"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1

STEPANOV, N.F.; TATEVSKIY, V.M.

Approximate calculation of the π-electron energy of aromatic condensed molecules in the Hückel modification of the Mo Lkao method. Zhur.strukt.khim. 2 no.4:452-455 Jl-Ag '61. (MIRA 14:9)

1. Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova.
(Hydrocarbons) (Molecules)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1

STEPANOV, N.F.; TATEVSKIY, V.M.

Establishing a basis of calculating the π-electron energy bond expansion of aromatic condensed molecules in different variations of the simplest molecular orbital LCAO method. Zhur.strukt.khim. 2 no.5:597-603 S-O '61. (MIRA 14:11)

1. Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova.
(Hydrocarbons) (Chemical structure) (Molecules)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1

S/051/61/010/001/005/017
E201/E491

AUTHORS: Treshchova, Ye.G., Tatevskiy, V.M., Daukshas, V.K. and Levina, R.Ya.

TITLE: The Raman Spectra of Various Types of Hydrocarbons VII. Ditertiaryalkylmethanes C_{10} - C_{17} - Branched Alkanes With Two Quaternary Carbon Atoms Separated by a Methylene Group

PERIODICAL: Optika i spektroskopiya, 1961, Vol.10, No.1, pp.63-68

TEXT: Continuing earlier work (Ref.1 to 3) on vibrational spectra of higher alkanes, the authors studied the following C_{10} - C_{17} hydrocarbons containing quaternary and tertiary carbon atoms (ditertiaryalkylmethanes): 3,3,5,5-tetramethylheptane, 4,4,6,6-tetramethylnonane, 5,5,7,7-tetramethylundecane, 2,2,4,4-tetramethylhexane, 2,2,4,4-tetramethylheptane, 2,4,4,6,6,8-hexamethylnonane and 2,5,5,7,7,10-hexamethylundecane. The methods of preparing these compounds were given in earlier work (Ref.4 to 6). Some physical and chemical properties of ditertiaryalkylmethanes are listed in Table 1. The Raman spectra were recorded with a three-prism spectrograph with a

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S/051/61/010/001/005/017
E201/E491

The Raman Spectra of Various Types of Hydrocarbons VII. Ditertiaryalkylmethanes C_{10} - C_{17} - Branched Alkanes With Two Quaternary Carbon Atoms Separated by a Methylene Group

photomultiplier ФЭУ-17 (FEU-17). The measurements and calculations were carried out in the same way as in earlier work (Ref.7). The intensity of the 802 cm^{-1} line of cyclohexane was used as a standard; its dependence on the monochromator exit slit is shown in Fig.2. Table 2 lists the frequencies and intensities of the Raman lines in the region 150 to 1600 cm^{-1}. It was found that the characteristics of quaternary carbon atoms and the group with a tertiary carbon atom at the end of the chain, established for lower hydrocarbons, applied also to paraffin hydrocarbons up to $C_{17}H_{36}$. The characteristics of complex branching with two quaternary carbon atoms, separated by CH_2, were present irrespective of the length of the chain and the presence of simple branching. The presence of complexes with quaternary and tertiary carbons did not interfere with the characteristics of separate groups. There are 1 figure, 2 tables and 10 references: 9 Soviet and 1 non-Soviet.

SUBMITTED: December 21, 1959

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APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1

MAL'TSEV, A.A.; TATEVSKIY, V.M.

Interpretation of the infrared spectra of B_2O_3 and B_2S_3 molecules. Opt. i spektr. 10 no.4:564 Ap '61. (MIRA 14:3)
(Boron oxide) (Boron sulfide)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1

TATEVSKIY, V.M.; KOPTEV, G.S.; MAL'TSEV, A.A.

Vibration spectra of B_2O_3 and B_2S_3 molecules. Opt. i spectr. 11 no.6:724-729 D. '61. (MIRA 14:11)

(Molecules—Vibration) (Boron sulfide—Spectra)
(Boron oxide—Spectra)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1

TATEVSKIY, V.M.

Dipole moments of molecules and bond classification according to types and forms. Vest. Mosk. un. Ser. 2:Khim. 16 no.1:11-24 Ja-F '61. (MIRA 14:4)

1. Kafedra fizicheskoy khimii Moskovskogo universiteta.
(Molecules—Dipole moments) (Chemical bonds)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1

KORYAZHKIN, V.A.; TATEVSKIY, V.M.; KHARITONOV, Yu.Ya.

Ultraviolet absorption spectra of lithium fluoride and lithium bromide vapors. Vest. Mosk. un. Ser. 2: Khim. 16 no.1:48-50 Ja-F '61. (MIRA 14:4)

1. Laboratoriya molekulyarnoy spektroskopii Moskovskogo universiteta.
(Lithium fluoride—Spectra) (Lithium bromide—Spectra)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1

MATVEYEV, V.K.; MAL'TSEV, A.A.; TATEVSKIY, V.M.

Intensity of the "fluctuating bands of boric acid" as a function of oxygen pressure. Vest. Mosk. un. Ser. 2: Khim. 16 no.1:51-53 Ja-F '61. (MIRA 14:4)

1. Kafedra fizicheskoy khimii Moskovskogo universiteta.
(Boric acid—Spectra)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1

TATEVSKIY, V.M.

Certain theses in the theory of the relation between the properties and structure of molecules. Vest.Mosk.un.Ser.2: khim. 16 no.3:38-43 My-Je '61. (MIRA 14:10)

1. Kafedra fizicheskoy khimii Moskovskogo gosudarstvennogo universiteta.
(Molecules)

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1

TATEVSKIY, V.M.

Energy of formation of a molecule in the elementary quantum-mechanical theory, and bond classification. Vest.Mosk.un. Ser.2 Khim. 16 no.3:44-48 My-Je '61. (MIRA 14:10)

1. Kafedra fizicheskoy khimii Moskovskogo gosudarstvennogo universiteta.
(Molecules)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1

PAPULOV, Yu.G.; TATEVSKIY V.M.

Molecular orbital method and alkanes. Vest.Mosk.Un.Ser.2:khim. 16 no.6:16-22 N-D '61. (MIRA 14:11)

1. Moskovskiy gosudarstvennyy universitet. Kafedra fizicheskoy khimii.
(Paraffins) (Molecules)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1

PAPULOV, Yu.G.; TATEVSKIY, V.M.

Potential barriers of internal rotation in alkanes. Zhur. fiz. khim. 35 no.7:1586-1592 Jl '61. (MIRA 14:7)

1. Moskovskiy gosudarstvennyy universitet im.
(Ethane—Molecular rotation)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1

TATEVSKIY, V.M.

Relationships between various aspects of the phenomenological theory of interconnection between properties and structure of molecules. Zhur.fiz.khim. 35 no.9:2090-2094 '61. (MIRA 14:10)

1. Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova. (Molecules)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1

S/076/61/035/011/001/013
B107/B110

AUTHORS: Tatevskiy, V. M., and Yarovoy, S. S. (Moscow)

TITLE: Calculation of the physicochemical properties of higher alkanes

PERIODICAL: Zhurnal fizicheskoy khimii, v. 35, no. 11, 1961, 2409-2416

TEXT: The authors give a calculation method for the properties of the different structural isomers of any higher alkane. As an example, heat of formation, heat of combustion, free energy of formation, molar refraction, molar volume, heat of evaporation, magnetic susceptibility, and logarithm of the vapor pressure are calculated for 83 isomers of undecane. A structural isomer is characterized by the number of primary (n_1), secondary (n_2), tertiary (n_3), and quaternary (n_4) carbon atoms and by the number of bonds between such atoms n_{ij} (i, j = 1, 2, 3, 4). The following relations hold for these values:

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$$n_1 + n_2 + n_3 + n_4 = n,$$
$$\tfrac{1}{2} n_1 + n_2 + \tfrac{3}{2} n_3 + 2n_4 = n - 1, \qquad (1)$$

$$2n_{11} + n_{12} + n_{13} + n_{14} = n_1,$$
$$n_{21} + 2n_{22} + n_{23} + n_{24} = 2n_2,$$
$$n_{31} + n_{32} + 2n_{33} + n_{34} = 3n_3, \qquad (2)$$
$$n_{41} + n_{42} + n_{43} + 2n_{44} = 4n_4,$$

