SKURAT, N.Ye.

Making a wider use of showers. Tekst.prom. 20 no.4:91 Ap '60. (MIRA 13:8)
(Textile workers--Diseases and hygiene)

SKURAT, N.Ye.; NOVIKOV, Yu.V.

Medical and hygienic inspection of windowless factories (from "Deutsche Gesundheitswesen," no. 22, 1958). Gig. i san. 25 no. 6:106-107 Je '60. (MIRA 14:2)
(FACTORY SANITATION)

BABOKIN, I.A., redaktor; BALBACHAN, Ya.I, redaktor; BARABANOV, F.A., redaktor; BUCHNEV, V.K., redaktor; VLADIMIRSKIY, V.V., redaktor; GRIGOR'YEV, S. Ye., redaktor; DOKUKIN, A.V., redaktor; ZHABO, V.V. redaktor; ZADEMIDKO, A.N., redaktor; ZAITSEV, A.P., redaktor; IL'ICHEV, A.S., redaktor; KAGAN, V.Ya., redaktor; KRASNIKOVSKIY, G.V., redaktor; KRASOZOV, I.P., redaktor; KRIVONOGOV, K.K., redaktor; LALAYANTS, A.M., redaktor; MOGILEVSKIY, N.M., redaktor; ONIKA, D.G., redaktor; OSTROVSKIY, S.B., redaktor; OSTROVSKIY, S.M., redaktor; PEYSAKHOVICH, G.I., redaktor; POCHENKOV, K.I., redaktor; SIRYACHENKO, F.N.;redaktor. SKOCHINSKIY,A.A., redaktor; STUGAREV, A.S., redaktor; SKORKIN, K.I.; SKURAT, V.K., redaktor; SOBOLEV, G.G., redaktor ;TERPITOREV, A.M., redaktor; KHUDOCOVTSEV, N.M., redaktor; TSYPKIN, V.S., redaktor; SHEVYAKOV, L.D., redaktor; SHELKOV, A.A., redaktor;ANDREYEV, G.G., tekhnicheskiy redaktor.

[Safety rules in coal and shale mines] Pravila bezopasnosti v ugol'nykh i slantsevykh shakhtakh. Moskva, Ugletekhizdat, 1951. 207 p. (MLRA 9:1)

1. Russia (1923- U.S.S.R) Ministerstva ugol'noy promyshlennosti. (Coal mines and mining-Safety measures)

SKURAT, V.K.

KUZ'MICH, A.S., redaktor; BARABANOVA, F.A., redaktor; BOBROV, I.V., redaktor; VLADIMIRSKIY, V.V., redaktor; GRAFOV, L.Ye., redaktor; DOKUKIN, A.V., redaktor; YERASHKO, I.S., redaktor; ZABLODSKIY, G.P., redaktor; ZADEMIDKO, A.N., redaktor; ZAYTSEV, A.P., redaktor; ZASADYCH, B.I., redaktor; KAGAN, F.Ya., redaktor; KRASNIKOVSKIY, G.V., redaktor; KRIVONOGOV, K.K., redaktor; LALAYANTS, A.M., redaktor; MELAMED, Z.M., redaktor; MINDELI, E.O., redaktor; MOGILEVSKIY, N.M., redaktor; OSTROVSKIY, S.B., redaktor; POPOV, T.T., redaktor; SKOCHINSKIY, A.A., redaktor; S[redacted] V.K., redaktor; SOBOLEV, G.G., redaktor; STUGAREV, A.S., redaktor; SUMCHENKO, V.A., redaktor; TERPIGOREV, A.M., redaktor; SHEVYAKOV, L.D., redaktor; SHELKOV, A.A., redaktor; ANDREYEV, G.G., tekhnicheskiy redaktor

[Safety regulations in coal and shale mines] Pravila bezopasnosti v ugol'nykh i slantsevykh shakhtakh. Moskva, Ugletekhizdat, 1953. 226 p. (MIRA 8:4)

1. Russia (1923- U.S.S.R.) Ministerstvo ugol'noy promyshlennosti. (Coal mines and mining--Safety measures)

ZAYTSEV, A.P., red.; BORZOV, K.V., red.; BOGUSLAVSKIY, Yu.K., red.; BELOUSOV, V.G., red.; VODAKHOV, L.A., red.; IZRAITEL', S.A., red.; KOL', A.N., red.; LISYUK, S.S., red.; MOISEYEV, S.L., red.; MEL'NIKOV, N.V., red.; MOROZOV, V.P., red.; MUDROV, P.A., red.; POLYAKOVA, Z.K., red.; PODERNI, Yu.S., red.; POLESIN, Ya.L., red.; POKROVSKIY, L.A., red.; SLASTUNOV, V.G., red.; SKURAT, V.K., red.; STRUNIN, M.A., red.; SOKOLOVSKIY, M.M., red.; FEOKTISTOV, A.T., red.; CHESNOKOV, M.M., red.; SHUKHOV, A.N., red.; YAMSHCHIKOV, S.M., red.; BYKHOVSKAYA, S.N., red.izd-va; BERESLAVSKAYA, L.Sh., tekhn.red.

[Unified safety regulations in open-cut mining] Edinye pravila bezopasnosti pri razrabotke mestorozhdenii poleznykh iskopaemykh otkrytym sposobom. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po gornomu delu, 1960. 61 p. (MIRA 13:7)

1. Russia (1917- R.S.F.S.R.) Gosudarstvennyi komitet po nadzoru za bezopasnym vedeniyem rabot v promyshlennosti i gornomu nadzoru. (Strip mining--Safety measures)

IZRAITEL', S.A., otv. red.; MOISEYEV, S.L., otv. red.; SKURAT, V.K., otv. red.; SLASTUNOV, V.G., otv. red.; ZAYTSEV, A.P., red.; POLESIN, Ya.L., red.; SKURAT, V.K., red.;SLASTUNOV, V.G., red.; SOBOLEV, G.G., red.; FECKTISTOV, A.T., red.; MIROSHNICHENKO, V.D., red. izd-va; BOLDYREVA, Z.A., tekhn. red.

[Unified safety rules for mining metalliferous, non-metallic, and placer deposits by the underground method]Edinye pravila bezopasnosti pri razrabotke rudnykh, nerudnykh i rossypnykh mestorozhdenii podzemnym sposobom. Moskva, Gosgortekhizdat, 1962. 253 p. (MIRA 15:12)

1. Russia (1917- R.S.F.S.R.)Gosudarstvennyy komitet po nadzoru za bezopasnym vedeniem rabot v promyshlennosti i gornomu nadzoru. (Mine safety)

IZRAITEL', S.A., otv. red.; SKURAT, V.K., otv. red.; ZUBAREV, S.N., otv. red.; MOISEYEV, S.L., otv. red.; ASTAF'YEVA, A.V., kand. tekhn. nauk, red.; VAS'KOVSKIY, Ye.L., red.; VISHNEVSKIY, Ye.L., red.; KRIVTSOV, B.S., red.; KOROTKIN, I.N., red.; MITROFANOV, S.I., doktor tekhn. nauk, red.; NORKIN, V.V., kand. tekhn. nauk, red.; NIKITIN, A.A., red.; RUDNEV, A.P., red.; SLASTUNOV, V.G., red.; TKACHEV, F.A., red.; RAUKHVARGER, Ye.L., kand. tekhn. nauk, red.; FEOKTISTOV, A.T.[deceased], red.; ZAYTSEV, A.P., red.

