuric acid

Volume of fractions by the order of washing, ml	Amount of washed out MeO_2		HfO_2 content in MeO_2%	HfO_2 yield in % from sorbed on resin
	g	% from sorbed on resin		
50 - 130	0.0663	15	14	52
130 - 170	0.1271	20	1,5	7
210 - 410	0.1507	35	0,7	6

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S/149/61/000/002/008/017
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Investigating Zirconium and Hafnium Separation on Anion-Exchanging Resins

Table 4:

Dependence of full exchanging capacity of EDE-10P resin on the presence of KCl in the solution

K_2ZrF_6, g/l	KCl, g/l	Full exchanging capacity of 1 g dry resin (in grams of ZrO_2)
5,45	35	0,116
13,4	35	0,217
13,4	23	0,262
13,4	--	0,267

There are 5 tables and 5 references: 3 Soviet and 2 non-Soviet.

ASSOCIATIONS: Moskovskiy khimiko-tekhnologicheskiy institut (Moscow Chemico-Technological Institute). Kafedra tekhnologii redkikh elementov (Department of Technology of Rare Elements).

SUBMITTED: February 19, 1960

Card 5/5

S/828/62/000/000/001/017
E039/E420

AUTHORS: Kaplan, G.Ye., Yagodin, G.A., Moiseyev, S.D., Dmitriyeva, L.P., Mostovaya, O.A., Chekmarev, A.M., Sevost'yanova, E.N., Udovenko, V.F.

TITLE: The separation of zirconium and hafnium by means of organophosphorous compounds, amines and other extraction agents

SOURCE: Razdeleniye blizkikh po svoystvam redkikh metallov. Mezhvuz. konfer. po metodam razdel. blizkikh po svoyst. red. metallov. Moscow, Metallurgizdat, 1962, 28-41

TEXT: Although large separation coefficients can be obtained by the use of mixed nitric and hydrochloric acids the process is not favoured because of corrosion difficulties and the large quantity of acids required. The results of experiments on the extraction of these elements from a sulphuric acid medium in the presence of different extraction agents is therefore examined. It is shown that diisoamyl-ether-methylphosphonium acid $(i\,C_5H_{11}O)_2POCH_3$ (DAMPA) is a more powerful complex forming agent than

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The separation of zirconium ...

tributylphosphate (TBP). The separation and distribution coefficients for Zr and Hf are 24.6 and 3.2 respectively when using 10% DAMPA in H_2SO_4 solution in the presence of thio-cyanic acid, while for 40% TBP in the same medium the corresponding coefficients are 21.6 and 2.6. An increase in the concentration of TBP is undesirable as it leads to increased viscosity and a large loss of extraction agent. It should be noted however that the re-extraction of DAMPA is more difficult than for TBP. Diphenylphosphoric acid extracts Zr and Hf from H_2SO_4 solution with a separation coefficient 3 to 10. Other extraction agents of this type are also tested. Tests are also made on the use of tri-n-octylamine and in this case as the concentration of H_2SO_4 is increased the separation coefficient for Zr and Hf passes through a maximum value of 12 at about 1 normal H_2SO_4 and then falls to a steady value of about 10 for further increase in the H_2SO_4 concentration. Details are given of the constitution of the organic and aqueous phases and the effect of acidity on the separation coefficient. There are 11 figures and 3 tables.

Card 2/2

S/830/62/000/002/002/002
D214/D308

AUTHORS: Yagodin, G.A. and Chekmarev, A.M.

TITLE: The extraction of zirconium and hafnium by tri-n-octylamine from metal fluoride solutions

SOURCE: Ekstraktsiya; teoriya, primeneniye, apparatura, no. 2,. Ed. by A.P. Zefirov and M.M. Senyavin. Moscow, Gosatomizdat, 1962, 141 - 153

TEXT: The extraction of Zr and Hf from K_2MF_6 (where M = Zr, Hf) by a solution of pure tri-n-octylamine (TOA) in benzene is discussed. TOA will extract Zr and Hf only from weak acid solutions since more acid solutions tend to form $R_3N.HX$ (where X = HSO_4, Cl, NO_3). Highest values for the distribution coefficients, D_{Zr} and D_{Hf}, were obtained with 0.2 M H_2SO_4 while HNO_3 leads to the lowest D_M values. With H_2SO_4,

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The extraction of zirconium ...