However, not all positive integral solutions are possible; since no ring formation must occur, the following conditions are added:

$$0 \leqslant n_{22} \leqslant n_2 - 1, \qquad (7)$$
$$0 \leqslant n_{33} \leqslant n_3 - 1, \qquad (8)$$
$$0 \leqslant n_{41} \leqslant n_4 - 1. \qquad (9)$$

$$0 \leqslant n_{23} + n_{32} + n_{33} \leqslant n_2 + n_3 - 1, \qquad (10)$$
$$0 \leqslant n_{24} + n_{32} + n_{44} \leqslant n_2 + n_4 - 1, \qquad (11)$$
$$0 \leqslant n_{34} + n_{33} + n_{44} \leqslant n_3 + n_4 - 1. \qquad (12)$$

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For the structural isomers of an alkane, the following unambiguous manner of notation results: n_{12}, n_{13}, n_{14}, n_{22}, n_{23}, n_{24}, n_{33}, n_{34}, and n_{44}. Table 1 shows the possible structural isomers for C_{10}, C_{11}, and C_{12}. The physicochemical property P of an isomer then results from the equation $P = \sum_{i=1}^{4} \sum_{j=1}^{4} n_{ij} \cdot P_{ij}$. The values for P_{ij} are assumed to be independent of the number of carbon atoms; they are given in Table 3. The derivation of the values for P_{ij} has been shown in previous studies: V. M. Tatevskiy, V. A. Benderskiy, S. S. Yarovoy (Ref. 9: Metody rascheta fiziko-khimicheskikh svoystv alkanov (Methods of calculating the physicochemical properties of alkanes), Gostoptekhizdat, 1960). There are 3 tables and 9 Soviet references.

SUBMITTED: March 30, 1959

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Table 1. Distributions of bonds for the alkanes C_{10}, C_{11}, C_{12}.

Legend: (1) alkanes

Table 3. Values of the constants for the properties of alkanes.

Legend: (1) Heat of formation of gaseous alkane from the elements. (2) Heat of combustion of gaseous alkane. (3) Heat of combustion of liquid alkane. (4) Free energy of formation of gaseous alkane from the elements. (5) Molar volume of liquid alkane at 20°C, in ml/mole. (6) Molar refraction of liquid alkanes at 20°C in ml/mole. (7) Heat of evaporation into the state of an ideal gas for liquid alkanes in cal/mole, for t = 130-170°C. (8) Decadic logarithm of vapor pressure (in mm Hg) over liquid alkane at t = 150°C. *) The value for P_{44} is not quite accurate since it was determined on one hydrocarbon only. **) The values for P_{44} are not calculated since experimental data for the corresponding alkanes are lacking.

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S/076/61/035/011/002/013
B107/B110

AUTHORS: Yarovoy, S. S., and Tatevskiy, V. M.

TITLE: Calculation of the physicochemical properties of higher alkanes with any number of carbon atoms in the molecule

PERIODICAL: Zhurnal fizicheskoy khimii, v. 35, no. 11, 1961, 2417-2423

TEXT: The authors develop a method of calculating the possible structural isomers of higher alkanes. C_1, C_2, C_3, and C_4 are supposed to be the primary, secondary, tertiary and quaternary carbon atoms in the (sp^3) state, n_1, n_2, n_3, and n_4 the number of the corresponding atoms; further, $C_1=$, $C_2=$, $C_3=$ the primary, secondary and tertiary carbon atoms in the (sp^2) state, $\bar{n}_1$, $\bar{n}_2$, $\bar{n}_3$ the number of the corresponding atoms; n_{ij} is to denote the number of bonds C_i-C_j (i,j = 1, 2, 3, 4), k_{ip} the number of bonds C_i-$C_p=$ (i = 1, 2, 3, 4; p = 2, 3), l_{pq} the number of bonds

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$C_p = C_q$ (p,q = 1, 2, 3); then, the following types of bonds are possible: n_{12}, n_{13}, n_{14}, n_{22}, n_{23}, n_{24}, n_{33}, n_{34}, n_{44}, k_{12}, k_{22}, k_{32}, k_{42}, k_{13}, k_{23}, k_{33}, k_{43}, l_{11}, l_{12}, l_{13}, l_{22}, l_{23}, and l_{33}. The possibility l_{11} drops out since this bond occurs for ethylene only. A physicochemical property P, such as energy of formation, heat of combustion, molar volume, molar refraction, heat of evaporation, logarithm of vapor pressure, etc., can be calculated for a structural isomer by the following formula:

$$P = \sum_{i=1}^{4} \sum_{j=1}^{4} n_{ij} \cdot P_{ij} + \sum_{i=1}^{4} \sum_{p=2}^{4} k_{ip} P'_{ip} + \sum_{p=1}^{3} \sum_{q=p}^{3} l_{pq} \cdot P''_{pq} \quad (1),$$

where P_{ij}, P'_{ip}, and P''_{pq} are constants which are calculated from low alkenes and are independent of the number of C atoms. The following relations hold for the number of carbon atoms:

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1

PAPULOV, Yu.G.; TATEVSKIY, V.M. (Moscow)

Energies of formation and potential barriers of internal rotation of X-substituted alkanes. Zhur.fiz.khim. 35 no.12:2695-2709 D '61. (MIRA 14:12)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova.
(Paraffins--Molecular rotation)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1

MAL'TSEV, A.A.; LATVEYEV, V.K.; TATEVSKIY, V.M.

Nature of the "fluctuating bands of boric acid." Dokl. A[illegible] 137 no. 1:123-125 Mr-Ap '61. (MIRA 14:2)

1. Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova. Predstavleno akademikom V.N. Kondrat'yevym.
(Boric acid--Spectra)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1

TATEVSKIY, V.M.; SPIRIDONOV, V.P.; AKISHIN, P.A.

Law governing the interatomic distances of molecules of halides of various groups of the periodic table. Dokl.AN SSSR 138 no.3:621-624 My '61. (MIRA 14:5)

1. Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova. Predstavleno akademikom A.N. Frumkinym.
(Halides) (Molecules)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1"

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11.2221
11.1290

25721
S/020/61/139/003/020/025
B103/B208

AUTHORS: Rusin, A. D., and Tatevskiy, Y. M.

TITLE: Nature of green light emission and composition of combustion products of boron at 3100°K

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 139, no. 3, 1961, 630-633

TEXT: The authors devised a method of determining the nature of fluctuation bands and the combustion products of boron. This method is based on an investigation of the dependence of the absorption in the band 5470 Å on the concentrations of oxygen, water and hydroxyl (OH) during the explosion in a bomb with central ignition (Ref. 10: V. A. Medvedev et al., ZhFKh, 33, No. 1, 58 (1959)). The composition of the products mentioned has never been completely clarified. In the presence of boron, the flame emits an intense spectrum rich in bands in the range of 3700-6800 Å. These "fluctuation bands" were assigned to various molecules such as BO_2, B_2O_3, and H_3BO_3. The explosion spectra were studied in an apparatus which recorded, at the same time, the absorption spectrum and

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B103/B208

Nature of green light emission...

the explosion pressure. The light of an СВДШ-500 (SVDSh-500) mercury lamp entered the bomb through a quartz window, and was focused to the inlet slit of the ДМР-1 (DMR-1) monochromator. The light was modulated by a turntable with a frequency of about 2500 cps between lamp and bomb to eliminate the superposition of the explosion radiation onto the spectrum. At the outlet of the monochromator, there was an ФЗУ-18 (FZU-18) photomultiplier whose signal was transmitted after amplification to two oscilloscopes: (a) a cathode-ray oscilloscope (for visual observation), and (b) a loop oscilloscope (for recording purposes). The intensity of radiation which had passed the bomb, and that of the explosion pressure were continuously recorded on the drum of (b). An ИГИ (IGI) membrane indicator served as transmitter. Mixtures of Co, O_2, H_2, and Ar were burned in the bomb. The temperature T_e and the composition of the combustion products at the moment of attaining the maximum pressure P_e were calculated by known methods (Ref. 11: A. M. Gurvich, Yu. Kh. Shaulov, Termodinamicheskiye issledovaniya metodom vzryva i raschety protsessov goreniya (Thermodynamic studies by the explosion method and calculations of the combustion processes), M. 1955). 0.1-0.3 moles of diborane per