[Safety regulations for the dressing and sintering of ferrous and nonferrous metal ores] Pravila bezopasnosti pri obogashchenii i aglomeratsii rud tsvetnykh i chernykh metallov. Moskva, Nedra, 1964. 106 p. (MIRA 18:4)

1. Russia (1917- R.S.F.S.R.) Gosudarstvennyy komitet po nadzoru za bezopasnym vedeniyem v promyshlennosti i gornomu nadzoru.

POLESIN, Ya.L., otv. red.; SKURAT, V.K., otv. red.; KAPELYUSHNIKOV, G.I., otv. red.; MOISEYEV, S.L., otv. red.; RATNIKOVA, A.P., red.izd-va; BOLDYREVA, Z.A., tekhn. red.

[Safety measures in coal and shale mines; current regulations in effect applicable to mines in operation, construction, and reorganization] Pravila bezopasnosti v ugol'nykh i slantsevykh shakhtakh; nastoiashchie pravila rasprostraniaiutsia na shakhty, nakhodiashchiesia v ekspluatatsii, stroitel'stve i rekonstruktsii. Moskva, Izd-vo "Nedra," 1964. 325 p.
[Collection of instructions....] Sbornik instruktsii k.... (MIRA 17:4)
1964. 262 p.

1. Russia (1917- R.S.F.S.R.) Gosudarstvennyy komitet po nadzoru za bezopasnym vedeniyem rabot v promyshlennosti i gornomu nadzoru.

SKURAT, V.Ye.

AUTHOR: Veselovskiy, B.F., Kudryashov, A.A., Skurat, V.Ye., Tentsyrev, G.D.

TITLE: Preparation of Glass Diaphragms for the Inlet System in a Mass Spectrometer (Izgotovleniye steklyannykh diafragm dlya napusknoy sistemy mass-spektrometra)

PERIODICAL: Pribory i Tekhnika Eksperimenta, 1957, Nr 3, p.108 (USSR)

ABSTRACT: In mass spectroscopic analysis of substances such as free radicals which react easily with metals, it is necessary to prepare glass diaphragms through which the gas flows into the ion source. A method of preparing such diaphragms is given. The end of a Pyrex glass tube having an internal diameter of 10 mm is drawn out to a diameter of 2 mm and the end of the tube is polished. After this, the end is heated until the glass softens and it is then pierced through a plane glass slide prepared in a way described in (Ref.1). The glass slide is 30 μ thick and fuses into the tube. The seal is vacuum tight and withstands atmospheric pressure. The cap is then covered with paraffin in which a

Card 1/2

Preparation of Glass Diaphragms for the Inlet System in a Mass Spectrometer.

small hole is made with a hot needle (Fig.1). On either side of the thin cover are placed electrodes connected to an induction coil. By closing a key in the primary, a potential difference of 150 volts is applied to it from a bank of condensers having a capacity of 100 microfarads. When the glass wall is pierced by a single spark, a round aperture 10 μ in diameter is produced in the centre. The diameter can be increased to 80 μ if the discharge is repeated several times. In order to obtain bigger diameters fluoric acid may be applied to the edges of the aperture. Diameters of 100 to 500 μ can be obtained in this way. The diaphragm may be fused into the inlet system of the mass spectrometer as shown in Fig.2. V.L. Tal'rose collaborated. There are 2 diagrams, no tables and 1 Russian reference.

ASSOCIATION: Institute of Chemical Physics of the Academy of Sciences of the USSR. (Institut khimicheskoy fiziki AN USSR)

SUBMITTED: February 5, 1957.

AVAILABLE: [illegible]

Card 2/2 1. Spectrometers 2. Diaphragms-Glass-Application

SKURAT, V YE.

AUTHORS: Lavrovskaya, G. K., Skurat, V. Ye., Tal'roze, V.L., 20-4-27/52
Tantsyrev, G. D.

TITLE: Mass-Spectroscopic Investigation of the Products of Discharge in Steam (Mass-spektroskopicheskoye issledovaniye produktov razryada v parakh vody).

PERIODICAL: Doklady AN SSSR, 1957, Vol. 117, Nr 4, pp. 641-644 (USSR)

ABSTRACT: The here discussed measurements were carried out with a mass spectrometer specially constructed for the determination of free radicals and atoms. The peculiarity of this apparatus is the introduction of the mixture to be analyzed into the ion source in form of a bundle of molecules. The molecule bundle is here coaxial with the ion-bundle. The system of the formation of this molecule bundle and the scheme of the connection of the apparatus of discharge with the mass spectrometer is demonstrated in a diagram. Further particulars are given on the design and calibration of this instrument. The authors then discuss the results of the mass-spectroscopical measurements of the concentration of the atoms and radicals in the discharge--products formed in the steam. Measurements were carried out at pressures of from 0,5 to 4 mm torr. and with a discharge amperage of from 100 to 150 mA. The intensities of the

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Mass-Spectroscopic Investigation of the Products of Discharge in Steam. 20-4-27/52

PRESENTED: May 16, 1957, by V. N. Kondrat'yev, Academician.

SUBMITTED: April 28, 1957

AVAILABLE: Library of Congress

Card 3/3

[Ref 17-18]. The composition of analyzed mixtures is determined by absolute or relative methods. The absolute graduation coefficients vary in every spectrometer, the relative coefficients are more stable. A measure for the content of a substance is the "complete ionization" which is the sum of all band intensities of the spectrum of the mixture. Recently electronic computers have come to be used for calculating the composition of mixtures [Ref 24]. Mass-spectroscopy has also been used for the analysis of esterified fatty acids, condensates from industrial fumes from the atmosphere of big cities, etc [Ref 29, 30], for the determination of gases in metals [Ref 31-33], etc. The distribution of the band intensities usually corresponds to the structure of the molecules. The theoretical calculation of the band intensities is possible only for the simplest case, i.e. the molecule H_2. A theory of the mass-spectrum must still be developed. The kinetics of chemical reactions is determined by taking samples at the beginning and the end of the process or by the continuous method in which the reacting mixture is directly passed into the ion source of the mass-spectrometer. The last method can be used for the determination of intermediate products, like free radicals. The use of low-energy electrons avoids the dissociative ionization of molecules. It has been proposed to use photoionization, because the monochromatization of light is simpler

than that of slow electrons [Ref 9]. Free radicals are passed into the area of ionization in the form of a molecular bunch in order to avoid reactions with metal surfaces, etc. The mass-spectroscopy of free radicals is applied on a broad scale. It is also employed for the determination of ions in the flames of hydrocarbons and hydrogen [Ref 91, 92]. A system for the determination of the composition of free radicals has been developed by the authors [Ref 73, Figure 3]. Recently the cross-sections of ion-molecular reactions have been determined [Ref 98, 99]. Levina determined the isotopes of Fe, Zn, Mg, Ni, Cr, Pb and Sb by means of mass-spectroscopy [Ref 106]. Solid bodies are evaporated in a vacuum spark. In substances with low ionization potentials surface ionization may be used. Admixtures of 10^{-3} to 10^{-5}% may be determined by these methods. This is important for the production of semiconductors, pure metals, etc. Mass-spectroscopy is used in the USSR for the control of the evacuation conditions of electrovacuum apparatus [Ref 116]. Tantsyrev controlled the purity of inert gases by this method. Improvements of the method consist in the application of new cathodes, e.g. a thorium-iridium cathode [Ref 119], and the utilization of an electrometric amplifier, a secondary electronic amplifier measuring currents of less than 10^{-15} a. In the USSR the mass-spectrometers MI 1301, MI 1305, MKh 1303 have a resolving power of 400 - 600, the apparatus MV 2301, a power of 5,000.

