RABINOVICH, I. B.

Photoelectric investigations of oxidized chromium, nickel, and chrome-nickel steels in alkaline solutions. I. B. Rabinovich and V. I. Veselovskii (State Univ., Gorki). Zhur. Fiz. Khim. 30, 313–20(1956).—The app. used is described and schematically illustrated. The samples were used in the form of electrolytically chrome-plated brass foil, pure Ni, and a thin ribbon of a steel contg. 10% Ni and 13% Cr. A 0.1*N* NaOH soln. was used as the electrolyte. The samples, in the shape of 5 × 50-mm. plates, were oxidized inside a quartz tube in a muffle furnace heated to 550° for 10 min., and cooled in the furnace. The area of the sample immersed in the electrolyte during the test was 1–2 sq. cm., and ½ that surface (1 side of the sample) was illuminated. The polarization curves of the oxidized and unoxidized samples in the light and in the dark were found. The systems with the oxidized samples had high photoelec. activity. The p.d. between oxidized and unoxidized Cr was found to be 325 mv., for Ni 230 mv. The highest photogalvanic effect was found in the ultraviolet region, when the potential was just below O_2 evolution. The photogalvanic effect is that of sensitization: light is absorbed in the bulk of the oxide. The effects on Cr-Ni steel were close to the oxidized Cr effects.

W. M. Sternberg

Chem Phys 2

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RABINOVICH, I. B.

The isotope effect in this liquid-vapor binary system containing deuterium compounds. I. B. Rabinovich, P. N. Nikolaev, Z. E. Gochaliev, and N. N. Tret'yakova (N. I. Lobachevskii State Univ., Gorkii). *Doklady Akad. Nauk S.S.S.R.* 110, 241–4.—The vapor pressure-compn. diagrams of the systems $CHCl_3$–Et_2CO, $CDCl_3$–Et_2CO at 25, 35, and 50°, and of H_2O–C_5H_5N and D_2O–C_5H_5N at 70, 75, and 80° and the b.p.-compn. diagrams of $(CH_3)_2CHOH$–C_5H_5 and of $(CH_3)_2CHOD$–C_5H_5 at 760 mm. were investigated. At low $CHCl_3$ concn. in acetone its vapor pressure is higher than that of $CDCl_3$, but conditions are reversed at intermediate concns.; this is attributed to the fact that the vapor pressure of $CDCl_3$ is somewhat higher than that of $CHCl_3$, and this accounts for the total pressure of $CDCl_3$ + acetone being higher. When H is replaced by D, the zero energy of the H bond is decreased and the bond is strengthened. The greater strength of the mol. assocns. of $CHCl_3$ with acetone which dissoc. on evapn., results in a lower soln. vapor pressure. The equil. diagrams of systems C_5H_5N–H_2O and C_5H_5N–D_2O and of the other binary systems are also presented and discussed. W. M. Sternberg

20-114-3-38/60

AUTHORS: Rubinovich, I. B., Golov, V. G., Yefimova, N. A., Rustamov, S.M.

TITLE: The Isotopic Effect in Compressibility and in the Association of Deuteroalcohols (Izotopnyy effekt v szhimayemosti i assotsiatsii deyterospirtov)

PERIODICAL: Doklady Akademii Nauk SSSR, 1957, Vol. 114, Nr 3, pp. 590-593 (USSR)

ABSTRACT: The paper under review is devoted to the investigation of the ultrasonic velocity a and of the density d in the interval between 10° and 60 - 80° for CH_3OH and CH_3OD, and several others, as well as for D_2O. The adiabatic compressibility and the osmotic coefficients were measured. The deuteroalcohols are obtained by hydrolysis, with heavy water, of appropriate alcoholates of magnesium and aluminum. The ratio of the cryoscopic molecular weight and of the molecular weight obtained from the formula decreases in the following order: methyl alcohol, ethyl alcohol, n-butyl alcohol, as well as normal, iso-, and secondary butyl alcohol. For deuteroalcohols the acid ratio is by 2 - 5 % higher than for their hydrogen analogues. Although it is not possible to derive any accurate values of the degree of association from benzene

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solutions of the alcohols, it is clear that the increase of the osmotic coefficients, with increasing concentration in alcohol, is caused by its degree of association. Therefore it follows from the results of the cryoscopic experiments that the deuteroalcohols are associated by the hydrogen bonds in a higher degree than their hydrogen analogues. This is also confirmed by the higher boiling point of the former, and also by the fact that substitution of hydrogen by deuterium in the alcohol hydroxyl leads to a reduction of its vapor pressure. The authors of the paper under review supported the statement made by Tarasov that, generally speaking, compression does not take place on the relatively solid hydrogen bonds but rather on the weaker Vandervaals' bonds between the chains (associates). Iso- and secondary butyl alcohol have higher compressibility than their normal primary analogue. Therefore alcohols with a ramified chain are characterized by higher compressibility than the primary n-alcohols. In all deuteroalcohols investigated the ultrasonic velocity is by 1o - 2o seconds lower than in the corresponding hydrogen analogues. On the other hand, the compressibility in the former is higher than in the latter. From the point of view

The Isotopic Effect in Compressibility and in the Association of Deutero-alcohols

described in the paper under review this isotopic effect of the compressibility means that in the deuteroalcohols the intermediate chain interaction is somewhat weaker than in their hydrogen analogues. The occurrence of the temperature minimum of the curve of compressibility in water, as well as the presence of the maximum of density, can be explained by superposition of two factors at the increase in temperature and also by the transition of water from a more strongly associated state into a less strongly associated state, with a denser packing of molecules (reduction in compressibility). The authors of the paper under review maintain that, as compared to normal water, the decrease in the degree of association in heavy water is delayed with respect to temperature. In a way, the retardation of ultrasound in the substances investigated, when hydrogen is substituted by deuterium, is also caused by the increase in molecular weight. There are 3 figures, 3 tables, and 15 references, 8 of which are Slavic.

20-114-3-38/60

The Isotopic Effect in Compressibility and in the Association of Deutero-alcohols

ASSOCIATION: Institute of Chemistry, Gor'kiy State University imeni N. I. Lobachevskiy
(Institut khimii Gor'kovskogo gosudarstvennogo universiteta im. N. I. Lobachevskogo)

PRESENTED: December 4, 1956, by A. N. Frumkin, Member of the Academy

SUBMITTED: September 1, 1956

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RABINOVICH, I. B.

"E perimental Investigations of the Characteristics of Ultrasound Propagation in and Deuterium-Substituted Compounds."

report presented at the 6th Sci. Conference on the Application of Ultrasound in the Investigation of Matter, 3-7 Feb 1958, organized by Min. of Education RSFSR and Moscow Oblast Pedagogic Inst. im N. K. Krupskaya.

SOV/76-32-7-9/45

AUTHORS: Rabinovich, I. B., Kucheryavyy, V. I., Nikolayev, P. N.

TITLE: The Effect of the Substitution of Hydrogen by Deuterium on the Ultrasonic Velocity, the Refraction and the Viscosity of Benzene (Vliyaniye zameshcheniya vodoroda deyteriyem na skorost' ul'trazvuka, refraktsiyu i vyazkost' benzola)

PERIODICAL: Zhurnal fizicheskoy khimii, 1958, Vol. 32, Nr 7, pp.1499-1505 (USSR)

ABSTRACT: The above-mentioned properties were investigated for a deuterium content of 0; 50 and 91 atom % within the temperature interval from 30-60°C. The viscosity of the deuterium benzene had already been investigated by Dixon and Schiessler (Ref 6), however, only at three temperatures. From the experimental part it may be seen that the deuterium products were obtained from benzene and deuterium sulfuric acid, the latter being produced from SO_2 and heavy water. The deuterium content was determined according to the data supplied by Klit and Langseth (Ref 9) from the density, while the sound velocity was determined according to the method of light diffraction.

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The Effect of the Substitution of Hydrogen by Deuterium on the Ultrasonic Velocity, the Refraction and the Viscosity of Benzene

The data obtained differ from those obtained by Collins and Raffel (Ref 1). The viscosimeter used is similar to that developed by A. Z. Golik and S. D. Ravikovich (Ref 11) the flowing-out lasting at least 400 seconds, and the viscosity of the deuterium benzene having been measured relatively to that of benzene. Density was determined in a pycnometer, whereas the index of light refraction was measured by means of a refractometer of the type IRF—23 (Pulfrich type). In relation to the equation of Schaaffs (Ref 13) for the ultrasonic velocity based on that of van der Waal, it is assumed that ultrasonic velocities in benzene and its deuterium homologs must be inversely proportional to the magnitudes of the square roots of the molecular weights. In the papers written by Kincaid and Eyring (Ref 2) it was shown that the sound velocity in liquids is directly related to the "free volumes". From the equation given by those authors the authors of this paper obtained a 5 % enlargement of the free volume in the case of a 50 % substitution of the hydrogen by deuterium in benzene, and one of 9 % with 91 % deuterium; this corresponds to the data obtained in the isotopic effect in compressibility.