$D_{Hf} > D_{Zr}$ but with HNO_3 Zr is preferentially extracted. The influence of additions was also studied. The values of D_M decrease as the concentration of the addition in the aqueous phase increases. With small additions of KCL of KF $D_{Hf} > D_{Zr}$ but at higher concentrations ($>$ 8g/l for KCl - $>$ 1% for KF) $D_{Zr} > D_{Hf}$. Addition of K_2SO_4 make $D_{Zr} > D_{Hf}$ but with NH_4NO_3 $D_{Hf} > D_{Zr}$. Extraction from K_2ZrF_6 (10 g/l) acidified with 0.2 M $(COOH)_2$ by 5% benzene solution of TOA gives $D_{Zr} = 47$ and $D_{Hf} = 10$. Both D values decrease as the molarity of the acid is decreased. The extraction mechanism is summarized by: $2(R_3NH)HSO_{4org.} + K_2ZrF_{6aq.} \rightleftharpoons (R_3NH)_2ZrF_{6org.} + 2KHSO_{4aq.}$. Evidence for this mechanism is discussed in detail.

There are 12 figures and 6 tables.

Card 2/2

ACCESSION NR: AR4015645 S/0081/63/000/022/0384/0384

SOURCE: RZh. Khimiya, Abs. 22L93

AUTHOR: Yagodin, G. A.; Pushkov, A. A.; Tarasov, V. V.

TITLE: Separation of zirconium and hafnium by extraction in a packed pulsating column

CITED SOURCE: Tr. Mos. khim.-tekhnol. in-ta im. D. I. Mendeleyeva, vy*p. 40, 1963, 142-144

TOPIC TAGS: zirconium, hafnium, chromatography, column chromatography, zirconium purification, pulsating column

TRANSLATION: A good degree of purification of Zr from Hf can be obtained by extraction with a 10% solution of diisoamylmethylphosphinate in kerosene on a packed pulsating column. N. Shiryayeva

DATE ACQ: 07Jan64 SUB CODE: CH ENCL: 00

Card 1/1

SINEGRIBOVA, O.A.; YAK DIN, G.A.

Hydrolysis of zirconium nitrate in diisoamyl ester of methylphosphinic acid. Trudy MKHTI no.43:32-35 '63.

Determination of the concentration of hydrogen ions and of anions in zirconium salt solutions. Ibid.:36-39 (MIRA 17:10)

L 17432-63 EPF(n)-2/EWP(q)/EWT(m)/BDS AFFTC/ASD/SSD Pu-4 WW/JD/JG

ACCESSION NR: AP3004353 S/0078/63/008/008/1973/1979

AUTHORS: Yagodin, G. A.; Kaplan, G. Ye.; Mostovaya, O. A.; Moiseyev, S. D.; Dmitriyeva, L. P. 68

TITLE: Effect of fluoride and chloride ions upon the extraction of zirconium and hafnium from nitrate solutions 21

SOURCE: Zhurnal neorganicheskoy khimii, v. 8, no. 8, 1963, 1973-1979

TOPIC TAGS: fluoride ion, chloride ion, zirconium, hafnium, nitrate solution, methyl phosphinic acid, tributyl phosphate

ABSTRACT: Authors studied the extraction of zirconium and hafnium from nitric acid solutions in the presence of fluoride and chloride ions. Zirconium concentration was determined gravimetrically. Hafnium concentration was determined radiometrically with Beta-radiation. The solvents used as extractants were tributylphosphate and di-iso-amyl ether of methyl phosphinic acid. It was shown that the addition of fluoride to a certain concentration increases the transfer of metal into the organic phase and then decreases it. It was also shown that ZrF^{3+} complex extracts best in the Zr : F : NO_3 ratio of 1 : 1 : 1. When extract-