Application of Mass Spectroscopy for Chemical Analysis SOV/63-4-2-4/39

There are 3 diagrams, 2 tables and 126 references, 36 of which are Soviet, 55 English, 11 American, 8 Canadian, 5 German, 5 Belgian, 3 French, 2 Swedish and 1 Polish.

Card 4/4

SKURAT, V. Ye.

86146

9.6150
S/120/60/000/006/021/045
E032/E514

AUTHORS: Tal'roze, V.L., Dekabrun, L.L., Tantsyrev, G.D., Frankevich, Ye.L., Vetrov, O.D., Lyubimova, A.K., Lavrovskaya, G.K., Tarasayev, V.I., Grishin, V.D., Skurat, V.Ye. and Tukhvidis, A.Ia.

TITLE: The PMC-2 (RMS-2) Mass Spectrometer Designed for Studying Chemical Reactions and the Determination of Free Radicals

PERIODICAL: Pribory i tekhnika eksperimenta, 1960, No.6, pp.78-84

TEXT: A double magnetic mass-spectrometer designed for studying reactions in the gaseous phase and, in particular, for the determination of free radicals is described. Two methods are used to produce the ions. In the first method the mixture to be analysed is ionized by charge transfer to specially produced ions. The latter are formed in a separate ion gun by means of electron bombardment and are mass-analysed in a small magnetic analyser. In the second method the mixture under consideration is ionized directly by electron bombardment. Quasi-monochromatization is achieved by a method based on that reported by Fox et al. (Ref.11). The gas from the "reactor" is introduced into the ion source in the

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The PMC-2 (RMS-2) Mass Spectrometer Designed for Studying Chemical Reactions and the Determination of Free Radicals

form of a molecular beam which is mechanically interrupted at a known frequency. In distinction to the method described by Foner and Hudson (Ref.3) in which the molecular and ion beams are perpendicular, in the present system the two beams are coaxial, which means that smaller voltages are necessary for the "extraction" of the ions from the ionization region and it is possible to reduce the intensity of the background mass-spectrum. A particular feature of the present instrument is the use (in the measuring part of the spectrometer) of K-stabilization of parameters such as the accelerating voltage, the voltage supplying the detector, the emission current of the ion gun cathode, and the supply voltage for the ion source cathode. This was described by the second of the present authors in Ref.10. The mass numbers are determined from a knowledge of the magnetic field which in turn is measured with the aid of a Hall probe (germanium crystal). The basic mass spectrometric arrangement employed is shown in Fig.2. Products of chemical reactions taking place in the "reactor" I enter the region II through a small aperture in the thin glass diaphragm 8

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in the form of a molecular beam. This molecular beam is collimated further by the diaphragm 6 which separates the volume II from the region in which ionization takes place. A movable screen 7 is placed in front of the diaphragm 6 and interrupts the molecular beam 33 times per sec. In the case of ionization by charge transfer, the primary ions are produced in the ion gun III. The ion beam formed there is mass analysed in the 60° magnetic analyser IV which has a working radius of 100 mm. The primary ion beam, consisting of ions of the required mass, intersects the molecular beam and charge transfer takes place. In the case of ionization by electron impact, the source becomes analogous to that described by the first and fourth of the present authors in Ref.9. In the case of ionization by a monochromatized electron beam, the modulation of the molecular beam by the chopper 7 is not employed. The ion current in the mass-spectrometer is measured either by a d.c. amplifier or by an electron multiplier. The vacuum chamber of the mass-spectrometer is an all-metal system and all the sections are out-gassed at 300 to 350°C before the operation is begun. As an illustration of

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E032/E514

The PMC-2 (RMS-2) Mass Spectrometer Designed for Studying Chemical Reactions and the Determination of Free Radicals

the possible applications of the instrument, data are quoted on the formation of free radicals in the pyrolysis of hydrazine. In these experiments the hydrazine entered from a glass container into a quartz capillary through a control valve. The capillary was heated to a known temperature, as a result of which the hydrazine decomposed into nitrogen, hydrogen, ammonia and some unstable products (Foner and Hudson, Ref.18). Fig.7 shows the distribution of line intensities in the mass-spectrum of hydrazine obtained by the charge transfer method using NH_2^+ ions formed from ammonia. The pressure in the source was 5×10^{-5} mm Hg and the pressure in the chamber of the small analyser was 4×10^{-5} mm Hg. For comparison, the dotted line shows the mass-spectrum obtained on bombarding hydrazine with 50 eV electrons. Fig.8 shows the intensity distribution obtained under similar conditions at 1000°C (dotted lines) and 25°C (continuous lines). Acknowledgments are expressed to Ye. K. Rusnlyan, B. T. Vorobtyev, B. G. Belov, M. N. Morozov and M. I. Markin for assistance in this work. There are 8 figures and 20 references: 11 Soviet and 9 non-Soviet.

Card 4/6

The PMC-2 (RMS-2) Mass Spectrometer Designed for Studying Chemical Reactions and the Determination of Free Radicals

ASSOCIATION: Institut khimicheskoy fiziki AN SSSR (Institute of Chemical Physics, AS, USSR)

SUBMITTED: October 15, 1959

Fig.2

I - reactor, III - ion gun, IV - small magnetic analyser,
V - large magnetic analyser

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The PMC-2 (RMS-2) Mass Spectrometer Designed for Studying Chemical Reactions and the Determination of Free Radicals

Fig.8

Charge transfer mass spectra of hydrazine and its decomposition products at 1000°C (dotted) and 25°C (full lines).

Comparison of mass-spectra of hydrazine obtained on electron bombardment (dotted) and charge transfer from NH_2^+ ions (full lines).

Key: 1 - relative intensity,
2 - mass number.

Card 6/6

SHMAT, V.Ye.

Isotopic effect in the radiolytic formation of hydrogen from polyethylene. Dokl. AN SSSR 141 no.1:161-164 N '61.
(MIRA 14:11)

1. Institut khimicheskoy fiziki AN SSSR. Predstavlено akademikom V.N. Kondrat'yevym.
(Hydrogen--Isotopes)
(Polyethylene)
(Radiation)

VASIL'YEV, G.K.; SKURAT, V.Ye.; TAL'ROZE, V.L.

Formation of hydrogen in low-temperature radiolysis of polyethylene.
Izv. AN SSSR Ser.khim. no.10:1871-1873 O '63. (MIRA 17:3)

1. Institut khimicheskoy fiziki AN SSSR.

64
62

L 12657-63 EWP(j)/EPF(c)/EWT(m)/BDS ASD Pr-4/Pc-4 RM/WW
ACCESSION NR: AP3003563 S/0020/63/151/002/0388/0391

AUTHORS: Skurat, V. Ye ; Tal'roze, V. L.