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100 moles were added to the initial mixture which neither affected P_e nor the O_2, H_2O, or OH concentration. The authors studied mixtures of different initial compositions with respect to the dependence of the band 5470 Å on the amount of diborane admixture. Absorption was measured as the moment when maximum pressure of explosion was attained. Fig. 1 shows the oscillogram of pressure and light absorption of one of the experiments. The following compounds may exist in mixtures with diborane admixture: B_2O_3, B_2O_2, BO, BO_2, HBO_2. The concentrations of these products are correlated by four equations for the equilibrium constants and by one equation for the material balance (see Eqs. (1)-(6)).

$$B_2O_3 \rightleftarrows B_2O_2 + {}^1/_2 O_2,\ K_1 = \frac{m_{B_2O_2} \cdot m_{O_2}^{1/2}}{m_{B_2O_3}} \cdot A^{1/2}; \quad (1)$$

$$B_2O_2 \rightleftarrows 2BO,\ K_2 = \frac{m_{BO}^2}{m_{B_2O_2}} \cdot A^2; \quad (2)$$

$$BO_2 \rightleftarrows BO + {}^1/_2 O_2,\ K_3 = \frac{m_{BO} \cdot m_{O_2}^{1/2}}{m_{BO_2}} \cdot A; \quad (3)$$

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$$HBO_2 + OH \rightleftarrows BO_2 + H_2O,\ K_4 = \frac{m_{BO_2} \cdot m_{H_2O}}{m_{HBO_2} \cdot m_{OH}}; \quad (4)$$

$$2m_{0\,B_2H_6} = a = 2m_{B_2O_3} + 2m_{B_4O_6} + m_{BO} + m_{BO_2} + m_{HBO_2}, \quad (5)$$

$$A = \sqrt{\frac{P_0 T_e}{100 T_0}}. \quad (6)$$

m is the number of moles of the product per 100 moles of the initial mixture. $m_{oB_2H_6}$ is the number of diborane moles, and a the number of gram-atoms of boron both referred to 100 moles of the initial mixture. P_o and T_o denote initial pressure and temperature, respectively. The left-hand side of (1)-(4) contains the values of K_p. A is the transition coefficient of partial pressures to the number of moles. Table 1 contains the initial and the final content of mixtures (boron being not considered). The initial content was calculated in a way that the same end temperature

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$T_e = 3080°K$ was attained for the explosion of each mixture. The purpose of these experiments was to decide whether the fluctuation bands belong to B_2O_3 or to BO_2. The authors used the system of equations (1)-(5), and expressed the concentration of each product m_{BO_2} or $m_{B_2O_3}$ by (a) (see (7) and (8)).

$$a = \left(1 + \frac{K_2}{Am_{O_2}^{1/2}} + \frac{1}{K_4} \cdot \frac{m_{H_2O}}{m_{OH}}\right) m_{BO_2} + \frac{2K_3^2}{K_2} \cdot \frac{1}{m_{O_2}} \left(1 + \frac{Am_{O_2}^{1/2}}{K_1}\right) m_{BO_2}^2, \quad (7)$$

$$a = 2\left(1 + \frac{K_1}{Am_{O_2}^{1/2}}\right) m_{B_2O_3} + \frac{\sqrt{K_1K_2}}{A^{1/2}m_{O_2}^{1/4}} \left[1 + \left(\frac{1}{K_4} \cdot \frac{m_{H_2O}}{m_{OH}} + 1\right) \frac{Am_{O_2}^{1/2}}{K_2}\right] m_{B_2O_3}^{1/2}. \quad (8)$$

For each individual mixture of Table 1, such diborane admixtures were chosen experimentally (a), for which the absorption was the same in all mixtures. Table 2 gives such experimental values of (a). The optical density was 0.434. The authors conclude from Table 2 that there is a linear relationship $a = 0.0544\ m_{H_2O}/m_{OH} + 0.0497$ (9) between the experimental values of (a) and the relation m_{H_2O}/m_{OH}. There is no

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relationship between the experimental values of (a) and m_{O_2}. A comparison of (9) with the theoretical equations (7) and (8) permits the conclusion that (9) will correspond to (7) only if the spectrum is due to the BO_2 radical and if the main products of diborane combustion are BO_2 and HBO_2. In this case, (7) will take the following form: $a = m_{BO_2}/K_4 \cdot m_{H_2O}/m_{OH} + m_{BO_2}$ (10). This, however, corresponds completely to the experimental equation (9). By comparing (9) and (10), K_4 and the absolute concentrations m_{BO_2} and m_{HBO_2}: $K_4 = 0.9$ can be determined. On the other hand, (9) does by no means correspond to Eq. (8). This means that the spectrum observed must not be assigned to the molecule B_2O_3. This is further confirmed by the missing relationship between (a) and m_{O_2}. (9) cannot be explained by the assumption that the spectrum results from the molecules

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Bo or B_2O_3. The results obtained by the authors thus confirm the conclusions drawn by A. A. Mal'tsev and V. M. Tatevskiy (1958) [Abstracter's note: no reference] and by W. E. Kaskan and R. C. Millikan (Ref. 6: J. Chem. Phys., 32, No. 4, 1273 (1960)), according to which the fluctuation bands are caused by the BO_2 radical. The most important boron-containing combustion products were found to be HBO_2 and BO_2 under the conditions of the authors' experiment at 3080°K. The personnel of the laboratory of the Institut goryuchikh iskopayemykh AN SSSR (Institute of Mineral Fuels AS USSR) is thanked for supplying the spherical bomb, V. A. Medvedev, Academician, Ye. I. Cherenkov, and G. A. Bergman for assistance and discussion of the results. There are 2 figures, 2 tables, and 11 references: 7 Soviet-bloc and 4 non-Soviet-bloc. One reference to English-language publications is given in the text, two others read as follows: Singh (Ref. 2: Proc. Ind. Acad. Sci., A 29, 424 (1949)); Ref. 3: J. R. Saulen et al. J. Phys. Chem., 59, 132 (1955).

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Moscow State University imeni M. V. Lomonosov)

PRESENTED: February 28, 1961, by V. N. Kondrat'yev, Academician

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1

SHENYABSKAYA, Ye.A.; KUZYAKOV, Yu.Ya.; TATEVSKIY, V.M.

New analysis of the oscillatory structure of the spectrum of titanium monochloride in the region of 4200 Å. Opt. i spektr. 12 no.3: 359-363 Mr '62. (MIRA 15:3)

(Titanium chloride--Spectra)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1

REZNIKOVA, Ye.B.; TYULIN, V.I.; TATEVSKIY, V.M.

Temperature dependence of the infrared absorption bands of gaseous 1,3-Butadiene. Opt. i spektr. 13 no.3:364-368 S '62. (MIRA 15:9)

(Butadiene--Spectra)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1

43498
S/051/62/013/006/014/027
E039/E120

11.1270

AUTHORS: Kotov, Yu.I., and Tatevskiy, V.M.

TITLE: The Raman and infrared absorption spectra of liquid deuterated hydrazine, N_2D_4

PERIODICAL: Optika i spektroskopiya, v.13, no.6, 1962, 855-857

TEXT: This work fills a gap in the published literature. The N_2H_4 is 98.5% pure and the N_2D_4 96.3% pure using 95% D_2. A ДФС-4 (DFS-4) spectrometer was used with a 600 line/mm grating giving a linear dispersion of 6.9 Å/mm in the 2nd order. A low pressure mercury lamp was used as a source (4358 Å line with KNO_2 solution as a filter). Raman spectra were recorded on Agfa orthochrome film and also photoelectrically, exposures of 6, 12 and 48 hours being required. Infrared spectra were investigated on a double beam ИКС -14 (IKS-14) spectrometer using NaCl and LiF prisms. Thin films (0.02-0.05 mm thick) of teflon were used to prevent clouding of the KBr cell windows. Values of frequencies ν for the Raman and infrared absorption spectra are shown in the table. The frequencies of the fundamental bands in the N_2H_4 spectra agree with those in the literature. The results of this

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work will be discussed in another paper. There are 2 figures and 1 table.