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In connection with this it was found that a substitution in benzene of 91 % hydrogen by deuterium decreases the refraction index to 2.10^{-3} and the polarizability to 0,52 %. As the zero energy of the C-D bond is smaller than that of the C-H bond a D $\longrightarrow$ H substitution causes an increase of the energy difference between the respective excited and the basic electron level; this fact is explained by observations made by Burton et al. (Ref 15 and is proved by experimental data obtained by Ingold and Wilson (Ref 20). Proceeding from the equation according to Slater and Kirkwood (Ref 21) it is found that a 91 % hydrogen substitution by deuterium causes a decrease of the dispersion energy to 0,4 %; on the other hand it is found according to the data supplied by Wilkinson (Ref 23) that the equations according to London (Ref 24) as well as those according to Slater and Kirkwood (Ref 21) supply similar values for the isotopic effect in the dispersion energy. The observed effects described were explained by the increase in atomic dimensions and by the de-

SOV/76-32-7-9/45

The Effect of the Substitution of Hydrogen by Deuterium on the Ultrasonic Velocity, the Refraction and the Viscosity of Benzene

crease of the zero energy of the atomic bonds dependent on it. Since the dispersion energy becomes smaller in the hydrogen-deuterium substitution also a decrease of the heat of vapor formation is expected which seems to be proved according to data supplied by Davis and Schiessler (Ref 14) although those data are doubtful. In the case of a 91 % substitution of benzene by deuterium an increase of the viscosity from 4,8 to 5,5 % was observed, and correspondingly less in the case of a 50 % substituted one; also an increase of the vapor pressure at C_6D_6 by 2,5 - 2 % to that of C_6H_6 was found. Finally the authors thank A. I. Brodskiy. There are 1 figure, 2 tables, and 24 references, 5 of which are Soviet.

ASSOCIATION: Gor'kovskiy gosudarstvennyy universitet im. N.I.Lobachevskogo (Gor'kiy State University imeni N.I. Lobachevskiy)

1. Benzene--Properties 2. Benzene--Analysis 3. Deuterium --Determination 4. Deuterium--Properties 5. Sound--Velocity

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AUTHORS: Rabinovich, I. B., Gorbushenkov, V. A. SOV/20-120-3-36/67

TITLE: The Isotopic Effect in Critical Temperature (Izotopnyy effekt v kriticheskoy temperature)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol. 120, Nr 3, pp. 566-569 (USSR)

ABSTRACT: The present paper compares the critical temperatures T_k of 11 deuterium compounds with the analogous hydrogen compounds. Short reference is made to the representation of deuteron compounds. The materials to be investigated are carefully cleaned and degased. T_k was determined from the vanishing and the occurrence of meniscus. With each pair (deuteron compound and the hydrogen compound analogous to it) 20 measurements were carried out. Besides the differences $\Delta T_k = T_{k,H} - T_{k,D}$ also the absolute values of T_k were determined as long as this value did not exceed 300°C. Above 300°C only ΔT_k was determined. In all substances investigated the quadratic error committed when determining ΔT_k amounted to about 0,1°. If the light isotope is replaced by the heavy isotope, T_k is always reduced. Also in the case

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of previously investigated substances (with the exception of helium and hydrogen) an isotopic effect with the same sign was observed. Thus, the law $T_{k,D} < T_{k,H}$ is apparently of general validity for the various classes of inorganic and organic compounds within the range of medium temperatures. By applying the known relations $a = 27\ R^2T_k^2/64\ P_k$ and $a = 9\ RT_kV_k/8$ (where a denotes Van der Waal's (Van-der-Vaal's) constant), $a_D/a_H = T^2_{k,D}P_{k,H}/T^2_{k,H}P_{k,D}$ and $a_D/a_H = (T_kV_k)_D/(T_kV_k)_H$ is obtained. Thus it holds for the isotopic analogues of water that $a_D/a_H = 0{,}989$. Various details are then discussed. The isotopic effects discussed and thus also the conclusion drawn as to the reduction of Van der Waal's (Van der Vaal's) interaction on the occasion of the replacement of the light by the heavy isotope must in no case be extended to the range of low temperatures. At the temperatures of liquid helium and hydrogen the replacement of the light isotope by the heavy one leads to an intensification of Van der Waal's (Van der Vaal's) interaction, which is the opposite to what takes place at medium temperatures. In conclusion, the authors thank A. I. Brodskiy, Corresponding Member, AS USSR for his discussion of the results obtained, and they also express their

gratitude to S. S. Navikovich for his advices on methods.
There are 2 tables and 24 references, 6 of which are Soviet.

ASSOCIATION: Nauchno-issledovatel'skiy institut khimii Gor'kovskogo gosudarstvennogo universiteta im. N. I. Lobachevskogo (Scientific Research Institute for Chemistry of Gor'kiy State University imeni N. I. Lobachevskiy)

PRESENTED: February 19, 1958, by A. N. Frumkin, Member, Academy of Sciences, USSR

SUBMITTED: December 28, 1957

1. Denterium compounds--Temperature factors
2. Hydrogen compounds--Temperature factors

5(4)
AUTHORS: Rabinovich, I. B., Volokhova, Z. V. SOV/20-122-5-27/56

TITLE: The Influence of the Substitution of Hydrogen by Deuterium Upon the Polarizability of Molecules (Vliyaniye zameshcheniya vodoroda deyteriyem na polyarizuyemost' molekul)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol 122, Nr 5, pp 844 - 847 (USSR)

ABSTRACT: This paper deals with the investigation of the dispersion of light and with the calculation of the static polarizability (α_o) of 12 liquid deuterium compounds and their analogous hydrogen compounds. The formulae of these compounds are given in full in a table. The refraction index was measured by means of the refractometer IRF-23 (Pulfrich (Pul'frikh) type, relative exactness 2.10^{-5}) at $293 \pm 0.05^{\circ}K$ for the lines Hα, D, Hg_{green}, Hβ, and $Hg_{blue-violet}$. The static polarizability was determined by extrapolation to $\nu = 0$ of the dependence of $(n^2+2)/(n^2-1)$ on ν^2 where ν denotes the frequency of the light. For all

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the investigated substances, this dependence was linear in the investigated frequency interval. All the 12 investigated deuterium-compounds have a lower refraction index and a lower polarizability than the corresponding hydrogen compounds. The decrease of the polarizability may be explained by the decrease of the zero energy (ε_0) of the atomic vibrations. However, the substitution of hydrogen by deuterium practically does not change the potential curve of the electron energy and the force constants of the bonds (f). In the simplest case of a 2-atom molecule, a decrease of the vibration levels of the electron spectra increases the energy of the electron transitions ($\varepsilon_{\text{electron transition}}$) from the ground (0) level to the excited level (i). An expression for $\Delta\varepsilon_{el.tr} = \varepsilon^{0,i}_{el.tr.D} - \varepsilon^{0,i}_{el.tr.H}$ is deduced. It holds that $\Delta\varepsilon_{el.tr} > 0$ or $\nu_{i,D} > \nu_{i,H}$ where ν_i denotes the frequency

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of the electron transition. This inequation, is valid probably also for polyatomic molecules. The above-given inequation is confirmed also by experimental data. A dispersion formula for the polarizability α of the molecule is given. Probably, $\alpha_D < \alpha_H$ which corresponds to the experimental data. The author thanks L.S. Mayants for discussing the results. There are 1 figure and 14 references, 7 of which are Soviet.

ASSOCIATION: Institut khimii pri Gor'kovskom gosudarstvennom universitete im.N.I.Lobachevskiy (Institute of Chemistry of Gor'kiy State University imeni N.I.Lobachevskogo)

PRESENTED: June 27, 1958, by A.N.Frumkin, Academician
SUBMITTED: June 6, 1958

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Rabinovich, I. B.

PHASE I BOOK EXPLOITATION SOV/4186

Akademiya nauk SSSR

Stroyeniye veshchestva i spektroskopiya (Structure of Matter and Spectroscopy) Moscow, Izd-vo AN SSSR, 1960. 113 p. Errata slip inserted. 2,300 copies printed.

Ed.: K. V. Astakhov, Professor; Tech. Ed.: T. P. Polenova.

PURPOSE: This collection of articles is intended for physicists and chemists interested in spectroscopic methods of research on the structure of molecules and related problems.

COVERAGE: The articles contained in this collection were taken from the editorial files of the Zhurnal fizicheskoy khimii (Journal of Physical Chemistry) and are concerned with spectroscopic methods in research on the structure of molecules, the hydrogen bond, isotopic effects, problems in magnetochemistry, the structure of aqueous solutions of electrolytes, and the chemistry of complex compounds. References accompany individual articles.