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L 17432-63

ACCESSION NR: AP3004353

ing zirconium oxychloride from the saturated solutions in HCl with tributylphosphate and di-iso-amyl ether of methyl phosphinic acid the ratio of the extracted composition is Zr : Cl = 1 : 2. Extraction from mixed nitric-hydrochloric acid solutions is better than in the case of individual nitric or hydrochloric acid solutions. An analysis of the organic phase was performed to determine the composition of zirconium, chloride, nitrogen and hydrogen. The ratio between zirconium and the anions was 1 : 2. Apparently this is partially explained by the hydrolysis of zirconium at a low acid concentration (less than 4 N) in the organic phase. The hydrolyzed zirconium is in the form $ZrO(NO_3)_2$. Orig. art. has: 4 tables and 7 figures.

ASSOCIATION: none

SUBMITTED: 26May62 DATE ACQ: 21Aug63 ENCL: 00

SUB CODE: CH NO REF SOV: 005 OTHER: 001

Card 2/2

MOSTOVAYA, O.A.; MOMOT, T.V.; YAGODIN, G.A.

Distribution of water during the extraction of some acids and salts of zirconium. Zhur. neorg. khim. 9 no.5:1280-1284 My '64. (MIRA 17:9)

L 52561-65 EPF(c)/EPF(n)-2/EPR/EPA(s)-2/EWT(m)/EWP(b)/EWP(t) Pr-4/Ps-4/Pt-7/
Pu-4 IJP(c) WW/JW/JG/JD

ACCESSION NR: AT5012664 UR/2539/63/000/044/0035/0036

45
43
B+1

AUTHOR: Shchepochkin, B. V., Sazhin, N. P., Yagodin, G. A.

TITLE: Behavior of potassium fluorohafnate during heating

SOURCE: Moscow. Khimiko-tekhnologicheskiy institut. Trudy, no. 44, 1963. Issledovaniya v oblasti fizicheskoy khimii, analiticheskoy khimii i elektrokhimii (Research in the field of physical chemistry, analytical chemistry and electrochemistry), 35-36

TOPIC TAGS: potassium fluorohafnate, potassium fluorozirconate, fluorohafnate thermal property, fluorozirconate thermal property, Kurnakov pyrometer

ABSTRACT: The authors briefly review the studies on potassium fluorohafnates and their analogs, the potassium fluorozirconates, reported in the literature. The thermal behavior of the potassium fluorozirconates is a complex physicochemical process which involves changes in their crystal structure, peritectic processes, and changes in their state of aggregation. Certain differences in the determination of the melting points may be due to a variable composition of the phases obtained and to different heating rates due to the conversion of a part of the product to the gaseous phase. In this paper, data on fluorozirconates are compared with data on the corresponding fluorohafnates, which were studied by the differential thermal method with a PK-55 Kurnakov pyrometer. Endothermic effects

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L 52561-65

ACCESSION NR: AT5012664

2

were noted in the case of $KHfF_5 \cdot 0.75H_2O$ at 96, 340, 414, and 475C; the first effect corresponds to the loss of water, and the last to the fusion of the salt. It is concluded that water is bound mechanically in the $KHfF_5$ molecule. In the case of K_2HfF_6, five endothermic effects were observed at 235, 328, 424, 500, and 586C, the latter being the melting point. In the case of $K_3HfF_7 \cdot H_2O$, endothermic effects were observed at 116, 230, 430, and 900C; the first corresponds to the loss of water, and the last to the fusion of the salt. Orig. art. has: 1 formula.

ASSOCIATION: Moskovskiy khimiko-tekhnologicheskiy institut (Moscow Chemical Engineering Institute)

SUBMITTED: 00 ENCL: 00 SUB CODE: IC

NO REF SOV: 013 OTHER: 003

Card 2/2 mb

L 5206?-65 EWT(m)/EPF(n)-2/EWP(t)/EWP(b) Pu-4 IJP(c) JD/WW/JG
ACCESSION NR: AP5012975 UR/0078/65/010/005/1250/1253

20
B

AUTHOR: Sinegribova, O. A.; Yagodin, G. A.