SUBMITTED: March 14, 1962

Table

N_2H_4		N_2D_4	
Raman spectrum	I.R. spectrum	Raman spectrum	I.R. spectrum
875 (6)	872 (c.)	365 (00)	
1041 (1.5)	1045 (o.c.)	745 (0.5)	
1109 (7)	1130 (c.)	799 (1)	720-830 (cp.)
1290 (1)		831 (0)	
1325 (1)	1323 (cp.)	885 (0.5)	873 (сл.)
1625 (6)	1607 (o.c.)	941 (7)	935 (o.сл.)
1756 (1.5)		959 (1)	968 (o.сл.)
1913 (00)		1010 (0)	991 (cp.)
2125 (0)		1030 (5)	1026 (сл.)
2922 (1)	2940 (cp.)	1088 (00)	1121 (c.)

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1

Table, continued.

N_2H_4		N_2D_4	
Raman spectrum	I.R. spectrum	Raman spectrum	I.R. spectrum
2968 (1)		1164 (0.5)	1150 (c.)
3187 (10)	3189 (o.c.)	1201 (5)	
3256 (10)	3270 (o.c.)		1371 (o.c л.)
3332 (9)	3310 (o.c.)	1473 (1)	1462 (c.)
			1569 (o.c л.)
		2352 (10)	2330 (o.c.)
		2417 (10)	2397 (o.c.)
		2490 (9)	2477 (o.c.)
		3278 (1.5)	3273 (cp.)
		3325 (1)	

NOTE: c. - strong; o.c. - very strong; c л. - weak; o.c л. - very weak; cp. - average

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1

The Raman spectrum of liquid ... S/051/62/013/006/015/027
E039/E120

These had all been observed previously in the infrared spectrum of the liquid, and the 1658 cm^{-1} line had been found in the Raman spectrum of gaseous 1-3 butadiene. These lines were related to the second isomer form. While it is possible to relate these frequencies it is considered to be premature to attribute them to the second isomer form.
There is 1 table.

SUBMITTED: April 24, 1962

Card 2/2

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1

KORYAZHKIN, V.A.; TATEVSKIY, V.M.

Polarizability of ions and dipole moments of the diatomic molecules of alkali halides. Vest.Mosk. un. Ser.2:khim. 17 no.1:21-25 Ja-F '62. (MIRA 15:1)

1. Moskovskiy gosudarstvennyy universitet, kafedra fizicheskoy khimii.
(Alkali metal halides—Dipole moments)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1

STEPANOV, N.F.; TATEVSKIY, V.M.

Substantiation for the decomposition of the π-electron energy of aromatic condensed molecules into bonds in various versions of the simplest molecular orbital method. Vest.Mosk. un. Ser.2:khim. 17 no.1:26-29 Ja-F '62. (MIRA 15:2)

1. Moskovskiy gosudarstvennyy universitet, kafedra fizicheskoy khimii.

(Molecules) (Chemistry, Physical and theoretical)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1

KORYAZHKIN, V.A.; TATEVSKIY, V.M.

Molecular constants of diatomic molecules of alkali halides.
Vest.Mosk.un.Ser.2: Khim. 17 no.2:15-20 Mr-Ap '62. (MIRA 15:4)

1. Kafedra fizicheskoy khimii Moskovskogo universiteta.
(Alkali metal halides) (Molecules)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1

KOTOV, Yu.I.; TATEVSKIY, V.M.

Calculation of the vibrational spectrum of the tetrafluorohydrazine N_2F_4 molecule. Vest.Mosk.un. Ser.2:Khim. 18 no.1:10-12 Ja-F '62. (MIRA 16:5)

1. Kafedra fizicheskoy khimii Moskovskogo universiteta.
(Hydrazine) (Spectrum, Molecular)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1

S/048/62/026/010/004/013
B101/B186

AUTHORS: Pentin, Yu. A., and Tatevskiy, V. M.

TITLE: Study of internal rotation and of rotational isomerism (of conformations) of molecules by spectroscopic methods

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya, v. 26, no. 10, 1962, 1241 - 1246

TEXT: A survey is given of papers concerning infrared spectroscopic studies of isomeric structures by determining the characteristic frequencies. The agreement of the difference ΔE_{a-e} between the energies of axial and equatorial conformations of chloro cyclohexane with the double difference $2\Delta E_{g-t}$ between the energies of the gauche and trans positions of 2-halogen butane and halogen-substituted propane is specially discussed. Using symbols defined in an earlier paper (Dokl. AN SSSR, 119, 113 (1958)) the following is written down: X-cyclohexane: $\Delta E_{a-e} = 2\left[\varepsilon_{C_2^oC_2^1}(X_g) - \varepsilon_{C_1^oC_2^1}(X_t)\right]$; 2-X-butane: $\Delta E_{g-t} = \varepsilon_{C_2^oC_2^1}(X_g)$

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1

S/048/62/026/010/004/013
B101/B186

Study of internal rotation ...

- $\mathcal{E}_{C_2^0C_2^1(X_t)}$; X-propyl: $\Delta E^{n}_{g-t} = \mathcal{E}_{C_2^0C_1^1(X_g)} - \mathcal{E}_{C_2^0C_1^1(X_t)}$; where X = halogen, the subscripts denote primary (C_1) and secondary (C_2) C atoms, the superscripts denote presence (C^1) or absence (C^0) of a substituting halogen atom. Thus, $\Delta E_{a-e} = 2\Delta E_{g-t}$ holds for X-butane, but not for X-propyl, since in the latter case $\mathcal{E}_{C_2^0C_2^1} \neq \mathcal{E}_{C_2^0C_1^1}$ for both the trans- and gauche-isomers. There are 3 tables. The most important English-language references are: N. Sheppard, Advances in Spectroscopy, N. Y., Interscience publ., 288, 1959; S. Muzushima, T. Shimanoushi, K. Nakamura, M. Huyashi, S. Tsuchiya, J. Chem. Phys., 26, 970 (1957); L. J. Bellamy et al., J. Chem Soc., 3704 (1956), 3465 (1958); H. Bernstein, J. Chem. Phys., 20, 263 (1952).

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APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1

BENDERSKIY, V.A.; NIKITIN, N.S. [deceased]; TATEVSKIY, V.M.

Regularities in the physicochemical properties of alkylcyclohexanes. Zhur. fiz. khim. 36 no.1:63-71 Ja '62. (MIRA 16:8)

1. Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova.
(Cyclohexane)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1

PAPULOV, Yu.G.; TATEVSKIY, V.M.

Calculation of the interactions of paired atoms spaced over three atoms in A_nE_{2n+2} compounds with a tetrahedral valence system. Zhur. fiz khim. 36 no.1:189-206 Ja '62. (MIRA 16:8)

1. Moskovskiy gosudarstvennyy universitet im. Lomonosova.
(Paraffins) (Heat of formation)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1

S/076/62/036/009/006/011
B101/B102

AUTHORS: Spiridonov, V. P., and Tatevskiy, V. M.

TITLE: Some rules governing the internuclear distances in diatomic molecules

PERIODICAL: Zhurnal fizicheskoy khimii, v. 36, no. 9, 1962, 2024 - 2029

TEXT: The following relations for the internuclear distances in diatomic molecules have been worked out on the basis of data from Tables of interatomic distances and configurations in molecules and ions, Sci. ed. Sutton, Spec. Publ., no. 11, London, 1958: $r_{i'j}^{(KL)} = Ar_{i''j}^{(KL)} + B$, $j = 1, 2, \ldots$; $r_{ij'}^{(KL)} = Cr_{ij''}^{(KL)} + D$, $i = 1, 2, \ldots$; $r_{ij}^{(KL)} = A'r_{nj}^{(ML)} + B'$; $r_{ii}^{(KK)} = A''r_{jj}^{(LL)} + B''$, where r is the internuclear distance measured in Å; K, L, M is the group of the periodic system; i, j, n is the line in the periodic system; A, B, C, D are constants. These equations were used for calculating approximately the internuclear distances in 112 diatomic molecules not yet investigated experimentally (Table). There are 5 figures and 5 tables.

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APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Moscow State University imeni M. V. Lomonosov)

SUBMITTED: March 1[illegible], 1961

Table 5. Internuclear distances estimated; r given in Å.