The author thanks the following for having participated in determining the density of deuterocompounds: V. G. Golov, P. N. Nikolayev, V. I. Kucheryavyy, Ye. Z. Zhuravlev, V. I. Murzin, and L. S. Zhilkin. He thanks A. I. Brodskiy for his discussion of the results.

Ar'yev, A. M., and M. B. Al'tshuler [Novocherkasskiy politekhnicheskiy institut (Novocherkassk Polytechnic Institute)]. Problem of Change in the Structure of Polyethylene at Plane-Radial Extension 69

Rabinovich, I. B., V. M. Salov, Ye. I. Novikova, S. D. Mavikovich, and V. M. Nikolayev [Gor'kiy State University imeni N. L. Lobachevskiy]. Isotopic Effect on the Viscosity of Deuteroalcohols 73

Vasiliu, M. I., V. N. Yeremenko, and V. V. Fesenko. Investigation of Surface Tension of Liquid Metal Solutions. I. Surface Tension of a Lead-Silver System 78

Veynberg, T. I. Coordination Equilibria of Nickel Ions in $K_2O - PbO - SiO_2$ System Glasses 84

Kolesova, V. A. [Institut khimii silikatov (Institute of the Chemistry of Silicates)]. Structure of Spodumene Glass 93
V. I. Ayer'yanov is thanked for having plotted the curves for α- and β- spodumene and for the crystallization product of spodumene glass.

Rebane, T. K. [Physicochemical Institute imeni L. Ya. Karpov]. Calculation of Excess π-Electron Diamagnetic Susceptibility of Certain Molecules Containing the Six-Member Carbon Ring with the Aid of the Free Electrons Model 96
The author thanks I. N. Kalachevaya and B. Ye. Samosudov for the numerical calculations, and Ye. N. Gur'yanova and M. N. Adamov for their suggestions.

Samoylov, O. Ya., and M. N. Buslayeva [Institut obshchey i neorganicheskoy khimii im. N. S. Kurnakova (Institute of General and Inorganic Chemistry imeni N. S. Kurnakov)]. Temperature Dependence of Coordination Numbers of Alkali Metal Cations in Aqueous Solutions 102

Yesin, O. A. [Ural'skiy politekhnicheskiy institut im. S. M. Kirova Sve... (Ural Polytechnic Institute imeni S. M. Kirov, Sverdlovsk)]. Form of Surface Tension Isotherms 111

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KHUDENKO, I.D., inzh.; ROZENBLAT, G.B., inzh.; RABINOVICH, I.B., inzh.

Industrial testing of the USB-1 coal plow. Ugol' Ukr. 4 no.12: 27-29 D '60. (MIRA 13:12)

(Coal mining machinery)

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S/076/60/034/02/024/044
B010/B017

AUTHOR: Rabinovich, I. B.

TITLE: Influence of the Substitution of Hydrogen by Deuterium on the Sound Velocity and the Compressibility of Liquids

PERIODICAL: Zhurnal fizicheskoy khimii, 1960, Vol 34, Nr 2, pp 423-431 (USSR)

ABSTRACT: The present investigation was carried out with the cooperation of V. G. Golov, P. N. Nikolayev, Z. V. Volokhova, and V. I. Kucheryavyy. The propagation velocity of ultrasonic waves and their density as dependent on the temperature were measured for the following deuterium compounds and the corresponding hydrogen analogs: deuterium benzene, methyl deuterium benzene, deuterium nitromethane, deuterium chloroform, methyl- and ethyl-iso-deuterium propanol, primary n- and iso-deuterium butanol, and deuterium glycerin (deuterium in the hydroxyl groups). Since the publication data on the sound velocity in heavy water are not in agreement, measurements were carried out also in this field. The method of light refraction was applied on ultrasonic waves, and the investigations were carried out at frequencies of 3 Mcs. The majority of measurement values (Table 1, density of deuterium compounds, Table 2, ultrasonic velocity in deuterium compounds, Table 3, adiabatic

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Influence of the Substitution of Hydrogen by Deuterium on the Sound Velocity and the Compressibility of Liquids

compressibility of deuterium compounds, Table 4, isotope effect in the sound velocity, density and compressibility of deuterium compounds) lie between 20 and 70°C. In all compounds investigated, the hydrogen substitution by deuterium effected a decrease in the sound velocity and an increase in the adiabatic compressibility. The sound velocities in the isotope analogs in the percent ratio are by 1.5 - 2 times higher than the reciprocal values of the square roots of the corresponding molecular weights. The increase in compressibility in the substitution of hydrogen by deuterium in nonassociated compounds (which form associated chain complexes through hydrogen bridges) is explained by the weakening of the dispersion interaction between the molecules (and thus also between the associated complexes). This holds also for water and glycerin. Furthermore, the increase in compressibility in the substitution of hydrogen by deuterium in water and glycerin is explained by the formation of three-dimensional lattices. In this connection, the number of the nonassociated molecules (which are in equilibrium in the lattice) is reduced, and thus the molecules are less densely arranged. In conclusion, A. I. Brodskiy, Cor-

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B010/B017

responding Member of the AS USSR and Professor V. V. Tarasov are thanked for having criticized the results. There are 4 tables and 30 references, 11 of which are Soviet.

ASSOCIATION: Gor'kovskiy gosudarstvennyy universitet im. N. I. Lobachevskogo Institut khimii (Gor'kiy State University imeni N. I. Lobachevskiy, Institute of Chemistry)

SUBMITTED: May 13, 1958

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S/076/60/034/009/028/041XX
B020/B056

AUTHORS: Rabinovich, I. B., Murzin, V. I., Zhilkin, L. S.

TITLE: The Isotopic Effect in the Viscosity of Deutero-glycerin and Ethylene Deutero-glycol

PERIODICAL: Zhurnal fizicheskoy khimii, 1960, Vol. 34, No. 9, pp. 1973 - 1975

TEXT: The authors wanted to clarify the relation between the isotopic difference in the viscosity and the association by means of hydrogen binding, and for this purpose they investigated the effect produced by the substitution of hydrogen by deuterium in the hydroxyl groups of glycerin and ethylene glycol upon the viscosity of these compounds. Deuterium was introduced into the alcohols by repeated exchange with heavy water under vacuum evaporation. The deuterium content, the density (ρ_4^{20}), and the refractive index (n_D^{20}) of the isotope analogues are given in Table 1. The viscosity was determined with an accuracy of about 0.2 %. As may be seen from Table 2, the isotopic effect in the viscosity for

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The Isotopic Effect in the Viscosity of Deutero-glycerin and Ethylene Deutero-glycol

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deutero-glycerin equals 16.5 %, and for ethylene deutero-glycol 8.3 % with a molecular weight difference of 3.2 % in both cases. By the substitution of deuterium for hydrogen in the hydroxyl groups of glycerin, the viscosity is increased within the temperature range of from 20 to 90° by from 16.5 to 9.0 %, whereas the rise in the case of ethylene-glycol within the temperature range of from 10 to 90° amounts to 9.0 % to 2.0 %. The great isotopic effect in the viscosity of the associated liquids investigated is explained by the fact that it depends exponentially on the isotopic difference of the activation energy of the viscous flow, which, in turn, is exponentially related to the isotope difference of the zero energy of vibrations, which correspond to the hydrogen bond. The authors thank Academician of the AS UkrSSR, A. I. Brodskiy and Professor A. Z. Golik for discussing the results of the present paper. There are 2 tables and 10 references: 7 Soviet, 3 US, and 1 Belgian.

ASSOCIATION: Gor'kovskiy gosudarstvennyy universitet im. N. I. Lobachevskogo (Gor'kiy State University imeni N. I. Lobachevskiy)

SUBMITTED: December 16, 1958

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S/076/60/034/010/006/022
B015/B064

AUTHORS: Rabinovich, I. B., Lobashov, A. A., and Kucheryavyy, V. I.