TITLE: The formation of HD during the reaction of hydrogen atoms, formed in the gas phase, with solid deuteropolyethyl

SOURCE: AN SSSR. Doklady*, v. 151, no 2, 1963, 388-391

TOPIC TAGS: HD, deuteropolyethyl, activation energy

ABSTRACT: A functional relation between the rate of HD formation during the reaction of H atoms with deuteropolyethyl, containing 98% of D atoms, and temperature is given. It is concluded that no possible "mixtures" in deuteropolyethyl participates in the reaction of HD formation and that the activation energy corresponds to the reaction

$$H + M \rightarrow H_2 + R \qquad (1)$$

where M is the hydrocarbon and R is the free radical. Thus, it is shown that in solid polyethyl a reaction of type (1) is possible

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L 12657-63
ACCESSION NR: AP3003563

during the activity of thermal H atoms on polymers. Orig. art. has: 2 figures. This report was presented by Academician V.N.Kondrat'yev 1 Apr 1963.

ASSOCIATION: Institut khimicheskoy fiziki, Akademii nauk SSSR (Institute of chemical physics, Academy of sciences, SSSR)

SUBMITTED: 23Mar63 DATE ACQ: 30Jul63 ENCL: 00

SUB CODE: PH, CH NO REF SOV: 005 OTHER: 004

Card 2/2

VASIL'YEV, G.K.; SKURAT, V.Ye.; TAL'ROZE, V.L.

Gas evolution kinetics in low-temperature radiolysis of paraffin and polyethylene. Dokl. AN SSSR 152 no.2:356-358 S '63.
(MIRA 16:11)

1. Institut khimicheskoy fiziki AN SSSR. Predstavleno akademikom N.N. Semenovym.

L 27830-65 EWT(m) DIAAP DM

ACCESSION NR: AP5007359 S/0089/64/017/005/0393/0400

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17
B

AUTHOR: Tal'roze, V. L.; Skurat, V. Ye.

TITLE: Certain characteristics of radiolysis with fast electron pulsed beam

SOURCE: Atomnaya energiya, v. 17, no. 5, 1964, 393-400

TOPIC TAGS: free radical, electron beam, chemical reaction

ABSTRACT: The basic characteristics of radiolysis using pulsed accelerated electrons are studied. The dependence of the average stationary concentration of free radicals $[R]_{st}$ on the reciprocal of the pulse duty factor q of the electron current pulses is calculated on the basis of the typical mechanism of chemical reactions of free radicals formed during the action of the pulsed beam of fast electrons. The calculation was carried out for various powers, corresponding to different rates of free-radical formation, for various times of duration of the current pulses and for various free-radical decomposition constants according to first-and second-order reactions. Graphs of the dependence of $[R]_{st}$ on q are presented.

Card 1/2

L 27830-65
ACCESSION NR: AP5007359

ASSOCIATION: none

SUBMITTED: 17May63 ENCL: 00 SUB CODE: NP

NO REF SOV: 000 OTHER: 008 NA

Card 2/2

ACCESSION NR: AP4016514 S/0020/64/154/005/1160/1162

AUTHOR: Lavrovskaya, G. K.; Skurat, V. Ye.; Tal'roze, V. L.

TITLE: Radiation synthesis of xenon fluorides

SOURCE: AN SSSR. Doklady*, v. 154, no. 5, 1964, 1160-1162

TOPIC TAGS: xenon fluoride, radiation, xenon difluoride, xenon tetrafluoride, infra red spectrum, xenon fluorine radiation

ABSTRACT: A mixture of fluorine and xenon was irradiated with a 1.6-Mev beam of electrons (electron current 30-40 microamps, 10^{-3} mm. Hg pressure, reactor liquid-air cooled during reaction). After irradiation unreacted F and Xe were measured and removed from the reactor while cooled with liquid nitrogen. After removal of unreacted gases, the reactor pressure at room temperature was 3 mm. Hg, corresponding to the vapor pressure of XeF_2 and XeF_4. After remaining in the reactor, the Xe fluorides decomposed to F and Xe. Xenon reacts to the extent of 30-50%. The xenon fluorides were identified by their IR

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ACCESSION NR: AP4016514

spectra; and it was found that XeF_2 and XeF_4 were formed to a lesser extent. The radiation dose was about 3000 megarads. The radiation yield, based on xenon consumption, is 0.4-0.7; the same yield is obtained with larger doses. Orig. art. has: 1 table

ASSOCIATION: Institut khimicheskoy fiziki, Akademii nauk SSSR (Institute of Chemical Physics, Academy of Sciences SSSR)

SUBMITTED: 18Sep63 DATE ACQ: 12Mar64 ENCL: 00

SUB CODE: PH, CH NO REF SOV: 001 OTHER: 017

Card 2/2

TAL'ROZE, V.L., doktor khim. nauk, otv. red.; BAGDASAR'YAN, Kh.S., doktor khim. nauk, red.; FRANKEVICH, Ye.L., kand. fiz.-matem. nauk, red.; SKURAT, V.Ye., kand. khim. nauk, red.

[Elementary processes of the chemistry of high energies; transactions] Elementarnye protsessy khimii vysokikh energii; trudy. Moskva, nauka, 1965. 317 p. (MIRA 18:5)

1. Simpozium po elementarnym protsessam khimii vysokikh energii, Moscow, 1963.

MARKOVA, L.G.; SKURATENKO, A.V.

Spore-pollen complexes in Lower Cretaceous sediments of the Turukhan key hole. Trudy SNIGGIMS no.8:189-195 '60. (MIRA 15:9)

(Turukhan Valley--Palynology)

SKURATOV, A.

Ways to eliminate stray currents. Zhil.-kom.khoz. 7 no.7:18-20 '57. (MIRA 10:10)

1.Moskovskiy avtodorozhnyy instituta.
(Electric currents, Leakage)
(Electric railroads)

SKURATOV, A.D., red.. V redaktirovanii prinimali uchastiye: SHKATOV, K.K.; FEDOROVA, M.A.; OVCHINNIKOV, A.I.; SIZOVA, A.I.; SIGEL', M.G.; KARVETSKIY, A.V.; KULICHKIN, A.V.; NIKOLAYEVA, Z.A.; STEPANOVA, V.P.; RYZHOVA, V.K.; MUZHIKOVA, V.N.. YEREMIN, N.I., red.; KHAKHAM, Ya.M., tekhn.red.

[Economy of Ul'yanovsk Province; a concise statistical manual] Narodnoe khoziaistvo Ul'ianovskoi oblasti; kratkii statisticheskii sbornik. Ul'ianovskoe knizhnoe izd-vo, 1958. 199 p. (MIRA 12:3)

1. Ulyanovsk (Province). Oblastnoye statisticheskoye upravleniye. 2. Nachal'nik Statisticheskogo upravleniya Ul'yanovskoy oblasti (for Skuratov).
(Ul'yanovsk Province--Statistics)

KARVETSKIY, A.V.; SIGEL', M.G.; KULICHKIN, A.V.; DEMIN, A.M.; RYZHOVA, V.K.; FEDER, R.M.; MAKAROVA, T.L.; MEYER, R.A.; STEPANOVA, V.P.; SKURATOV, A.D., red.; KHAUSTOVA, A.K., tekhn. red.

[Economy of Ul'ianovsk Province; statistical collection] Narodnoe khoziaistvo Ul'ianovskoi oblasti; statisticheskii sbornik. Ul'ianovsk, 1961. 271 p. (MIRA 15:5)

1. Ulyanovsk (Province) Statisticheskoye upravleniye. 2. Nachal'nik Statisticheskogo Upravleniya Ul'yanovskoy oblasti (for Skuratov). (Ul'ianovsk Province--Statistics)

SHURATOV, A. I.