SrF	2,13	AsH	1,52	BSe	1,76	GeTe	2,47	BiPo	2,98
BaF	2,22	SbH	1,74	AlSe	2,20	SnTe	2,70	Po_2	2,89
ScF	1,96	ScO	1,69	ScSe	2,29	PbTe	2,81	AsC	1,70
YF	2,08	YO	1,79	YSe	2,40	NTe	1,83	SbC	1,90
LaF	2,17	LaO	1,81	LaSe	2,44	PTe	2,33	BiC	1,98
GeF	1,66	AsO	1,56	SiSe	2,08	AsTe	2,51	AsN	1,64
ZrF	1,98	SbO	1,70	GeSe	2,25	SbTe	2,78	SbN	1,87
ScCl	2,50	BiO	1,76	SnSe	2,45	BiTe	2,87	BiN	1,94
YCl	2,65	SeO	1,60	PbSe	2,56	PoTe	2,78	GeN	1,72
LaCl	2,80	TeO	1,74	NSe	1,63	BPo	2,07	SnN	1,94
ScBr	2,66	PoO	1,80	PSe	2,08	AlPo	2,50	PbN	2,01
YBr	2,80	AlS	2,05	AsSe	2,24	ScPo	2,62	PAs	2,00
LaBr	2,96	ScS	2,13	SbSe	2,47	YPo	2,72	SbAs	2,24
BJ	2,15	YS	2,25	BiSe	2,56	LaPo	2,77	BiAs	2,32
AlJ	2,55	LaS	2,28	TeSe	2,42	CPo	1,96	As_2	2,08
ScJ	2,88	GeS	2,09	PoSe	2,50	SiPo	2,37	SbP	2,15
YJ	3,01	SnS	2,30	BTe	1,98	GePo	2,55	Sb_2	2,39
LaJ	3,15	AsS	2,07	AlTe	2,41	SnPo	2,79	SbBi	2,45
FJ	1,88	SbS	2,28	ScTe	2,53	PbPo	2,90	PBi	2,22
BrJ	2,48	BiS	2,36	YTe	2,63	NPo	1,89	Bi_2	2,50
ScH	1,93	SeS	2,04	LaTe	2,68	PPo	2,42		
YH	2,09	TeS	2,24	CTe	1,88	AsPo	2,61		
LaH	2.17	PoS	2.33	SiTe	2.29	SbPo	2,90		

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1

S/189/63/000/001/003/008
D204/D307

AUTHORS: Kotov, Yu. I. and Tatevskiy, V. M.

TITLE: Calculation of the vibrational spectrum of the tetrafluorohydrazine molecule, N_2F_4

PERIODICAL: Moscow. Universitet. Vestnik. Seriya II. Khimiya, no. 1, 1963, 10-12

TEXT: The present work was motivated by the scarcity of literature data concerning the vibrational spectrum of N_2F_4. The calculations were carried out for the 2 most probable configurations: (a) a form in which the deflection angle of one NF_2 group w.r.t. the other, θ, is 65° (symmetry group C_2), and (b) the trans-form (symmetry group C_{2h}). An expression for the potential energy of N_2F_4 is given in terms of force constants (derived from experimental data for N_2H_4, NF_2, NF_3 and C_2F_6) internuclear distances (N-N =

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1

1.47 Å, N-F = 1.37 Å) and valency angles ($\widehat{FNF}$ = 108°, $\widehat{NNF}$ = 104°, θ = 65° or 180° (for the trans-form)). The results of calculating the expected frequencies are tabulated. Five frequencies of each form of N_2F_4 are to be expected in the 900 - 1050 cm^{-1} region, two of which should appear in the ir spectrum; this is in agreement with observations of Colburn and Kennedy (J. Amer. Chem. Soc., 80, 5004, 1958). It is considered that gaseous N_2F_4 is largely in the "C_2-form". There are 1 figure and 1 table.

ASSOCIATION: Kafedra fizicheskoy khimii (Physical Chemistry Department)

SUBMITTED: June 11, 1962

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1

S/189/63/000/002/001/010
A057/A126

AUTHORS: Kotov, Yu.I., Tatevskiy, V.M.

TITLE: Calculation of the power constants for the NF_2 and NF_3 molecules

PERIODICAL: Vestnik Moskovskogo universiteta, Seriya II, Khimiya, no. 2, 1963, 3 - 5

TEXT: The system of power constants for the molecules NF_2 and NF_3 was calculated disregarding the difference of their power constants. The values for the basic frequencies ν_1 (A) and ν_3 (B) of the NF_2 radical were taken from data published by M.D. Harmony et al (J. Chem. Phys., v. 35, 1961, 1,129). The molecule NF_2 has three normal oscillations, which belong to two types of symmetry $\Gamma = 2A + 1B$. The NF_3 molecule shows six normal oscillations two of which are twice degenerated $\Gamma = 2A_1 + 2EI + 2EII$. Elements of the matrix of kinetic energy were calculated from literature data by means of geometric parameters presented in literature. A system of six equations with five unknowns was obtained by inserting the values of frequencies taken from literature into secular equations. The following power constants were obtained after approximative so-

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lution (in 10^6 cm^{-2}): $K_q = 7.79$, $K_\alpha = 2.35$, $K_{qq} = 2.11$, $K_{q\alpha} = 0.89$, $K_{\alpha\alpha} = 0.14$. A maximum difference of 32 cm^{-1} was observed by comparison of experimentally obtained and calculated (by means of the last mentioned power constants) frequencies of the NF_2 and NF_3 molecules. This coincidence is satisfactory considering that the difference of the power constants of NF_2 and NF_3 molecules was not taken into account.

ASSOCIATION: Kafedra fizicheskoy khimii (Department of Physical Chemistry)

SUBMITTED: June 2, 1962

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1

TYULIN, V.I.; TATEVSKIY, V.M.

Comparative review of certain spectral characteristics of low-pressure mercury lamps. Prib. i tekh. eksp. 8 no.6:12-18 N-D '63.

Mirror-type bulbs for studing the Raman spectra of gaseous substances. Ibid.:156-158 (MIRA 17:6)

1. Khimicheskiy fakul'tet Moskovskogo gosudarstvennogo universiteta.

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1

KOTOV, Yu.I.; TATEVSKIY, V.M.

Vibrational Raman spectrum of gaseous tetrafluorohydrazine N_2F_4.
Opt. i spektr. 14 no.3:443-444 Mr '63. (MIRA 16:4)
(Hydrazine) (Raman effect)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1

S/051/63/014/004/024/026
E039/E420

AUTHORS: Tyulin, V.I., Tatevskiy, V.M.

TITLE: A low pressure high-power mercury lamp as a source of excitation in the investigation of rotational Raman spectra

PERIODICAL: Optika i spektroskopiya, v.14, no.4, 1963, 582-585

TEXT: The construction of a low pressure high-power mercury lamp developed by the authors is given (Fig.1). It is fully water-cooled and Kovar seals are used at the electrodes. The intensity and halfwidth $\Delta\nu$ of the 4358 Å is used to select the working conditions. $\Delta\nu$, as measured using a Fabry-Perot interferometer, increases linearly with current density from $\sim$0.12 cm^{-1} at $\sim$2.5 A/cm^2 to 0.14 cm^{-1} at $\sim$6.5 A/cm^2. The voltage gradient falls to a minimum of 0.4 V/cm at 3.0 A/cm^2. The integral intensity and the intensity at maximum both increase nearly linearly with current up to 6 to 7 A/cm^2. The best working regime for excitation of rotational Raman spectra using the 4358 Å line is as follows: electrode cooling water at 15°C, positive column cooling water at 50°C, current density 6.7 to

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1

7 A/cm^2 (25 to 27 A for shown dimensions) and voltage 110 to 120 V. The width of the exciting line is then not more than 0.14 cm^{-1}. The intensity of the 4358 Å line from this fully cooled lamp at 15 A is 4 times and at 25 A is 7 times more intense than for the corresponding "Toronto type" lamp at 15 A. There are 2 figures.