TITLE: Mechanism of diisoamyl methylphosphinate extraction of hydrothiocyanic acid, zirconium thiocyanate and hafnium thiocyanate

SOURCE: Zhurnal neorganicheskoy khimii, v. 10, no. 5, 1965, 1250-1253

TOPIC TAGS: hydrothiocyanic acid, zirconium thiocyanate extraction, hafnium thiocyanate extraction, diisoamyl methylphosphinate

ABSTRACT: Using the method of saturation and a graphical method (extraction isotherms), the authors found that hydrothiocyanic acid HCNS is extracted by diisoamyl methylphosphinate (DAMP) via the following mechanism:

$$H^+ + CNS^- + DAMP \rightleftarrows HCNS \cdot DAMP,$$

the apparent equilibrium constant being equal to 18.2 ± 0.8. Extraction of zirconium sulfate and hafnium sulfate from sulfuric acid solutions containing ammonium thiocyanate showed that DAMP extracts the two metals in the form of the compound

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L 52063-65
ACCESSION NR: AP5012975

$Me(OH)_2(CNS)_2 \cdot 2$ DAMP. When the metal thiocyanate is extracted by DAMP saturated with hydrothiocyanic acid, the latter is not displaced from the organic phase. The authors postulate that HCNS and DAMP form a fairly stable solvate, and that two molecules of the latter in turn solvate a molecule of zirconium (hafnium) hydroxythiocyanate. The compound $Me(OH)_2(CNS)_2 \cdot 2(HCNS \cdot DAMP)$ is thus formed in the organic phase. Orig. art. has: 3 figures and 2 tables.

ASSOCIATION: none

SUBMITTED: 30Nov63 ENCL: 00 SUB CODE: IC, GC

NO REF SOV: 005 OTHER: 000

me
Card 2/2

SAZHIN, N.P.; SHCHEPOCHKIN, B.V.; YAGODIN, G.A.

Reaction of hafnium tetrafluoride with ammonium fluoride in an aqueous solution. Izv. AN SSSR. Ser. khim. no.7:1127-1130 '65. (MIRA 18:7)

1. Khimiko-tekhnologicheskiy institut im. D.I.Mendeleyeva.

L 40969-66 EWT(m)/EWP(t)/ETI IJP(c) JD

ACC NR: AP6024292 SOURCE CODE: UR/0075/66/021/007/0872/0874

AUTHOR: Sinegribova, O. A.; Yagodin, G. A.

ORG: D. I. Mendeleev Moscow Chemico-Technological Institute

TITLE: Determination of zirconium and hafnium concentration in solution by titration with a diethylamine solution

SOURCE: Zhurnal analiticheskoy khimii, v. 21, no. 7, 1966, 872-874

TOPIC TAGS: zirconium, hafnium, diethylamine, titrimetry, SOLUTION CONCENTRATION

ABSTRACT: A simplified method of determining the concentration of zirconium (or hafnium) in solution has been developed. It is based on the fact that diethylamine precipitates a hydroxide of constant composition from Zr (Hf) solutions, so that the total molar concentration of the anions in the solution of Zr (Hf) salt can be determined. The method also involves the determination of OH^- groups in Zr compounds. The molar concentration of Zr is determined by two titrations of the Zr salt with diethylamine: the first in the presence of excess KF, and the second in the absence of KF. The accuracy of the determination is ± 0.003 M. Orig. art. has: 1 table. [27]

SUB CODE: 07/ SUBM DATE: 08Sep65/ ORIG REF: 003 / ATD PRESS: 5055

Card 1/1 mlp UDC: 543.70

YAGODIN, G.A.; PUSHKOV, A.A.; TARASOV, V.V.

Separation of zirconium and hafnium by means of extraction in a pulsed packed tower. Trudy MKHTI no.40:142-144 '63. (MIRA 18:12)

YAGODIN, G.M.