"Systems of Underground Mining of Placer Deposits." Sub 28 Dec 51, Moscow Inst of Nonferrous Metals and Gold imeni M. I. Kalinin

Dissertations presented for science and engineering degrees in Moscow during 1951.

SO: Sum. No. 480, 9 May 55

SKURATOV A.P.

135-10-11/19

AUTHOR: Skuratov, A.P.

TITLE: Application of Roller Welding in Manufacture of Water-Heating Columns (Primeneniye rolikovoy svarki pri proizvodstve vodogreynykh kolonok)

PERIODICAL: Svarochnoye Proizvodstvo, 1957, No 10, pp 32-33 (USSR)

ABSTRACT: The production of household water heaters at the author's plant is described. The longitudinal lap seam of the heater body is pressed flush with the outer body surface (Figure 1) - in order to eliminate the soldering and cleaning operations after welding - on a special machine with pneumatic pressure mechanism (Figure 2). Specialized roller-electrode welding machines are employed for welding the longitudinal seam to the body and assembling the body with the cover, for welding the smoke pipe, and for assembling the body with the bottom. All machines are described and illustrated by kinematic diagrams. It is stated that the modernized roller welding machines have replaced the gas welding method and that the plant makes about 400,000 m of such seams yearly. There are 4 figures.

AVAILABLE: Library of Congress

Card 1/1

operating the contact network, (2) the double voltage permits to use the existing railroad electromotors they are connected in series and the common point is connected to the streetcar body (ground). The defects of this solution are higher costs of the contact network, higher costs of new cars, the necessity of modernizing current collectors, starting rheostats, controllers, etc. The advantages offered by this solution are the complete elimination of the stray current problem and the reduction of operating expenses. There are 2 figures, 4 tables, and 12 Soviet references.

SUBMITTED: August 2, 1956

SKURATOV, A.S., dotsent

Calculation of currents in complex track circuits of electrified rolling stock. Elektrichestvo no.9:39-45 S '62. (MIRA 15:9)

1. Moskovskiy avtodorozhnyy institut.
(Electric railroads--Wires and wiring)

SKURATOV, A.S.; KULIKOV, A.A., kand. tekhn. nauk, dotsent

Approximate method for the determination of an electric field in a uniform conducting media. Elektrichestvo no.8:29-32 Ag '63. (MIRA 16:10)

SKURATOV, A.Ye.

Analysis of accuracy in manufacturing wire annular potentiometers. (MIRA 8:10)
[Trudy] MVTU no.30:8-31 '55.
(Potentiometer)

SKURATOV, A.Ye.

Errors in the process of winding wire annular resistors.
[Trudy] MVTU no.30:32-59 '55. (MLRA 8:10)
(Potentiometer)

SKURATOV, A.Ye., kand.tekhn.nauk, dotsent

Adjustment of the resistance linearity of potentiometer windings according to the standard. [Trudy] MVTU no.105:104-119 '61. (MIRA 15:4)

(Potentiometer)

SKURATOV, A.Ye.

Adjusting the resistance linearity of potentiometer windings according to a standard. Priborostroenie no.5:19-20 My '62. (MIRA 15:5)

(Potentiometer)

BELEVTSEV, A.T., kand. tekhn. nauk; GOLIKOV, V.I., kand. tekhn. nauk; GOTSERIDZE, R.M., inzh.; YEFIMOV, V.P., kand.tekhn. nauk [deceased]; KOPANEVICH, Ye.G., kand. tekhn. nauk; MALOV, A.N., prof.; PARFENOV, O.D., kand. tekhn. nauk; ROZENBERG, A.G., tekhn.; SEMIBRATOV, M.N., kand. tekhn. nauk; SKURATOV, A.Ye., kand. tekhn. nauk; SOKOLOVSKIY, I.A., kand. tekhn.nauk; SYROVATCHENKO, P.V., kand. tekhn.nauk; TISHCHENKO, O.F., doktor tekhn. nauk; USHAKOV, N.N., kand. tekhn. nauk; CHUMAKOV, V.P., kand. tekhn. nauk; SHAL'NOV, V.A., kand. tekhn.nauk; SHISHKIN, V.A., kand. tekhn.nauk; YUZHNYY, I.I., inzh.; BLAGOSKLONOVA, N.Yu., red. izd-va; SOKOLOVA, T.F., tekhn. red.

[Manual for engineers in the instrument industry]Spravochnik tekhnologa-priborostroitelia. Pod red. A.N.Malova. Moskva, Mashgiz, 1962. 988 p. (MIRA 16:2)
(Instrument manufacture)

SKURATOV, F.M. (Kiyev); MORYAKINA, V.M. (Tomsk); ZAMORSKIY, A.D. (Nal'chik)

Nature calendar. Priroda 51 no.11:127-128 N '62. (MIRA 15:11)

1. Sibirskiy botanicheskiy sad (for Moryakina). 2. Geofizicheskiy vysokogornyy institut AN SSSR (for Zamorskiy).
(Nature study)

SKURATOV, I.

We are laying walls efficiently and cheaply. Sil'.bud. 10 no.2:15 F '60. (MIRA 13:5)

1. Tekhnicheskiy rukovoditel' Putivl'skoy mezhkolkhoznoy stroitel'noy organizatsii.
(Putivil District--Bricklaying)

SKURATOV, I.I.

New design of the chip-braking step. Stan.i instr. 33 no.1:39 Ja '62. (MIRA 15:2)

(Metal-cutting tools)

1. SKURATOV, I. S.: DANILEVSKIY, N. V.

2. USSR (6CC)

4. Dairy Cattle

7. Practice of a leading miklmaid. Dost.sel'khoz., no. 12, 1952.

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

SKURATOV, I.S., starshiy nauchnyy sotrudnik.

Forage lupine in poultry rations. Nauka i pered.op.v sel'khoz.7 no.1:31-32 Ja '57. (MLRA 10:2)

1. Ukrainskaya opytnaya stantsiya ptitsevodstva.
(Lupine) (Poultry--Feeding and feeding stuffs)

SHURATOV I. S

USSR/Farm Animals - Poultry. G-3

Abs Jour : [illegible] - Biol., [illegible]

Author : Shuratov, I.S.
Inst :
Title : Feeding Poultry With [illegible]

Orig Pub : Kolkhoz., 1958, No 2, 50-[illegible].

Abstract : In one experiment, two groups of hens were fed with 70% maize; the first group was additionally given sunflower-oilcake and the second group, fodder lupine. The control group was fed with kernels and oilcake. The egg yield for 150 days amounted to 70 eggs for the second group, 64 eggs for the control group, and 81 eggs for the first group. In another experiment, hens were fed with combined silage consisting of ears of wax-maturity maize (75%), carrots with tops (25%), and green clover (25%). The hens fed with 60-80 grams daily of such ensilage had a 10% higher egg yield.

Card 1/1

SKURATOV, I.S.

Feeding corn silage to poultry. Ptitsevodstvo 9 no.4:13-16 Ap '59. (MIRA 12:6)

1.Ukrainskaya opytnaya stantsiya ptitsevodstva.
(Corn (Maize)) (Poultry--Feeding and feeding stuffs)

SKURATOV, Ilarion Sergeyevich, kand. sel'khoz. nauk; SHCHERBINA, Petr Filippovich [Shcherbyna, P.P.], kand. sel'khoz. nauk; KUZ'MINA, M.F., red.; GULENKO, O.I.[Hulenko, O.I.], tekhn. red.