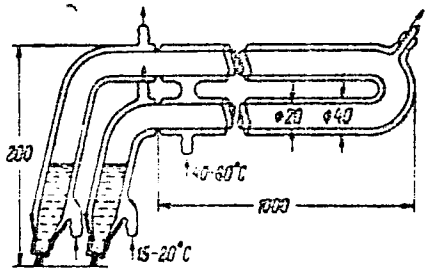

Fig.1. Construction of lamp (dimensions in mm)

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1

L 11170-63 EWT(1)/BDS--AFFTC/ASD
ACCESSION NR: AP3002793

S/0051/63/014/006/0821/0822

AUTHOR: Tyulin, V. I.; Tatevskiy, V. M.

51

TITLE: New method for determining line shifts in rotational Raman spectra

21

SOURCE: Optika i spektroskopiya, v. 14, no. 6, 1963, 821-822

TOPIC TAGS: line shifts, Raman spectra

ABSTRACT: The authors propose a reasonably accurate method for determining the shift of rotational lines in Raman spectra. The method is based on calculations using the separation between rotational Stokes and anti-Stokes lines with the same J and a constant which can be determined with reference to a series of standard Hg lines. The Stokes-anti-Stokes separation is determined on a comparator. The procedure has been used by the authors in conjunction with spectroscopic work on a DFS-3 spectrograph. The accuracy in determining the line shifts depends on the intensity and width of the rotational lines and is usually of the order of 0.02-0.03 cm sup -1. Orig. art. has: 6 formulas.

ASSOCIATION: none

Card 1/2

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1

L 13094-63 BDS/EWT(1) AFFTC/ASD

ACCESSION NR: AP3001408 S/0051/63/015/001/0038/0041

53
51

AUTHOR: Tyulin, V. I.; Tatevskiy, V. M.

TITLE: Rotational Raman spectra. 1. Carbon dioxide

SOURCE: Optika i spektroskopiya, v.15, no.1, 1963, 38-41

TOPIC TAGS: Raman spectrum, carbon dioxide, gas spectrum

ABSTRACT: The present study is the first of a proposed series of investigations of the rotational Raman spectra of gaseous substances to be undertaken in the Laboratory of Molecular Spectroscopy, Chemistry Department, Moscow State University. Such studies have become feasible owing to the development of powerful low-pressure mercury discharge tubes and multiple-path (mirror end) cells. In the present study two 2-meter Hg tubes were used, the selected line being 4358 Å. The focal distance of the cell mirror was 2 m; the diameter 40 mm; the reflection 97-98%. The cell was designed to withstand pressures of up to 10 atm. The rotational spectrum (microdensitometer trace reproduced) was recorded in the first order with condensing lens and in the second order without a lens at a CO_2 pressure of 3.5 atm; the exposure times were 2.5 to 10 hours. The frequency shifts of the rotational lines relative to the exciting line for a linear molecule are tabulated. The rotational

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1

L 13094-63
ACCESSION NR: AP3003408

2

constants B_0 and D_J, entering the equation for the frequency shifts, were determined and are compared with the data of other authors based on the infrared spectrum. "The authors are grateful to Z.P.Gribov and B.Ye.Zaytseva for assistance in the work." Orig.art.has: 1 formula.

ASSOCIATION: none

SUBMITTED: 23Oct62 DATE ACQ: 30Jul63 ENCL: 00

SUB CODE: PH,CH NO SOV REF: 006 OTHER: 009

Card 2/2

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1

KOTOV, Yu.I.; TATEVSKIY, V.M.

Raman vibration spectrum of hydrazine (H_2H_4) vapors. Opt. i spektr. 15 no.1:128 Jl '63. (MIRA 16:8)

(Hydrazine—Spectra) (Raman effect)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1

L 19974-63 EWP(j)/EPF(c)/EWT(1)/EWT(m)/BDS AFFTC/ASD Pc-4/Pr-4
RM/WW/MAY

ACCESSION NR: AP3007269 S/0051/63/015/003/0320/0324

AUTHOR: Gribova, Z.P.; Tyulin, V.I.; Tatevskiy, V.M.

TITLE: Rotational Raman spectra. 2. Vinylacetylene C_4H_4

SOURCE: Optika i spektroskopiya, v.15, no.3, 1963, 320-324

TOPIC TAGS: Raman spectrum, rotational spectrum, vinylacetylene

ABSTRACT: The investigation was concerned with the rotational Raman spectrum of vinylacetylene (C_4H_4). The spectrum was recorded on a DFS-3 spectrograph with a linear dispersion of 4.6 cm^{-1}/mm in the second order. The vinylacetylene molecule is of interest for such high-resolution Raman studies because it belongs to the class of slightly asymmetrical tops (hitherto, mainly linear and symmetrical top molecules have been investigated). The $\Delta\nu$ values (shifts) observed in the rotational Raman spectrum are tabulated, and assignments (R, S and S' branches) for the lines are made on the basis of analysis of the experimental data. The values derived for the structure parameters are in agreement with the data in the literature (Tables of Interatomic Distances and Configurations in Molecules and Ions,

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L 19974-63

ACCESSION NR: AP3007269

Edited by L.E.Sutton, No.11, London, 1958). The value obtained for the length of the single C-C bond is 1.43 Å (literature 1.448 Å), and that for the C=C-C angle is 124.3° (literature 123°). "The writer is grateful to S.I.Subbotin for assistance in the calculations." Orig.art.has: 4 formulas, 1 figure and 3 tables.

ASSOCIATION: none

SUBMITTED: 26Dec62 DATE ACQ: 09Oct63 ENCL: 00

SUB CODE: PH NO REF SOV: 003 OTHER: 011

Card 2/2

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1

KOTOV, Yu.I.; KOPTEV, G.S.; PENTIN, Yu.A.; TATEVSKIY, V.M.

Infrared absorption spectrum of deuterated hydrazine vapors.
Opt. i spektr. 15 no.4:564-565 O '63. (MIRA 16:11)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1

KOTOV, Yu.I.; TATEVSKIY, V.M.

Calculation of the force constants for the molecules NF_2 and NF_3. Vest.Mosk.un.Ser.2:Khim. 18 no.2:3-5 Mr-Ap '63. (MIRA 16:5)

1. Kafedra fizicheskoy khimii Moskovskogo universiteta.
(Nitrogen fluorides) (Molecules)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1

PAPULOV, Yu.G.; TATEVSKIY, V.M.

Potential barriers of internal rotation and the differences of energies of rotational isomers in X-substituted ethanes. Vest. Mosk. un. Ser. 2: Khim. 18 no.3:5-9 My-Je '63. (MIRA 16:6)

1. Kafedra fizicheskoy khimii Moskovskogo universiteta.
(Ethane—Molecular rotation)
(Isomerism)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1

ACCESSION NR: AP3001600 S/0189/63/000/003/0010/0013

AUTHORS: Kotov, Yu. I.; Koptev, G. S.; Tatevskiy, V. M.

TITLE: Vibrational frequency of hydrazine molecule N_2H_4 VOL. 18

SOURCE: Moscow. Universitet. Vestnik. Seriya 2. Khimiya, no. 3, 1963, 10-13

TOPIC TAGS: vibrational frequency, hydrazine molecule, force constant, potential energy

ABSTRACT: The vibrational frequencies of the hydrazine molecule for rotation angles $\theta = 0^\circ$, 60, 90, 120, and 180° have been calculated. The force constants in the potential energy term are borrowed from the data of NH_3, CH_3NH_2 and C_2H_6. Computations were made on the digital computer "Strela." For frequency curves ν_i ($i = 1, 2, 3, 5, 8, 9$, and 10) the change in angle of rotation had a very small effect (maximum value ~ 30 cm^{-1}). Frequencies ν_4 and ν_{11}, on the other hand, changed by a value of 350 cm^{-1} from $\theta = 0^\circ$ to 180°. The magnitudes of ν_6 and ν_{12} for $\theta = 90^\circ$ are shown to correspond respectively to 831 and 859 cm^{-1}. Orig. art. has: 2 formulas, 1 figure, and 1 table.

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APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1

BERDNIKOV, V.I.; TATEVSKIY, V.M.

General method for calculating the integrals from spin-functions in the method of valence schemes. Vest.Mosk. un. Ser.2.Khim. 18 no.4:93 Jl-Ag '63. (MIRA 16:9)

1. Kafedra fizicheskoy khimii Moskovskogo universiteta.
(Valence (Theoretical chemistry))
(Integrals)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1

TATEVSKIY, V.M.; BERDNIKOV, V.I.