2

621.311.4

865. **Urban indoor substations with deep entrance 110 kV lines.** E. A. BUGRINOV AND G. M. YAGODIN. *Elekt. Stantsii*, 1953, *No.* 6, 26–30. *In Russian.*

Reliable indoor substations 110/6–10 kV for up to 120 MVA and up to 26 outgoing double cables have been designed for the supply of the central areas of large towns. In the first of these stations, the 110 kV switchplant is arranged above the 6 kV switchplant in a 4-storey building of 21·2 m height and 12·8 m width. The transformers stand outdoors in the yard. Other buildings for control, transformer servicing, equipment store and the emergency oil pit bring the total area up to 3000 m² which is 10–15 times less than the area of existing outdoor stations of similar capacity. The architectural style is adapted to the surroundings.

F. BUSEMANN

Electrical Engineering Abst.
Vol. 57 No. 675
Mar. 1954
Electrical Engineering

YAGODIN, G.N.

124-11-13216

Translation from: Referativnyy Zhurnal, Mekhanika, 1957, Nr 11, p. 135 (USSR)

AUTHOR: Vyazemskiy, O. V., and Yagodin, G. N.

TITLE: On an Approximate Calculation Method for the Stability of Earthen and Concrete Hydrotechnical Structures on Circular-Cylindrical and Otherwise Arbitrarily Shaped Slippage Surfaces. (O priblizhennom metode rascheta ustoychivosti zemlyanykh i betonnykh gidrotekhnicheskikh sooruzheniy po kruglotsilindricheskim i inym proizvol'nym poverkhnostyam skol'zheniya)

PERIODICAL: Izv. Vses. n.i. in-ta gidrotekhn., 1957, Vol 57, pp 77-90

ABSTRACT: An analysis is shown of two methods of derivation of the forces in the calculation of the stability of rigid structures and earthen slopes on circular-cylindrical or other slippage surface: Terzaghi (wherein the direction of the forces of interaction between the soil sectors is directed along the tangent to a segment of a circular-cylindrical slippage surface) and Crea (wherein the direction of the interaction force between the soil sectors is horizontal), with preference given the Crea method. In connection therewith, the Authors have developed a proposition relative to the calculation of the coupling

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124-11-13216

On an Approximate Calculation Method for the Stability of Earthen and Concrete Hydrotechnical Structures on Circular-Cylindrical and Otherwise Arbitrarily Shaped Slippage Surfaces. (Continued)

force exerted within the soil. Also provided is a number of computational examples, and recommendations are made on certain practical aspects of the calculation for rigid structures as well as for earthen embankments.

(P. D. Yevdokimov)

Card 2/2

YAGODIN, G.V.

GERASIMOV, V.V., MILOVIDOV, I.N., YAGODIN, G.V.

"Fundamentals of Electrical Engineering" (Osnovy elektrotekhniki). Text-book for military schools and the officer component of communications troops, edited by G.V. Yagodin, 2d edition, revised. Voyennoye Izdatel'stvo, 464 pp., 1947.

I. Yagodin

Organizatsiya I Planirovaniye Denezhnogo Obrashcheniya V SSSR

(Organization and Planning of Circulation of Currency in the USSR, By)

V. M. Batyrev, G. Kaganov, I I. Yagodin.

Moskva, Gosfinizdat, 1955.

164 P. Tables.

YAGODIN, I. Ye.

State Bank tasks in organizing currency circulation among enterprises. (MLRA 9:9)
Den. i kred. 14 no.7:53-60 Jl '56.
(Money) (Banks and banking)

YAGODIN I. Ye.

BATYREV, Vladimir Mikhaylovich; KAGANOV, Gdaliy Vul'fovich; YAGODIN, Ivan Yevgen'yevich; KUDRYAVTSEV, A.A., red.; NADEZHDINA, A., red.; TELEGINA, T., tekhn.red.

[Organization and planning of currency circulation in the U.S.S.R.] Organizatsiia i planirovanie denezhnogo obrashcheniia v SSSR. Pod red. A.A.Kurdiavtseva. Moskva, Gosfinizdat, 1959. 183 p. (MIRA 13:1)

(Money)