[Raising ducklings for meat] Vyroshchuvannia kacheniat na m'iaso. Kyiv, Derzhsil'hospvydav, 1963. 39 p. (MIRA 17:1)

SKUHATOV, M. (Nogan Tadzhikskoy SSR)

Comrade director. NTO 5 no.11:41-43 N '63. (MIRA 16:12)

1. Spetsial'nyy korrespondent zhurnala "Nauchno-tekhnicheskiye obshchestva SSSR".

SKURATOV, M.F.

Two problems in the calculation of red lines. Geom. i kart. no.3: 35-37 Mr '64. (MIRA 17:9)

KUL'BA, F.Ya.; MIRONOV, V.Ye.; ROZHANOVSKAYA, L.P.; SKURATOV, O.A.

Trivalent thallium bromide, iodide, and nitrate compounds with 2,2'-dipyridyl. Zhur. neorg. khim. 9 no.7:1630-1632 Jl '64. (MIRA 17:9)

1. Leningradskiy tekhnologicheskiy institut imeni Lensoveta, kafedra obshchey khimii.

[redacted]

SKURATOV, S. M.

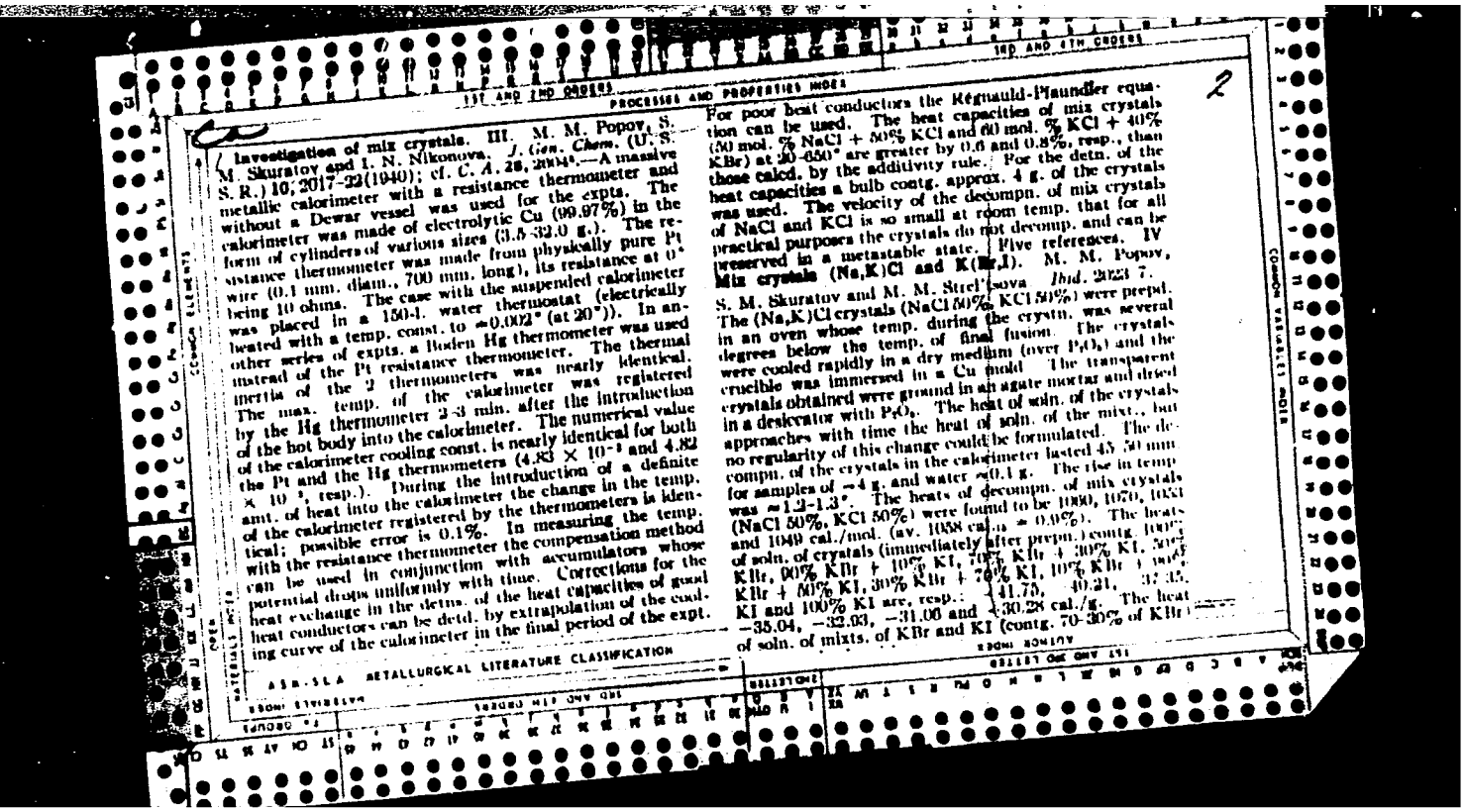
POPOV, M. M., FEODOSSIYEV, N. N., and SKURATOV, S. M. CA: 29-1315/7
Trans. Sci. Inst. Fertilizers (USSR) No. 110,
23-34 (1933)
The heat capacity of aqueous solutions of
phosphoric acid.

[redacted]

SKURATOV, S. M.

CA: 28-1256/8

POPOV, M. M., SKURATOV, S. M. and FEODOSSIEV, N. N.
Z. physik. Chem. A167, 42-8 (1933)
Determination of the specific heat of aqueous solutions of phosphoric acid.



Investigation of mix crystals. III. M. M. Popov, S. M. Skuratov and I. N. Nikonova. *J. Gen. Chem.* (U.S.S.R.) 10, 2017-22(1940); cf. *C. A.* 28, 2034⁸.—A massive metallic calorimeter with a resistance thermometer and without a Dewar vessel was used for the expts. The calorimeter was made of electrolytic Cu (99.97%) in the form of cylinders of various sizes (3.5-32.0 g.). The resistance thermometer was made from physically pure Pt wire (0.1 mm. diam., 700 mm. long), its resistance at 0° being 10 ohms. The case with the suspended calorimeter was placed in a 150-l. water thermostat (electrically heated with a temp. const. to ±0.002° (at 20°)). In another series of expts. a Beckmann Hg thermometer was used instead of the Pt resistance thermometers was registered. The max. temp. of the calorimeter was nearly identical. by the Hg thermometer 2-3 min. after the introduction of the hot body into the calorimeter. The numerical value of the calorimeter cooling const. is nearly identical for both the Pt and the Hg thermometers (4.83×10^{-3} and 4.82 $\times 10^{-3}$, resp.). During the introduction of a definite amt. of heat into the calorimeter the change in the temp. of the calorimeter registered by the thermometers is identical; possible error is 0.1%. In measuring the temp. with the resistance thermometer the compensation method can be used in conjunction with accumulators whose potential drops uniformly with time. Corrections for the heat exchange in the detns. of the heat capacities of good heat conductors can be detd. by extrapolation of the cooling curve of the calorimeter in the final period of the expt. For poor heat conductors the Régnauld-Pfaundler equation can be used. The heat capacities of mix crystals (50 mol. % NaCl + 50% KCl and 60 mol. % KCl + 40% KBr) at 20-650° are greater by 0.6 and 0.8%, resp., than those calcd. by the additivity rule. For the detn. of the heat capacities a bulb contg. approx. 4 g. of the crystals was used. The velocity of the decompn. of mix crystals of NaCl and KCl is so small at room temp. that for all practical purposes the crystals do not decomp. and can be preserved in a metastable state. Five references. IV

Mix crystals (Na,K)Cl and K(Br,I). M. M. Popov, S. M. Skuratov and M. M. Strel'tsova. *Ibid.* 2023-7.