Approximations in M.F. Mamotenko's formula for the energy of formation of bonds in a molecule adequately described by a single scheme. Vest. Mosk. un. Ser. 2: Khim. 18 no.5:17-21 S-O '63. (MIRA 16:11)

1. Kafedra fizicheskoy khimii Moskovskogo universiteta.

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1

BERDNIKOV, V.I.; TATEVSKIY, V.M.

Degradation of atomic-binding energy in a molecule into expressions relating to local molecular gragments. Vest.Mosk.un. Ser.2:Khim. 18 no.6:14-18 N-D '63. (MIRA 17:4)

1. Kafedra fizicheskoy khimii Moskovskogo universiteta.

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1

PAPULOV, Yu.G.; TATEVSKIY, V.M. (Moscow)

Paired interactions of atoms and the properties of X-substituted ethane. Zhur.fiz.khim. 37 no.2:406-412 F '63. (MIRA 16:5)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova.
(Ethane) (Substitution (Chemistry)) (Atoms)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1

S/076/63/037/003/019/020
B101/B215

AUTHORS: Rusin, A. D., Tatevskiy, V. M.

TITLE: Formation heat of the radical BO_2

PERIODICAL: Zhurnal fizicheskoy khimii, v. 37, no. 3, 1963, 716-717

TEXT: For the reaction $HBO_2 + OH = BO_2 + H_2O$ (1), the thermal effect $\Delta H_0^0 = -0.5$ kcal/mole and the formation heat $\Delta H_0(BO_2) = 64 \pm 4$ kcal/mole were obtained as the result of a recent study. Further details have not yet been published. The data obtained by W. E. Kaskan et al. (J. Chem. Phys., 32, 1273, 1960, ibid., 34, 570, 1961) are discussed.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Moscow State University imeni M. V. Lomonosov)

SUBMITTED: August 10, 1962

Card 1/1

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1

L 16930-63 EPF(c)/EWP(q)/EWT(m)/BDS AFFTC JD
S/076/63/037/004/022/029
60

AUTHOR: Samoylova, A. N., Mal'tsev, V. A., Tatevskiy, V. M., Kurdyumova, I. N., Kuznetsova, L. A.

TITLE: Absorption spectrum due to photolysis of boron chloride with ozone
27 27 27

PERIODICAL: Zhurnal fizicheskoy khimii, V. 37, No. 4, 1963, 909

TEXT: The authors studied the reaction of oxidation of boron chloride by oxygen and of boron chloride by ozone. It is shown that in pulse photolysis of a mixture of boron trichloride with ozone it is possible to observe a band of 4,720 Å, for which the carrier is apparently an intermediate compound in the process of the oxidation of BCl_3 to BO_2. There is 1 figure. The most important English-language reference reads as follows: Johns, Canad. J. Physics, 39, 1738, 1961.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: June 14, 1962

Card 1/1

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1

SPIRIDONOV, V.P.; TATEVSKIY, V.M.

Electronegativity concept of atoms. Part 1. Zhur. fiz. khim. 37 no.5:994-1000 My '63. (MIRA 17:1)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova.

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1

L 12698-63 EWT(1)/BDS AFFTC/ASD Pi-4
ACCESSION NR: AP3002925 S/0076/63/037/006/1236/1242

56
55

AUTHOR: Spiridonov, V. P.; Tatevskiy, V. M.

TITLE: The atomic electronegativity concept. 2. Analysis of Pauling's electronegativity scale

SOURCE: Zhurnal fizicheskoy khimii, v. 37, no. 6, 1963, 1236-1242

TOPIC TAGS: Pauling's electronegativity scale, atomic electronegativity

ABSTRACT: It has been shown that there is no relation between the philological definition of "electronegativity" and the quantities x sub A and x sub B in Pauling's equation. Pauling's equation cannot serve as the definition of a new physical concept, except to indicate the fraction of the square root of the heat effect of a reaction contributed by a given atom in a molecule. It has been shown that Mulliken's attempt to provide a theoretical grounding for Pauling's equation is invalid, because the quantity introduced by Mulliken as "electronegativity" does not have the meaning of "the ability of atoms in a molecule to attract to themselves electrons", as required by Pauling's definition of this term. Orig. art. has: 3 equations and 1 table.

ASSOCIATION: Moscow State University

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APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1

L 9910-63 EPF(c)/EWT(m)/BDS—Pr-4—RM/WW/MAT

ACCESSION NR: AP3002935 S/0076/63/037/006/1336/1342

60
58

AUTHOR: Liu, Ch'un-wan; Tatevskiy, V. M.

TITLE: New regularities in the lower excited electron levels and in electron transitions in spectra of multinuclear aromatic hydrocarbons

SOURCE: Zhurnal fizicheskoy khimii, v. 37, no. 6, 1963, 1336-1342

TOPIC TAGS: spectra of aromatic hydrocarbons, excited electron levels, electron transitions

ABSTRACT: Total energies of Pi-electrons, referred to the basic electron state of any aromatic multinuclear hydrocarbon, may be expressed as the sum of partial-energy magnitudes present in bonds of all types. By postulating that a similarity exists between excited and unexcited states, the authors set in modified form a few equations previously developed for unexcited states. Under the assumption that there are 17 bond types in each molecule of aromatic hydrocarbons, connected by four conditions of linear dependence, the modified formulas are checked against experimental data pertaining to the wave numbers of p-bands for 82 aromatic

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L 9910-63
ACCESSION NR: AP3002935

2

hydrocarbons mentioned in the references and are found to be in good agreement, except in the case of dinaphthopyrene, indicating that some lower excited states in the molecules of multinuclear aromatic hydrocarbons exhibit linear dependence between Pi-electron energies and the number of various bond types. Orig. art. has: 4 tables, 2 figures, and 4 formulas.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Moscow State University)

SUBMITTED: 30Jun62 DATE ACQ: 16Jul63 ENCL: 00

SUB CODE: 00 NO REF SOV: 005 OTHER: 030

Card 2/2

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1

SPIRIDONOV, V.P.; TATEVSKIY, V.M.

Electronegativity concept of atoms. Part 3. Zhur.fiz.khim. 37 no.7:1583-1586 Jl '63. (MIRA 17:2)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova.

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1

SPIRIDONOV, V.P.; TATEVSKIY, V.M.

Concept of electronegativity of atoms. Part 4: Consideration of semitheoretical and theoretical methods of determining the electronegativity values. Zhur. fiz. khim. 37 no.9:1973-1978 S '63. (MIRA 16:12)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova.

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1

SPIRIDONOV, V.P.; TATEVSKIY, V.M.

Concept of the elctronegativity of atoms. Part 5: Meaning of the values called electronegativities of atoms. Use of equations containing electronegativities in determining the properties of molecules. Zhur.fiz.khim. 37 no.10:2174-2178 O '63. (MIRA 17:2)

1. Moskovskiy gosudarstvennyy universitet imeni [illegible]

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1

YEREMIN, Ye.N., prof.; KISELEV, A.V., prof.; KOBOZEV, N.I., prof.; PANCHENKOV, G.M., prof.; POLTORAK, O.M., prof.; SKURATOV, S.M., prof.; TATEVSKIY, V.M., prof.; TOPCHIYEVA, K.V., prof.; FIGUROVSKIY, N.A., prof.; FILIPPOV, Yu.V., prof.; SHAKHPARONOV, M.I., prof.

Iakov Ivanovich Gerasimov; on his sixtieth birthday. Zhur. fiz. khim. 37 no.12:2803-2804 D '63. (MIRA 17:1)

1. Kafedra fizicheskoy khimii Moskovskogo gosudarstvennogo universiteta.

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1

ACCESSION NR: AP4020975 S/0051/64/016/003/0542/0543

AUTHOR: Kuznetsova, L.A.; Kuzyakov, Yu.Ya.; Tatevskiy, V.M.