TITLE: The Negative Isotopic Effect in the Viscosity of the Deuterium Compounds

PERIODICAL: Zhurnal fizicheskoy khimii, 1960, Vol. 34, No. 10, pp. 2202-2204

TEXT: An exchange of hydrogen by deuterium leads, in the case of non-associated liquids, to a change of the molecular weight and the energy of the intermolecular interaction. An increase of the two last-mentioned values leads to an increase of the viscosity of the liquid. Rabinovich et al, showed that in the range of medium temperatures, an increase in the molecular weight in the substitution of hydrogen by deuterium is accompanied by a reduction of the intermolecular dispersion energy (Refs 2-4), i.e., that an increase, but also a decrease in viscosity may occur due to the isotopic exchange in dependence on the fact whether the increase in molecular weight, or the change of energy of the inter-

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molecular interaction has a greater effect upon the viscosity. The investigations hitherto conducted (Ref. 5) always led to an increase in viscosity in the isotopic exchange. The present paper shows that isotopic exchange may also bring about a decrease in viscosity. In chloroform and tetrabromo methane the hydrogen was exchanged for deuterium and an increase in viscosity was found, i.e., in contrast to the cases hitherto investigated a negative isotopic effect was observed. The decrease in viscosity amounted to approximately 1% in both substances, which is five times the error of measurement, and may thus be regarded as a reliable result. Thus, it was clearly proven by experiment that an increase in molecular weight due to the exchange of a light isotope for a heavy one may affect an increase, but also a decrease in viscosity. Finally, the author thanks A. I. Brodskiy, Corresponding Member of the AS USSR and Professor A. Z. Golik for discussing the results. There are 2 tables and 8 references: 7 Soviet and 1 US.

ASSOCIATION: Gor'kovskiy gosudarstvennyy universitet im. N.I.Lobachevskogo (Gor'kiy State University imeni N. I. Lobachevskiy)

SUBMITTED: December 6, 1958

Card 2/2

RABINOVICH, I.B.

Isotopic effect on vapor pressure. Usp.khim. 31 no.1:101-152 Ja '62. (MIRA 15:3)

1. Gor'kovskiy universitet imeni N.I.Lobachevskogo.
(Isotopes) (Vapor pressure)

RABINOVICH, I.B.; NIKOLAYEV, P.N.

Isotopic effect in the heat capacity of certain deuterium compounds. Dokl. AN SSSR 142 no.6:1335-1338 F '62. (MIRA 15:2)

1. Nauchno-issledovatel'skiy institut khimii pri Gor'kovskom gosudarstvennom universitete im. N.I.Lobachevskogo. Predstavleno akademikom A.N.Frumkinym.
(Deuterium compounds--Thermal properties)

RABINOVICH, I.B.; TEL'NOY, V.I.; KIRILLOVA, A.S.; RAZUVAYEV, G.A.

Heats of decomposition and formation of dicyclohexyl- and dimethylperoxydicarbonate. Dokl. AN SSSR 143 no.1:133-136 Mr '62. (MIRA 15:2)

1. Nauchno-issledovatel'skiy institut khimii pri Gor'kovskom gosudarstvennom universitete im. N.I.Lobachevskogo 2. Chlen-korrespondent AN SSSR (for Razuvayev).
(Peroxydicarbonic acid)

S/020/63/149/002/018/028
B117/B186

AUTHORS: Rabinovich, I. B., Tel'noy, V. I., Karyakin, N. V., Razuvayev, G. A., Corresponding Member USSR

TITLE: Thermochemistry of tetraethyl germanium and hexaethyl germanium

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 149, no. 2, 1963, 324-326

TEXT: The combustion and formation enthalpies of Et_4Ge and Et_6Ge_2 were determined, and the bond energies of the Ge-C and Ge-Ge bonds in these compounds were calculated. Et_4Ge was synthesized according to a method described previously (K. A. Kocheshkov, Sinteticheskiye metody v oblasti metallorganicheskikh soyedineniy (Methods of synthesis in the field of organometallic compounds); Izd. AN SSSR, no. 5, 1947, p. 11), and was thoroughly purified. Et_6Ge_2 was obtained by reaction of Et_3GeBr with metallic potassium in dry, pure nitrogen atmosphere. The combustion enthalpy was determined by a method described previously (S. M. Skuratov, A. A. Strepikheyev, et al., Uch. zap. Moskovsk. univ., 164, 73 (1953)).

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Thermochemistry of tetraethyl germanium ...

The following averaged values were found:

$-\Delta H^{comb.}\left[(C_2H_5)_4Ge\right]$ = 1515.6±1.5 kcal/mole

$-\Delta H^{comb.}\left[(C_2H_5)_3Ge - Ge(C_2H_5)_3\right]$ = 2321.0±2.0 kcal/mole.

Standard enthalpies of formation, evaporation and atomization for the liquid and gaseous phase of the compounds studied were calculated from the combustion and evaporation enthalpies of the liquids studied and from data published on the formation enthalpy of the combustion products:

Substance	$-\Delta H^{form.}_{liqu.}$	$\Delta H^{evap.}$	$-\Delta H^{form.}_{g.}$	$\Delta H^{atom.}$
$(C_2H_5)_4Ge$	50.3±1.5	10.1±0.3	40.2±2.0	2542±5
$(C_2H_5)_3Ge\text{-}Ge(C_2H_5)_3$	92.9±2.0	14.9±0.5	78.0±2.5	3875±10

From the atomization enthalpy and mean bond energies of the C-C and C-H bonds the averaged values of bond energy of Ge-C in Et_4Ge were found to

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Thermochemistry of tetraethyl germanium ...

be 58.9±1.5 kcal (error 1 kcal), and of Ge-Ge in Et_6Ge_2 to be 62±5kcal (error 2 kcal). In this calculation, the mean bond energy of Ge-C was taken to be equal in both compounds. The values found for the mean bond energy of the Ge-C bond indicate that the primary state whichllimits the rate of the process should be considered the reaction $Ge(C_2H_5)_4 \rightarrow Ge(C_2H_5)_3^{\cdot} + C_2H_5$ and not the decomposition to Ge and $4C_2H_5^{\cdot}$ as stated by R. L. Geddes and E. Mack (Jr., J. Am. Chem. Soc., 53, 4372 (1930). There are 1 figure and 1 table.

ASSOCIATION: Institut khimii pri Gor'kovskom gosudarstvennom universitete im. N. I. Lobachevskogo (Institute of Chemistry at the Gor'kiy State University imeni N. I. Lobachevskiy)

SUBMITTED: November 15, 1962

Card 3/3

BAGRINOVSKIY, K.A.; RABINOVICH, I.B.

Formulation of the problem of network graph analysis. Vych. sist. no.11 71-94 '64 (MIRA 18:1)

TEL'NOY, V.I.; RABINOVICH, I.B.; RAZUVAYEV, G.A.

Thermochemistry of tetraethylsilicon and hexaethyldisilicon.
Dokl. AN SSSR 159 no.5:1106-1108 D '64 (MIRA 18:1)

1. Institut khimii pri Gor'kovskom gosudarstvennom universitete im. N.I. Lobachevskogo. 2. Chlen-korrespondent AN SSSR (for Razuvayev).

L 1646-66 EWT(m)/EPF(c)/EWP(j)/ETC(m) RPL WW/JW/RM

ACCESSION NR: AP5021427 UR/0076/65/039/008/2076/2077
541.11

35
32
B

AUTHOR: Tel'noy, V. I.; Rabinovich, I. B.

TITLE: Heats of formation of tetramethyl and tetraethyl compounds of elements in group IV of the periodic system

SOURCE: Zhurnal fizicheskoy khimii, v. 39, no. 8, 1965, 2076-2077

TOPIC TAGS: tin organic compound, silicon organic compound, germanium organic compound, lead organic compound, heat of formation, heat of atomization, bond energy

ABSTRACT: To find the heats of formation of the compounds $(CH_3)_4El$ and $(C_2H_5)_4El$, where El = Si, Ge, Sn, and Pb, use was made of a graphical method of comparative calculation proposed by M. Kh. Karapet'yants (Zh. fiz. khimii, *30*, 593, 1956) and based on the fact that

$$\Delta H_{II}^{form} = A + B\Delta H_{I}^{form},$$

where ΔH_{II}^{form} and ΔH_{I}^{form} are the heats of formation in series I and II of related compounds under identical conditions. This linear relation applies to the series

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ACCESSION NR: AP5021427

3

studied, $(CH_3)_4El$ and $(C_2H_5)_4El$, because in each of them the members of the series differ in the El atoms, which are electronic analogs, and for both series these atoms are the same, whereas the other parts of the molecules are related radicals. Fig. 1 of the Enclosure shows graphs of $\Delta H^{form}_{(CH_3)_4El} = f(\Delta H^{form}_{(C_2H_5)_4El})$ for the gaseous and liquid phase under standard conditions, where El = C, Si, Ge, Sn, and Pb. The ΔH^{form} values for the tetraethyl compounds of these elements were borrowed from experimental studies. Within the limits of error, the heats of formation of $(CH_3)_4Si$ and $(CH_3)_4Ge$, as well as $(C_2H_5)_4Si$ and $(C_2H_5)_4Ge$ are the same. From the heats of formation, the heats of atomization and the average (thermochemical energies of the El-C bonds were obtained. Orig. art. has: 1 figure, 1 table, and 1 formula.