The (Na,K)Cl crystals (NaCl 50%, KCl 50%) were prepd. in an oven whose temp. during the crystn. was several degrees below the temp. of final fusion. The crystals were cooled rapidly in a dry medium (over P_2O_5) and the crucible was immersed in a Cu mold. The transparent crystals obtained were ground in an agate mortar and dried in a desiccator with P_2O_5. The heat of soln. of the crystals approaches with time the heat of soln. of the mixt., but no regularity of this change could be formulated. The decompn. of the crystals in the calorimeter lasted 45-50 min. for samples of ~4 g. and water ~0.1 g. The rise in temp. was ~1.2-1.3°. The heats of decompn. of mix crystals (NaCl 50%, KCl 50%) were found to be 1080, 1070, 1053 and 1049 cal./mol. (av. 1058 cal.; ± 0.9%). The heats of soln. of crystals (immediately after prepn.) contg. 100% KBr, 90% KBr + 10% KI, 70% KBr + 30% KI, 50% KBr + 50% KI, 30% KBr + 70% KI, 10% KBr + 90% KI and 100% KI are, resp.: −41.75, −40.21, −37.35, −35.04, −32.03, −31.06 and +30.28 cal./g. The heat of soln. of mixts. of KBr and KI (contg. 70-30% of KBr)

increases slowly with time; hence mix crystals are formed at room temp. The heats of soln. of untempered crystals (1 hr. after prepn.) contg. 90% KBr + 10% KI, 70% KBr + 30% KI, 50% KBr + 50% KI (1.5 hrs. after prepn.), 30% KBr + 70% KI and 10% KBr + 90% KI are, resp.: −38.70, −34.69, −32.08, −30.86 and −30.11 cal./g. The heat of soln. of untempered crystals (KBr 90%) does not change with time (up to 4 months). The heat of soln. of untempered crystals contg. KBr 70% does not change with time (up to 3 months). The heat of soln. of untempered crystals contg. KBr 30% increases with time (by 0.2–0.8% during 4 months), reaching a const. value after 9 months (−30.80 cal./g.). The heat of soln. of untempered crystals contg. KBr 10% increases slowly with time (by 0.3% after 4 months). The heat of soln. of the tempered and untempered crystals contg. KBr 50% increases considerably with time; the rate of the change for the tempered and untempered crystals is different, but the limit of their change is the same. The heat of soln. of crystals kept in open air changes considerably more than that of crystals kept in hermetically sealed containers. 10 references. V. **Metastable forms of halides and of noble metals.** M. M. Popov, Yu. P. Simonov, S. M. Skuratov and M. N. Sazdal'tseva. *Ibid.* 2128–40.—X-ray investigations showed superstructural lines in mix crystals KCl-KBr of any compn. and obtained by any method; the varying values of the heat of soln. can be explained by a difference in the crystallographic lattice of KCl. By different thermal treatments there were obtained prepns. of KCl which differ from each other in their heats of soln. by 1.6% and in the presence of "excessive" weak lines in their x-ray photographs. The av. lattice const. calcd. from all 27 ordinary KCl lines on the x-ray photographs is $a_1 = 6.278 \times 0.001$ A. Besides these 27 lines there are also observed 15 very weak lines [$a_2 = 12.55_3 \pm 0.01$ A. $= (2 \times 6.277) \pm 0.01$ A.], 14 very weak lines [$a_3 = 26.10_5 \pm 0.01$ A. $= (4 \times 6.276) \pm 0.01$ A.] and 5 very weak lines [$a_4 = 50.23_1 \pm 0.03$ A. $= (8 \times 6.27_9) \pm 0.03_5$ A.]. The abs. no. of the "excessive" lines of the same prepn. remains strictly const. Analogous phenomena were observed in KBr, NaCl, NaF, KI and CsBr. X-ray investigations of Ag, Au and Pt prepns. obtained by different thermal treatments also showed that they differ from one another by the presence or absence of "excessive" weak lines. These lines are in addn. to the usual lines of Ag, Au and Pt observed on x-ray photographs. Eleven references.

W. R. Henn

SKURATOV, S. M.

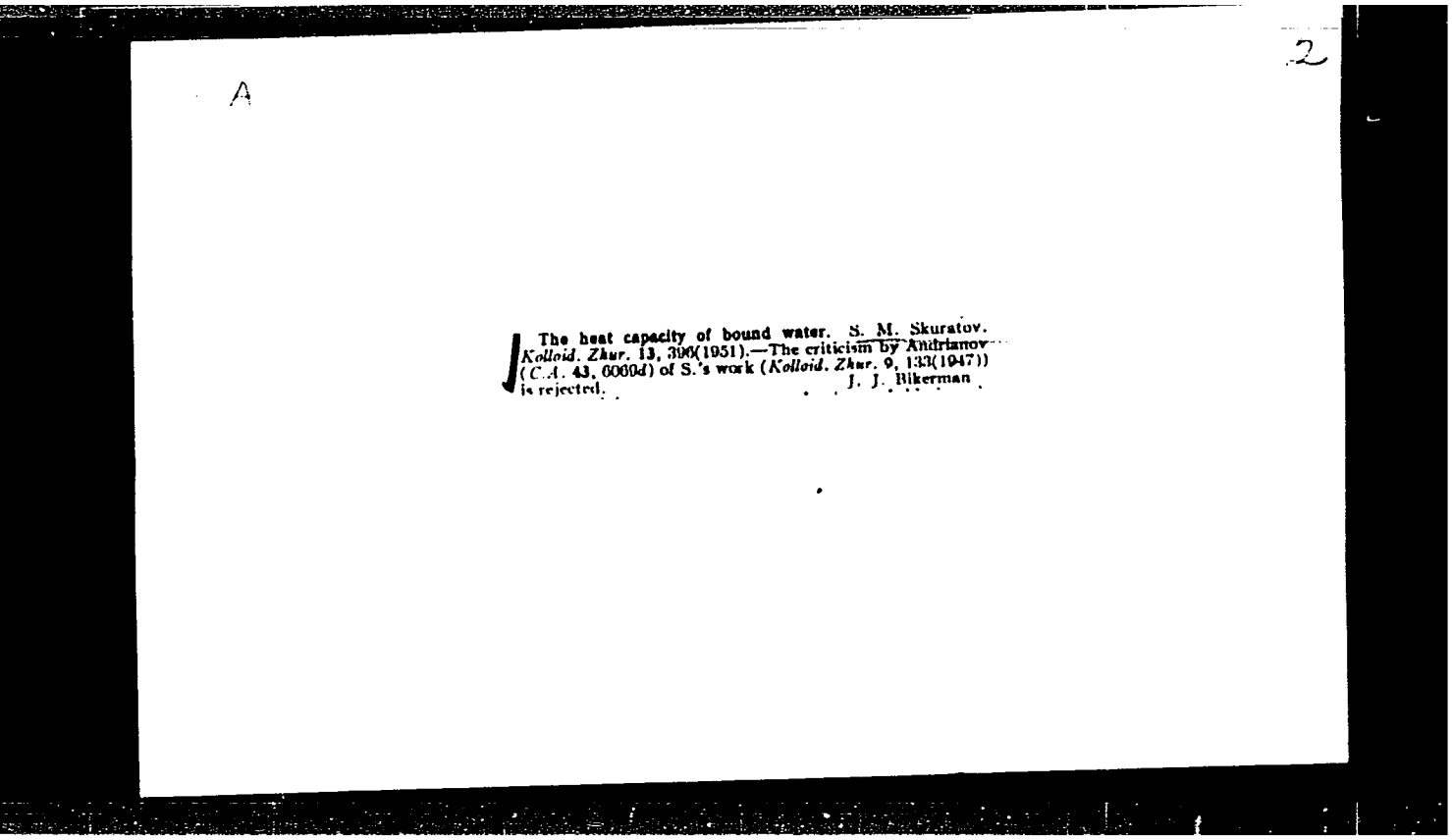
USSR/Physics Sep 1946
Specific Heat
Calorimetry