TITLE: On the electronic absorption spectrum of the NF_2 radical

SOURCE: Optika i spektroskopiya, v.16, no.3, 1964, 542-543

TOPIC TAGS: radical absorption, tetrafluorohydrazine, nitrogen difluoride radical

ABSTRACT: F.A.Johnson and C.B.Colburn (J.Amer.Chem.Soc.83,3043,1961) observed a region of "continuous absorption" near 2600 Å in the spectrum of the products of thermal decomposition of tetrafluorohydrazine (N_2F_4), which they attributed to the NF_2 radical. In the present work this region was re-investigated by means of a higher dispersion and resolution instrument (an ISP-28 spectrograph). The tetrafluorohydrazine at different pressures from 5 to 200 mm Hg was heated in an alumdum tube to different temperatures - up to about 750°C - where absorption in the 2600 Å region disappears. The study disclosed that the NF_2 absorption spectrum in the 2600 Å region is actually not continuous but consists of 16 bands. The intensity and sharpness of the bands increase with temperature up to about 300-400°C. The wavelengths of the bands are tabulated, and a set of three microdensitometer traces is

Card 1/2

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1

ACCESSION NR: AP4020975

reproduced in a figure. The average separation between the bands is about 390 cm^{-1}. This frequency is associated with deformation vibrations of the radical. Orig.art. has: 1 figure and 1 table.

ASSOCIATION: none

SUBMITTED: 16Jul63 DATE ACQ: 02Apr64 ENCL: 00

SUB CODE: PH, CH NREF SOV: 000 OTHER: 001

2/2
Card

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1

ACCESSION NR: AP4011439 S/0076/64/038/001/0068/0072

AUTHORS: Berdnikov, V.I. (Moscow); Tatevskiy, V.M. (Moscow)

TITLE: General method for calculating spin function integrals in the valence diagram method

SOURCE: Zhurnal fiz. khim, v. 38, no. 1, 1964, 68-72

TOPIC TAGS: spin function, spin function integral, valence diagram method, quantum mechanics, electron rearrangement

ABSTRACT: It is necessary to know the numerical values of integrals of the type

$$\delta_p \int \varphi_{2n}^{*} P \varphi_{2n} dw_{2n}, \tag{1}$$

where

$$\varphi_{2n} = [\alpha(1)\beta(2) - \alpha(2)\beta(1)]\,[\alpha(3)\beta(4) - \alpha(4)\beta(3)]\ldots\times \times [\alpha(2n-1)\beta(2n) - \alpha(2n)\beta(2n-1)], \tag{2}$$

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1

ACCESSION NR: AP4011439

for solving some quantum mechanics problems, and particularly for finding the molecule formation energy by valence diagrams with the use of nonorthogonal functions. In this case, P is the electron rearrangement operator; $\delta_P = +1$ or -1 depending upon whether an even or odd rearrangement corresponds to the operator P; and $d\omega_{2N} = d\omega(1)\, d\omega(2) \ldots\ldots d\omega(2n)$ is the product of the elements of the spin space volume of individual electrons. Since the spin functions α and β are orthonormalized, the consequence is

$$\int \varphi^*_{2n} \varphi_{2n} d\omega_{2n} = 2^n, \qquad (3)$$

where n is the number of brackets in form (2). The present work is an examination of the problems associated with determining the values for the above-mentioned integrals. It was proved that if φ_{2n} is given in form (2), then the electron rearrangements s of r brackets, where both electrons can pass at once from some of the brackets into other ones, can generally be reduced to a rearrangement of another number of electrons in which no more than one electron will rearrange itself from each bracket without changing the magnitude

Card 2/3

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1

ACCESSION NR: AP4011439

of form (1). Orig. art. has: 3 equations.

ASSOCIATION: None

SUBMITTED: 00 DATE ACQ: 14Feb64 ENCL: 00

SUB CODE: PH, CH NO REF SOV: 000 OTHER: 000

Card 3/3

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1

MOSKVITINA, Ye.N.; KUZYAKOV, Yu.Ya.; KNYAZEVA, N.A.; TATEVSKIY, V.M.

Infrared spectrum of tetrafluorohydrazine. Opt. i spektr. 16 no.5:768-771 My '64. (MIRA 17:9)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1

PANCHENKO, Yu.N.; PENTIN, Yu.A.; TYULIN, V.I.; TATEVSKIY, V.M.

Vibration spectra of 1,3-D_6-Butadiene. Opt. i spektr. 16 no.6:992-997 Je '64. (MIRA 17:9)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1

ALEKSANDROV, A.P.; TYULIN, V.I.; TATEVSKIY, V.M.

Vibrational spectra of carbon subdioxide (C_3O_2) in different states of aggregation. Opt. i spektr. 17 no.1:38-44 Jl '64. (MIRA 17:9)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1"

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APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1"

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1

SPIRIDONOV, V.P.; TATEVSKIY, V.M.

Concerning a relationship in molecular refractions of gaseous and liquid inorganic substances. Vest. Mosk. un. Ser. 2:Khim. 19 no.1: 30-32 Ja-F '64. (MIRA 17:6)

1. Kafedra fizicheskoy khimii Moskovskogo universiteta.

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1

TATEVSKIY, V.M.; STEPANOV, N.F.; YAROVOY, S.S.

Quantum mechanical expressions for the physical values and the regularities in geometrical configuration of molecules. Vest. Mosk. un. Ser. 2: Khim. 19 no.5:3-34 S-O '64. (MIRA 17:11)

1. Kafedra fizicheskoy khimii Moskovskogo universiteta.

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755110019-1

L 42872-66 EWT(1)/EWT(m)/T/EWP(t)/ETI IJP(c) JD/WW/JW/GG/RM

ACC NR: AR6017231 SOURCE CODE: UR/0058/65/000/012/D031/D031

AUTHOR: Moskvitina, Ye. N.; Kuzyakov, Yu. Ya.; Kotov, Yu. I.; Tatevskiy, V. M.

ORG: none

TITLE: Investigation of infrared spectra and spectra of the Raman effect of tetrafluorohydrazine

SOURCE: Ref. zh. Fizika, Abs. 12D249

REF SOURCE: Tr. Komis. po spektroskopii. AN SSSR, t. 3, vyp. 1, 1964, 197-204

TOPIC TAGS: absorption spectrum, Raman effect, IR spectrum, absorption band, tetrafluorohydrazine, hydrazine derivative

ABSTRACT: The infrared absorption spectrum of tetrafluorohydrazine (I) has been investigated in the gaseous and the solid phase in the 400—4000-cm^{-1} range. The spectrum of the Raman effect has been obtained in the gaseous phase. Coincidence

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ACC NR: AR6017231

of oscillation frequency in the spectrum of the Raman effect with the oscillation frequency in the infrared spectrum indicates that molecule I has a configuration corresponding to the symmetry of C_2. A preliminary interpetation of the absorption bands has been proposed. [Translation of abstract] [NT]

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ACCESSION NR: AP4019522 S/0076/64/038/002/0405/0410

AUTHOR: Spiridonov, V. P. (Moscow); Tatevskiy, V. M. (Moscow)

TITLE: Some laws for the internuclear distances governed by chemical bonds of different types in polyatomic molecules

SOURCE: Zhurnal fizicheskoy khimii, v. 38, no. 2, 1964, 405-410

TOPIC TAGS: internuclear distance, polyatomic internuclear distance, chemical bond, polyatomic molecule

ABSTRACT: In earlier studies, the second author arrived at the conclusion that internuclear distances typical of the chemical bonds of two given atoms in different molecules are characterized not only by the chemical individuality of these atoms and the parity of corresponding bonds but also by the valent state of each of the bonded atoms. These internuclear distances remain the same in different molecules if other conditions are identical. Other atoms not participating in the bond have but a slight influence on the above distance (some 0.02-0.03 Å). The purpose of the present work was to discuss the laws governing these internuclear distances in polyatomic molecules of different types. An analysis of

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the average values of internuclear distances in different type bonds formed by atoms of different groups in the periodic system, indicates the governing laws in specifically selected groups of molecules. These laws expressed as linear changes in internuclear distances can be used for the evaluation of average amounts of internuclear distances in polyatomic molecules where no experimental data are available.

ASSOCIATION: Moskovskiy gosudarstvenny*y universitet im. M. V. Lomonosova (Moscow State University)

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[Quantum mechanics and the theory of molecular structure] Kvantovaia mekhanika i teoriia stroeniia molekul. Moskva, Izd-vo Mosk. univ., 1965. 163 p. (MIRA 18:5)

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AUTHOR: Rusin, A. D.; Tatevskiy, V. M.

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(Stackholm--Aerial photogrammetry--Congresses)

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