ASSOCIATION: Nauchno-issledovatel'skiy institut khimii Gor'kovskogo universiteta imeni N. I. Lobachevskogo (Scientific Research Institute of Chemistry, Gorkiy University)

SUBMITTED: 24Jul64 ENCL: 01 SUB CODE: GC

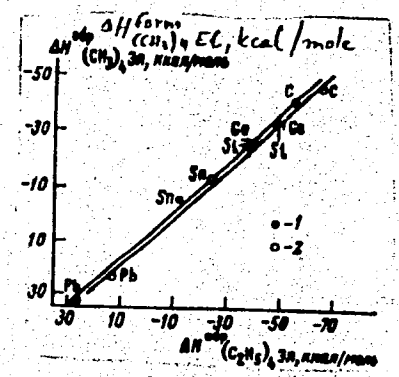
NO REF SOV: 006 OTHER: 005

Card 2/3

L 1646-66

ACCESSION NR: AP5021427

ENCLOSURE: 01



Graphs of $\Delta H^{form}_{(CH_3)_4El} = f(\Delta H^{form}_{(C_2H_5)_4El})$. ΔH^{form} = standard heat of formation; 1 - gaseous state; 2 - liquid state.

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TEL'NOY, V.I.; RABINOVICH, I.B.

Heats of formation of tetraphenyl compounds of basic group IV of the periodic table and element - carbon bond energy. Zhur. fiz. khim. 39 no.9:2314-2316 S '65. (MIRA 18:10)

1. Gor'kovskiy gosudarstvennyy universitet imeni N.I. Lobachevskogo.

SAMOYLOV, O.Ya.; RABINOVICH, I.B.; DUDNIKOVA, K.T.

Effect of small additions of a second component on the structure of liquids. Zhur.strukt.khim. 6 no.5:768-770 S-O '65. (MIRA 18:12)

1. Institut obshchey i neorganicheskoy khimii imeni N.S. Kurnakova AN SSSR i Gor'kovskiy gosudarstvennyy universitet imeni N.I.Lobachevskogo. Submitted June 19, 1965.

L 28456-66 EWP(e)/EWT(m)/EWP(j)/T IJP(c) WW/RM/WH

ACC NR: AP6018060 (A) SOURCE CODE: UR/0020/66/168/003/0599/0602

AUTHOR: Rabinovich, I. B.; Lebedev, B. V.; Sladkov, A. M.; Kudryavtsev, Yu. P.; Martynenko, L. Ya.; Korshak, V. V. (Corresponding member AN SSSR)

ORG: Gorkiy State University im. N. I. Lobachevskiy (Gor'kovskiy gosudarstvennyy universitet); Institute of Heteroorganic Compounds, Academy of Sciences SSSR (Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR)

TITLE: Carbon polymer with increased heat capacity

SOURCE: AN SSSR. Doklady, v. 168, no. 3, 1966, 599-602

TOPIC TAGS: linear polymer, carbon polymer, chain polymer, polymer cross linking, carbyne, semiconducting polymer, heat capacity

ABSTRACT: The heat capacity of synthesized carbyne has been measured in the 80—300K range to determine the structure of this carbon polymer in view of the increasing interest in semiconductor and thermal properties of the simplest linear chain polymer with conjugated bonds—the carbon polymer. Carbyne in the form of a black, fine-grain product, stable in air and containing 99.5% C, was synthesized by oxidation-polydehydrocondensation of acetylene in the presence of bivalent copper. Heat capacity C_p measurements were carried out in helium atmosphere

Card 1/2 UDC: 541.12

L 28456-66

ACC NR: AP6018060

with 0.001° accuracy. The C_p value was accurate to 0.5%. For the purpose of comparison, C_p was also measured in Acheson graphite, C-3 domestic graphite, and acetylene black. Heat capacity was found to vary in the sequence: diamond[15] < graphite[15] < acetylene black < carbyne. Heat capacity of all nine carbyne samples was significantly higher than that of graphite, although different in each sample. This difference in C_p from one carbyne sample to another was correlated with the different ratio of the chain to lamellar structure, i.e., with partial cross-linking of carbon chains. The samples with highest C_p were assumed to have a low degree of cross-linking, therefore to be nearly linear carbon polymers, since the value of n in the formula $C_p = AT^n$ was nearly 1 for these samples. The n value for other samples was 1.2—1.5. Therefore, it was concluded that the products synthesized as described were different from graphite and had a lamellar-chain structure. Orig. art. has: 2 figures and 2 tables. [JK]

SUB CODE: 07/ SUBM DATE: 28Oct65/ ORIG REF: 012/ OTH REF: 007

ATD PRESS: 5005

Card 2/2

L 45893-66 EWT(m)/EWP(j)/EWP(t)/ETI IJP(c) JD/WW/JW/RM
ACC NR: AP6026149 SOURCE CODE: UR/0076/66/040/007/1556/1563

74
8

AUTHOR: Tel'noy, V. I.; Rabinovich, I. B.

ORG: Scientific Research Institute of Chemistry, Gor'kiy State University (Nauchno-issledovatel'skiy institut khimii pri Gor'kovskom gosudarstvennom universitete)

TITLE: Thermochemistry of organic compounds of silicon, germanium, and tin

SOURCE: Zhurnal fizicheskoy khimii, v. 40, no. 7, 1966, 1556-1563

TOPIC TAGS: organogermanium compound, organosilicon compound, organotin compound, heat of combustion, heat of formation, bond energy

ABSTRACT: The heats of combustion were measured calorimetrically for a series of alkyl and some phenyl compounds of silicon, germanium, and tin, including compounds whose molecules contain two atoms of these elements bound to each other. The compounds were: $(C_2H_5)_4Si$, $(C_2H_5)_6Si_2$, $(C_6H_5)_4Si$, $(C_2H_5)_4Ge$, $(C_2H_5)_6Ge_2O$, $(CH_3)_4Sn$, $(C_2H_5)_4Sn$, $(C_2H_5)_6Sn_2$, $(C_6H_5)_4Sn$, $(C_6H_5)_6Sn_2$, $(C_2H_5)_3SnOCOC_6H_5$, $(CH_3)_3SnOCOC_6H_5$. The heat of the reaction between hexaethylditin and benzoyl peroxide, associated with the formation of triethyltin benzoate, was measured calorimetrically and calculated from the heats of formation of the reagents. The heats of formation and average energies of the E1-C, E1-E1 and E1-O bonds were calculated for the indicated compounds. The data show that in the series Si, Ge, Sn, the average energies of E1-C and E1-E1 bonds in the alkyl compounds decrease with increasing atomic weight of the elements, and

UDC: 541.11

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L 45893-66

ACC NR: AP6026149

that $\bar{E}$(El-C) and $\bar{E}$(El-El) have close values for one and the same element. The heats of formation of $(CH_3)_4Si$ and $(CH_3)_4Ge$ were found by using the method of comparative calculation due to M. Kh. Karapet'yants (Zh. fiz. khimii, 30, 593, 1956). Orig. art. has: 1 figure, 3 tables and 4 formulas.

SUB CODE: 07/ SUBM DATE: 03Feb65/ ORIG REF: 018/ OTH REF: 026

Card 2/2 IC

ISHCHUK, I.A., inzh.; RABINOVICH, I.F., inzh.

Tower headframe for multirope hoisting units. Shakht. stroi. 4 no. 6:13-14 Je '60. (MIRA 13:11)

1. Ural'skiy nauchno-issledovatel'skiy i proyektnyy institut mednoy promyshlennosti.
(Mine hoisting)

ISHCHUK, I.A., inzh.; RABINOVICH, I.F., inzh.

Construction elements of copper furnaces. Prom.stroi. 38 no.2: 53 '60. (MIRA 13:5)

1. Unipromed.
(Copper industry--Equipment and supplies)
(Precast concrete construction)

RABINOVICH, I.G.

Surgery of non-parasitic pancreatic cysts. Khirurgiia, Moskva No.2:81-83 Feb 52. (CLML 21:5)

1. Candidate Medical Sciences. 2. Of the Surgical Division (Head—Candidate Medical Sciences I.G. Rabinovich), Taganrog Municipal Hospital No. 2.

RABINOVICH, I.G., inshener; TURCHIN, N.Ya., inshener.

Unloading installation using large slag-concrete blocks and precast reinforced concrete. Elek.sta. 27 no.1:45-46 Ja '56. (MLRA 9:6)
(Precast concrete construction) (Docks)

RABINOVICH, I.G.

Calculating the depth of frost penetration of soil around the exterior walls of heated buildings. Osn., fund. i mekh. grun. 7 no. 6:19-21 '65. (MIRA 18:12)

KABINOVICH, I. K.

EROPKIN, N. V., RABINOVICH, I. K., SHLIMPER, G. S.

Physical therapy of prevalent forms of pulmonary tuberculosis. Probl. Tuberk., Moskva No. 6, Nov.-Dec. 50. p. 65-7

1. Of No. 9 VTeSPS Sanatorium (Director--I. K. Rabinovich; Physical Therapy Consultant--Docent M. M. Pinus), Chernogubovo.

CIML 20, 3, March 1951

RABINOVICH, I. L.

TROSHICHEV, V. M. - Khudozhnik i, GRONOV, V. L. - Kand. Tekh. Nauk, POKHELES, E. L. - Arkh., PSHENICHNIKOVA, O. S. - Arkh., BUYANOV, Yu. P. - Inzh., BYKOVSKIY, O. L. - Arkh., BAYAR, O. G. (Rukovoditel'temy) - Kand. Arkhitektury, MAKOTINSKIY, M. P. - Kand. Arkhitektury, RABINOVICH, I. L. - Arkh., CHERIKOV R, L. Z. - Arkh., ANDREYEVSKIY, V. G. - Kand Tekhn. Nauk

Nauchnoissledovatel'skiy institut stroitle'noy tekhniki Akademii arkhitektury SSSR

Predlozheniya po oborudovaniyu i otdelke kvartir mnogoetazhnykh zhilykh domov v moskve (Al'bom) Page 67

SO: Collection of Annotations of Scientific Research Work on Construction, completed in 1950. Moscow, 1951

RABINOVICH, I.L.

Spetsial'nye stanki dlia shifovaniia sheek kolenchatykh valov. (Vestn. Mash., 1950, no.9, p. 25-26)
New machines of the Khar'kov Molotov machine-tool construction plant.

Special machines for grinding crankshaft journals.

DLC: TN4.V4

SO: Manufacturing and Mechanical Engineering in the Soviet Union, Library of Congress, 1953.

RABINOVICH, I.L.

Krugloshlifoval'nye i kopiroval'no-shlifoval'nye stanki Khar'kovskogo stankostroitel'nogo zavoda imeni Molotova. (Vestn. Mash., 1951, no. 4, p. 60-63)

Circular grinding machines and profile grinding machines at the Khar'kov Molotov machine-tool construction plant.

DLC: TN4.V4

SO: Manufacturing and Mechanical Engineering in the Soviet Union, Library of Congress, 1953.

RABINOVICH, I. L. ENG.

GRINDING AND POLISHING

New heavy circular grinding machine. Vest. mash. 32 no. 4, 1952.

9. Monthly List of Russian Accessions, Library of Congress, October 1952 1953, Uncl.

RABINOVICH, I.L.

Autocollimation instrument for testing goniometers. Izm.tekh. no.6:34-35 N-D '55. (MLRA 9:3)
(Goniometry)

RABINOVICH, I.L.

Contact gauges for checking angular measures. Izm.tekh.no.5:68 S-O '56. (MLRA 10:2)

(Goniometer)

KISELEVICH, Lev Nikolayevich,; RABINOVICH, Izidor L'vovich,; GORSHKOV, A.P., red.; SVERDLOV, A.S., tekhn. red.

[Development of standard planning in multistory housing construction; based on examples in Kiev, Minsk, Stalingrad, Zaporozh'ye, and Magnitogorsk] Razvitie tipizatsii v mnogoetazhnom zhilishchnom stroitel'stve; na primerakh Kieva, Minska, Stalingrada, Zaporozh'ia i Magnitogorska. Moskva, Ges. izd-vo lit-ry po stroit., arkhit. i stroit. materialam, 1958. 154 p. (MIRA 11:11)

(Apartment houses)

RABINOVICH, I.L.

24(0); 5(4); 6(2) PHASE I BOOK EXPLOITATION SOV/2215

Vsesoyuznyy nauchno-issledovatel'skiy institut metrologii imeni D.I. Mendeleyeva

Referaty nauchn. issledovatel'skikh rabot; sbornik No.2 (Scientific Research Abstracts; Collection of Articles, Nr 2) Moscow, Standartgiz, 1958. 139 p. 1,000 copies printed.

Additional Sponsoring Agency: USSR. Komitet standartov, mer i izmeritel'nykh priborov.

Ed.: S. V. Reshetina; Tech. Ed.: M. A. Kondrat'yeva.

PURPOSE: These reports are intended for scientists, researchers, and engineers engaged in developing standards, measures, and gages for the various industries.

COVERAGE: The volume contains 128 reports on standards of measurement and control. The reports were prepared by scientists of institutes of the Komitet standartov, mer i izmeritel'nykh priborov pri Sovete Ministrov SSSR (Commission on Standards, Measures, and Measuring Instruments under the USSR Council of Ministers). The participating institutes are: VNIIM - Vsesoyuznyy nauchno-issledovatel'skiy institut metrologii imeni D.I. Mendeleyeva (All-Union Scientific Research Institute of Metrology imeni D.I. Mendeleyev) in Leningrad; Sverdlovsk branch of this institute; VNIIK - Vsesoyuznyy nauchno-issledovatel'skiy institut Komiteta standartov, mer i izmeritel'nykh priborov (All-Union Scientific Research Institute of the Commission on Standards, Measures, and Measuring Instruments), created from MOIMIP - Moskovskiy gosudarstvennyy institut mer i izmeritel'nykh priborov (Moscow State Institute of Measures and Measuring Instruments) October 1, 1955; VNIIFTRI - Vsesoyuznyy nauchno-issledovatel'skiy institut fiziko-tekhnicheskikh i radiotekhnicheskikh izmereniy (All-Union Scientific Research Institute of Physicotechnical and Radio-engineering Measurements) in Moscow; KhOIMIP - Khar'kovskiy gosudarstvennyy institut mer i izmeritel'nykh priborov (Khar'kov State Institute of Measures and Measuring Instruments); and NOIMIP - Novosibirsk State Institute of Measures and Measuring Instruments (Novosibirsk gosudarstvennyy institut mer i izmeritel'nykh priborov). No personalities are mentioned. There are no references.

Card 5/27

RABINOVICH, I.L.; FLEGONTOVA, S.Yu.

Readers' conference at a factory. Mekh. i avtom. proizv. 18 no.1:54-55 Ja '64. (MIRA 17:8)

1. Starshiy bibliograf Gosudarstvennoy publichnoy nauchno-tekhnicheskoy biblioteki SSSR (for Rabinovich). 2. Zaveduyushchiy nauchno-tekhnicheskoy bibliotekoy Elektrozavoda imeni Kuybysheva (for Flegontova).

RABINOVICH, I. M.

23663

OBLIVANIYE V GOSPITALYAKH SARATOVSKOY OBLASTI V GODY VELIKOY OTECHESTVENNOY VOYNY. TRUDY SARAT. GOS. MED. IN-TA, T. VIII, 1949, S. 83-87.

SO: LETOPIS NO. 31, 1949

RAI INOVICH, I.M.

Solomo Gubert's sun-dial. Ist.-astron. issl. no.3:645-648 '57.
(Sun-dials) (MIRA 11:3)

RABINOVICH, I.M.; APINIS, A.A.

First steps toward a heliocentric cosmogony in Latvia. Ist.-astron. issl. no. 6:194-211 '60. (MIRA 14:2)
(Latvia—Astronomy)

RABINOVICH, I.M.

"The celestial order"; the first star map in Latvian. (MIRA 14:9)
Ist.-astron.issl. no.7:306-309 '61.
(Latvia--Stars--Atlases)

RABINOVICH, I.M. (Moskva)

Kinematics "about the plane". Issl. po teor. sooruzh. no.13: 5-20 '64. (MIRA 18:2)

1. Chlen-korrespondent AN SSSR.

RABINOVICH, I.M.; IKAUNIYEK, Ya.Ya. [Ikaunieks, J.], kand. fiz.-mat. nauk, nauchn. red.; TEYTEL'BAUM, A., red.

[Watching over precision; pages from the life and activity of F.I.Blumbakh] Na strazhe tochnosti; stranitsy iz zhizni i deiatel'nosti F.I.Blumbakha. Riga, Latviiskoe gos. izd-vo, 1965. 81 p. (MIRA 18:5)

1. Direktor Astrofizicheskoy laboratorii AN Latviyskoy SSR (for Ikauniyek).

RABINOVICH, I.M. (Moskva)

Design of rod systems of minimum weight. Issl. po tecr. sooruzh. no.13(132-141 '65. (MIRA 18:10)

1. Chlen-korrespondent AN SSSR.

RABINOVICH, I.M.

Electric needle heater for pneumothorax needles. Med. prom. 16 no.1:51 Ja '62. (MIRA 15:3)

1. Protivotuberkuleznyy dispanser No.8, Leningrad.
(SURGICAL INSTRUMENTS AND APPARATUS)
(PNEUMOTHORAX)

RABINOVICH, I.M.

Avocado bears fruit in the Adzhar A.S.S.R. Priroda 49 no.5: 110-111 My '60. (MIRA 13:5)

1. Zakavkazskaya zonal'naya opytnaya stantsiya Vsesoyuznogo instituta lekarstvennykh i aromaticheskikh rasteniy, Kobuleti. (Adzhar A.S.S.R.--Avocado)

RABINOVICH, I.M.

Introduction of Rauwolfia serpentina Benth. Bot. zhur. 45 no.4:592-595 Ap '60. (MIRA 14:5)

1. Zakavkazskaya zonal'naya opytnaya stantsiya Vsesoyuznogo nauchno-issledovatel'skogo instituta lekarstvennykh i aromaticheskikh rasteniy, g. Kobuleti. (Rauwolfia)

RABINOVICH, I.M.

Passiflora incarnata L., a new medicinal plant. Bot. zhur. 48 no.6:881-885 Je '63. (MIRA 17:1)

1. Zakavkazskaya zonal'naya opytnaya stantsiya Vsesoyuznogo nauchno-issledovatel'skogo instituta lekarstvennykh i aromaticheskikh rasteniy (VILAR), g. Kobuleti.

RABINOVICH, I.M.

New sedative derived from the passionflower Passiflora incarnata.
Trudy Len. khim.-farm. inst. no.17:225-231 '64. (MIRA 18:1)

1. Zakavkazskaya zonal'naya opytnaya stantsiya Vsesoyuznogo nauchno-issledovatel'skogo instituta lekarstvennykh i aromaticheskikh rasteniy.

MARKOSYAN, A.A.; MARDZHANYAN, G.M., kand. biolog. nauk; KARYAN, A.A., aspirant; SHARAFUTDINOV, Sh.A.; RASULOV, F.K.; SVANIDZE, N.V., starshiy nauchnyy sotrudnik ; RABINOVICH, I.M., starshiy nauchnyy sotrudnik; DERYABIN, V.I.; SULEYMANOV, I., mladshiy nauchnyy sotrudnik; SHEVTSOV, S.I., starshiy nauchnyy sotrudnik (TSelinnyy kray)

From the practices in the use of poisonous chemicals. Zashch. rast. ot vred. i bol. 9 no.9:21-23 '64. (MIRA 17:11)

1. Armyanskiy institut zemledeliya (for Markosyan, Mardzhanyan, Karyan). 2. Sredneaziatskiy institut zashchity rasteniy (for Sharafutdinov, Rasulov). 3. Zakavkazskaya opytnaya stantsiya Vsesoyuznogo nauchno-issledovatel'skogo instituta lekarstvennykh i aromaticheskikh rasteniy (for Svanidze, Rabinovich). 4. Zaveduyushchiy otdelom zashchity rasteniy Samarkandskoy opytnoy stantsii (for Deryabin). 5. Samarkandskaya opytnaya stantsiya (for Suleymanov).

RABINOVICH, Il'ya Moiseyevich; RACHINSKIY, F.Yu., kand. khim. nauk, nauchn. red.;

[Chemistry in the service of public health] Khimiia na sluzhbe zdravookhraneniia. Leningrad,"Znanie" 1965. 31 p. (MIRA 18:12)

RABI'OVICH, I.M.

Ways of prolonging the effect of medicinal preparations.
Zhur. VKHO 10 no. 6:687-691 '65 (MIRA 19:1)

RABINOVICH, I.M.; KIBAL'CHICH, P.N.; FADEYEVA, I.I.; IL'INSKAYA, T.N.; KUZOVKOV, A.D.; BEREZHINSKAYA, V.V.; TRUTNEVA, Ye.A.; NIKITINA, S.S.

Plants of the Stephania genus as a source of new medicinal preparations. Apt. delo 14 no.6:19-22 N-D '65. (MIRA 18:12)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut lekarstvennykh i aromaticheskikh rasteniy, Moskva. Submitted June 15, 1965.

RABINOVICH, I.M.; KRICHEVER, I.S.; KALINCHEV, E.L.

New injection molding machine model TP-65. Plast.massy no.4:43-45 '61. (MIRA 14:4)

(Plastics—Molding)

RABINOVICH, I.M.; KRICHEVER, I.S.; KALINCHEV, E.L.; MARAM, Ye.I.

New "TP-32" model molding machine. Plast.massy no.8:50-51 '62.
(MIRA 15:7)

(Plastics machinery)

RABINOVICH, I. M.

Pribor dlya mekhanicheskogo resheniya sistemy lineynykh uravneniy. Vestn. voyen.-inzh. Akad., Sb. po stroitel'n. mekhanike, 1 (1934), 137-160.

SO: Mathematics in the USSR, 1917-1947
edited by Kurosh, A.G.,
Markushevich, A.I.,
Rashevskiy, P.K.
Moscow-Leningrad, 1948

RABINOVICH, I.M., prof., doktor tekhn.nauk; RUDOMINER, M.S., inzh., red.; DAKHNOV, V.S., tekhn.red.

[Structural mechanics of rod systems] Stroitel'naia mekhanika sterzhnevykh sistem. Moskva, Gos.izd-vo stroit.lit-ry, 1946. 419 p. (MIRA 13:4)
(Structures, Theory of) (Structural frames)

RABINOVICH, ISAAK MOISEYEVICH, ed.

Issledovanii po dinamike sooruzhenii; sbornik statei. Moskva, Gosstroiizdat, 1947. 180 p., diagrs.

Title tr.: Research in structural dynamics; collected articles.

QA931.R3

SO: Aeronautical Sciences and Aviation in the Soviet Union, Library of Congress, 1955.

RABINOVICH, ISAAK MOISEEVICH.

Dostizheniia stroitel'noi mekhaniki sterzhnevykh sistem v SSSR; kraktii obzor. Moskva, Izd-vo Akademii arkhitektury SSSR, 1949. 128 p.
Bibliography: p. 74-127.
Title tr.: Achievements of the theory of structures of rod systems.

TH85.R2

SO: Aeronautical Sciences and Aviation in the Soviet Union, Library of Congress, 1955.

RABINOVICH, I.M., doktor tekhnicheskikh nauk, professor.

Graphic methods for obtaining the critical position of train loads for influence lines of any broken configuration. Issl. po teor. sooruzh. no.4:159-163 '49. (MLRA 10:8)
(Trusses) (Graphic statics)

1. RABINOVICH, I. M.

2. USSR (600)

4. Links and Link Motion

7. A. G. Gagarin's link mechanisms. Izv. AN SSSR. Otd. tekh. nauk no. 2, '52.

9. Monthly List of Russian Accessions, Library of Congress, January 1953. Unclassified.

RABINOVICH, I. M.

USSR/Electricity - Induction Motors May 52
Engineering - Machinery

"Increasing the Power Factor at Enterprises of the Flour Milling Industry," Engr A. M. Orzhekhovskiy, Main Admin for Production of Flour and Meal, Engr S. G. Emma, Milling Combine imeni Tsyurupa, and Engr I. M. Rabinovich, Milling Combine No 3

"Elektrichestvo" No 5, pp 57-59

Discusses experience of milling combines No 1 at Tbilisi, No 3, and Combine imeni Tsyurupa (latter 2 in Moscow) in synchronizing centralized transmission drive of roller mills and other milling machines and mechanisms. Power factor efficiency of motors were increased. Refers to use of selenium synchronizing units VSMN-1000/525 produced by "KIP" Plant of Min of Petroleum Industry. Submitted 17 Sep 51

PA 240T52

RABINOVICH, I.M.

PHASE I TREASURE ISLAND BIBLIOGRAPHICAL REPORT AID 576 - I

Call No.: AF650592

BOOK

Author: RABINOVICH, I. M., Corr. Mem., Academy of Sciences, Doc. of Tech. Sci., Prof.

Full Title: COURSE OF STRUCTURAL MECHANICS OF SYSTEMS OF BARS. PART II STATICALLY UNDETERMINED SYSTEMS. 2nd ed., rev.

Transliterated Title: Kurs stroitel'noy mekhaniki sterzhnevykh sistem. Chast' II: Staticheski neopredelimyye sistemy. Izd. 2-e, perer.

PUBLISHING DATA

Originating Agency: None

Publishing House: State Publishing House of Structural and Architectural Literature

Date: 1954 No. pp.: 544 No. of copies: 25,000

Editorial Staff

Sci. Editor: Snitko, I. K., Kand. of Tech. Sci.

Appraisers: Bezukhov, N. I. and Kiselev, V. A., Profs., Doctors of Technical Science

PURPOSE: This is a textbook approved by the Ministry of Higher Education for technical institutes and it may also be used by construction engineers as a handbook.

1/2

AID 576 - I

Kurs stroitel'noy mekhaniki sterzhnevykh sistem.
Chast' II: Staticheski neopredelimyye sistemy.
Izd. 2-e, perer.

TEXT DATA
Coverage: This book contains materials conforming with the teaching program of the course of structural mechanics (statically undetermined systems) in construction technical institutes. Some other materials have been added which go beyond the scope of the course in order to allow a deeper understanding of the whole problem. As a supplement to the computation of the systems of bars the principles for the computation of retaining walls have been worked out. Most chapters are provided with a historical outline and bibliography.
No. of References: A large number of references appear in footnotes
Facilities: A large number of Russian scientists are mentioned in the text.

2/2

RABINOVICH, I.M.

GVOZDEV, A.A., professor, redaktor; RABINOVICH, I.M., professor, redaktor; FILONENKO-BORODICH, M.M., professor, redaktor; AFANAS'YEV, A.M., kandidat tekhnicheskikh nauk; nauchnyy redaktor; TUMARKIN, D.M., inzhener, redaktor; SMOL'YAKOVA, M.V., tekhnicheskiy redaktor.

Studies in the theory of structures; collection of articles. Issledovaniia po teorii sooruzhenii. Sbornik statei. no.6:5-571 '54.
(MLRA 7:11)
(Structures, Theory of) (Strains and stresses) (Elastic plates and shells)

[redacted], I. F.

"Frequency and Forms of Diverse-Symmetrical Natural Vibrations of Double Hinged Parabolic Arches," Issled. po Teorii Sooruzheniy, No 6, 1956, pp 7-10

An approximate solution of the problem of the free vibrations of arches taking into account the horizontal and vertical forces of inertia is presented. The method is based on the replacement of an arch by a hinged kinematic chain composed of rigid links with elastic hinges. The author derives tabular data on frequencies and forms of free vibrations for arches with rise-span ratios of 0.1 to 0.5. (RZhMekh, No 5, 1957) SO: Sum.No. 713, 9 Nov 55

SOV/124-58-4-4507

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 4, p 120 (USSR)

AUTHOR: Rabinovich, I. M.

TITLE: The Geometric Representation of the Motion of a Damped Elastic System With One Degree of Freedom (Geometricheskoye predstavleniye dvizheniya uprugoy sistemy s odnoy stepen'yu svobody s uchetom zatukhaniya)

PERIODICAL: V sb.: Issledovaniya po teorii sooruzheniy. Nr. 6. Moscow. Gos. izd-vo lit. po str-vu i arkhitekt., 1954, pp 39-44

ABSTRACT: The author of this work has previously presented a geometrical synthesis which gives a representation of all the characteristics of the motion of an elastic system with one degree of freedom under the action of an arbitrary disturbing force (Vestn. Voyenno-inzh. akad., 1937, Nr 20). In the paper under review the method is expanded to include the action of forces of viscous resistance. Another version of the generalized use of this method for the case in question is offered by V. I. Gofman (V sb.: Issledovaniya po teorii sooruzheniy. Nr. 7. Moscow, Gos. izd-vo lit. po str-vu i arkhitekt., 1957).

Card 1/1 1. Vibration--Motion 2. Mathematics

Ya. G. Panovko

RABINOVICH, I.M., professor.

Simplified construction of permutation diagrams. Issledovaniia po teorii sooruzhenii. Sbornik statei. no.6:395-398 '54.(MLRA 7:11)

1. Chlen-korrespondent Akademii nauk SSSR.
(Structures, Theory of) (Strains and stresses) (Elastic plates and shells)

RABINOVICH, I.M.

Myškis, A. D., and Rabinovič, I. M. The first proof of a fixed-point theorem for a continuous mapping of a sphere into itself, given by the Latvian mathematician P. G. Bohl. Uspehi Mat. Nauk. (N.S.) 10, no. 3(65), 188–192 (1955). (Russian)

1 - F/W

(2)

RABINOVICH, Isaak Moiseyevich; SNITKO, I.K., kandidat tekhnicheskikh nauk, nauchnyy redaktor; YEGOROVA, N.O., redaktor izdatel'stva; PERSON, M.N., tekhnicheskiy redaktor

[Principles of structural mechanics in bar framework systems] Osnovy stroitel'noi mekhaniki sterzhnevykh sistem. Izd. 2-oe, perer. Moskva, Gos. izd-vo lit-ry po stroit. i arkhitekture, 1956. 453 p. (MLRA 10:1)

1. Chlen-korrespondent Akademii nauk SSSR, deystvitel'nyy chlen Akademii stroitel'stva i arkhitektury SSSR. (for Rabinovich)
(Structures, Theory of)

RABINOVICH, Isaak Moiseyevich, red.; TUMARKIN, D.M., inzh.,red.izdatel'stva; BORODINA, I.S., red.izdatel'stva; RL'KINA, E.M., tekhn.red.

[Structural mechanics in the U.S.S.R., 1917-1957] Stroitel'naia mekhanika v SSSR, 1917-1957. Moskva, Gos.izd-vo lit-ry po stroit. i arkhit., 1957. 300 p. (MIRA 10:12)

1. Chlen-korrespondent AN SSSR , deystvitel'nyy chlen Akademii stroitel'stva i arkhitektury SSSR (for Rabinovich).
(Bibliography--Mechanical engineering)

SOV/124-58-2 2227

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 2, p 102 (USSR)

AUTHOR: Rabinovich, I. M.

TITLE: Graphic Determination of the Fixed Points (Relative to Moments and Angles) for Continuous Variable Beams (Graficheskoye opredeleniye momentnykh i uglovykh fokusov dlya nerazreznoy balki peremennogo secheniya)

PERIODICAL: V sb.: Issledovaniya po teorii sooruzheniy. Nr 7. Moscow, Gosstroyizdat, 1957, pp 593-596

ABSTRACT: The author presents a fairly simple version of the graphic construction of the fixed point of a succeeding span based on the known position of the fixed point of the span preceding it. As a first step the author constructs the curves of the curvatures M/EI for the individual span of the beam due to unit support moments and computes the position of the area centers of these curves and the angles of rotation at the supports.

I. K. Snitko

Card 1/1

SOV/124-58-4-4679

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 4, p 143 (USSR)

AUTHOR: Rabinovich, I. M.

TITLE: On a Problem of the Theory of Trusses (Ob odnoy zadache teorii ferm)

PERIODICAL: V sb.: Issledovaniya po teorii sooruzheniy. Nr 7. Moscow, Gosstroyizdat, 1957, pp 607-615

ABSTRACT: It is noted that in the design of a truss having m members wherein n members are indispensable and (m-n) are redundant, it is always necessary to make an arbitrary assumption for m parameters. Thus, for a statically-determinate truss the stresses in all the m-n members are assumed. For the design of a statically-indeterminate truss by the method of forces the cross-sectional areas of all the m members are assumed; for the design by the assumed-stress method, it is the stresses (or the elongations) in the n indispensable members and the cross sections (or the forces) in the (m-n) redundant members that are assumed. In all these cases the displacement of the joints becomes known as a result of the

Card 1/2

SOV/124-58-4-4679

On a Problem of the Theory of Trusses

calculations, and, therefore, a rational control over the rigidity of the truss is difficult. Such a control, which is necessary for the design for another limiting load condition and for dynamic-load calculations, is possible by means of a proposed "method of given stresses and displacements". In this method the number of assumed parameters includes: a) $p \leq n$ displacement components of certain joints, b) (n-p) stress values (or elongations) in certain indispensable members selected independently of assumption (a) and c) (m-n) cross-sectional areas (or forces) in the redundant members. The article presents geometric and static-energy relationships which insure step-by-step calculations for a truss having one type of loading without requiring the solution of a system of equations. Being a generalization of the assumed-stress method, the offered method affords all the advantages over the force method but is more flexible. The solution is more complex when it involves several loading conditions, since it reduces to a system of equations.

1. Structures--Theory 2. Stress analysis

Ya. B. L'vin

Card 2/2

RABINOVICH, I.M.

Problems of celestial mechanics in P.G. Bohl's works.
Ist.-astron.issl. no.4:467-479 '58. (MIRA 11:10)
(Mechanics, Celestial) (Bohl, Peter Georgievich, 1865-1921)

RABINOVICH, I. M.

"Some Problems of Celestial Mechanics in the Works of P. G. Bol'"

Studies in the History of Astronomy, No. 4, Moscow, Fizmatgiz, 1958, 592pp.

RABINOVICH, I.M., prof.; SINITSYN, A.P., prof., doktor tekhn.nauk

First Czechoslovak Congress on the Theory of Calculating Construction Elements. Stroi. prom. 36 no.9:46-48 S '58. (MIRA 11:10)

1. Chlen-korrespondent AN SSSR, deystvitel'nyy chlen Akademii stroitel'stva i arkhitektury SSSR (for Rabinovich).
(Precast concrete construction)