"Specific Heat of Water Boundary by High-Polymeric Substances," S.M.Skuratov, M.S. Shkitov, 3 pp

"Comptes Rendus (Doklady)" Vol LIII, No 7

The article describes a special calorimeter for measuring the true specific heat of liquid and solid substances. Accurate values would permit a method of determining the amount of bound solvent, as suggested by Dumanskiy. Tables of calorimetric results are given, on gelatin and starch-jelly.

21T111



2

A

The heat capacity of bound water. S. M. Skuratov. *Kolloid. Zhur.* 13, 396(1951).—The criticism by Andrianov (*C.A.* 43, 6060d) of S.'s work (*Kolloid. Zhur.* 9, 133(1947)) is rejected. J. J. Bikerman

SKURATOV, S. M.

Heat capacity of the halides potassium chloride, potassium bromide, and potassium iodide at high temperatures. S. M. Skuratov and S. A. Lapushkin (Moscow State Univ.). *Zhur. Obshchei Khim.* (J. Gen. Chem.) 21, 2217–20(1951).—High-accuracy detns. were made by the mixing method in a Cu calorimeter, with a resistance thermometer reading within 0.001°. The mean heat capacity in the temp. ranges 20–400° and 20–660° for KCl and KBr, and 20–350° and 22–660° for KI, is a linear function of the temp. θ, and is expressed by equations of the type $\bar{c}_p = \bar{A} + \bar{B} \times 10^{-4}\theta$, with the following values of $\bar{A}$ and $\bar{B}$: KCl, $A = 0.1612$, $B = 3.21$; KBr, 0.1021 and 1.94; KI, 0.0728 and 1.69. The deviations of the exptl. values from the equations are generally 0.1% or less, and only occasionally attain 0.3%. The true sp.-heat capacities, $c_p = d[\bar{c}_p(\theta - 20)]/d\theta$, in cal./g., are described by $c_p = A + B \times 10^{-5}\theta$, with KCl, $A = 0.1605$, $B = 6.4$; KBr, 0.1017 and 3.9; KI, 0.0725 and 3.4. For the mol. heat capacities $C_p = A + B \times 10^{-3}\theta$, KCl, 11.96 and 4.79; KBr, 12.11 and 4.61; KI, 12.04 and 5.60.

N. Thon

SKURATOV, S. M.

USSR/Chemistry - Oxidants Jul 51

"Specific Heats of Certain Peroxides and Hydroxides of Alkali Metals," A. V. Bedeneyev, S. M. Skuratov, Lab of Inorg Chem, Phys Chem Inst imeni L. Ya. Karpov

"Zhur Fiz Khim" Vol XXV, No 7, pp 837-840

With aid of heavy (large capacity) adiabatic calorimeter constructed at Thermal Lab, Moscow State U, measurements were made of av sp heats in temp range 19-100°C of KO_2, NaO_2, Na_2O_2, BaO_2, KOH, and NaOH.

206T25

CA

2

Mutual transformation of rings and linear polymers. I. Calorimetric study of the polymerization reaction of ε-caprolactam. S. M. Skuratov, A. A. Stepikheev, and E. N. Kanarskaya (Univ. Moscow). *Kolloid. Zhur.* 14, 185–91 (1952).—The total heat Q of reaction of ε-caprolactam with H_2O to give polymer $H[HN(CH_2)_5CO]_xOH$ is 28.5–29.0 cal./g. independently of temp. and the amt. of H_2O (x %) added. The heat evolution starts after a latent period of 40–60 min. at 230° and 90 min. at 210°. Then the rate of heat evolution increases to a max. which is sharper and occurs earlier, the greater is x. Thus the max. rate was observed during the 3rd hr. (54% of Q) at x = 2%, 5th hr. (31% of Q) at x = 1%, and 8th hr. (17.5% of Q) at x = 0.5% at 230°; at 210° it occurred during the 6th hr. at x = 2%. A differential *calorimeter* was built of 2 identical bolow Ag blocks filled, one with caprolactam and the other with KCl, provided with elec. heaters and thermocouples, and immersed in an oil thermostat. I. I. Bikerman

SKURATOV, S. M.

Chemical Abst.
Vol. 48 No. 9
May 10, 1954
General and Physical Chemistry

(4) Chem

Mutual transformation of rings and linear polymers. I. Calorimetric investigation of the polymerization reaction of ε-caprolactam. S. M. Skuratov, A. A. Strepikheev, and V. N. Kanarskaya (Moscow State Univ.). *Colloid J.* (U.S.S.R.) 14, 207–14(1952)(Engl. translation).—See *C.A.* 46, 8506c. H. L. H.

BTR

Metals - Thermal treatment

10056* The Thermal Effect of the Process of Natural Aging of Al-Cu Alloys (5%Cu) After Hardening and Recovery. (Russian.) S. M. Skuratov and N. S. Podol'skaia. *Zhurnal Obshchei Khimii*, v. 22 (84); Jan. 1952, p. 31-38.

The thermal effects were studied in a specially prepared alloy. Specimens were hardened at 19.2 and 28.0°C. Data are tabulated.

USSR/Chemistry - Calorimetry Jan 52

"Calorimeter for Determination of Latent Heats of Evaporation of Highly Volatile Liquids at Different Temperatures," S. M. Skuratov, O. N. Kachinskaya, Thermal Lab imeni Prof V. F. Luginin, Moscow State U

"Zhur Obshch Khim" Vol XXII, No 1, pp 76-81

Describes construction of heavy copper calorimeter and methods for using it to measure latent heat of evapn of highly volatile liquids at temps from room temp to 100°C. Latent heat of evapn of toluene was

207T15

USSR/Chemistry - Calorimetry (Contd) Jan 52

measured for exptl checking of method. With this method, only a few grams of the substance are needed. The margin of error is 1%.

207T15

SKURATOV, S. M.

SK RALOV, S. M.

234T35

USSR/Chemistry - Synthetic Fibers 21 Oct 52

"The Kinetics and Heat Effect in the Polymerization Reaction of Caprolactam," S. M. Skuratov, A. A. Strepikheyev, V. V. Voyevodskiy, Ye. N. Kanarskaya, Moscow State U imeni M. V. Lomonosov

"Dok Ak Nauk SSSR" Vol 86, No 6, pp 1155-1158

The polymerization reaction of caprolactam was carried out in a specially made calorimeter and the kinetic and heat effect of the reaction studied. A formula is derived for the rate of the reaction at any point in the temp range of 200-240°. Presented by Acad N. N. Semenov 27 Aug 52.

234T35

SKURATOV, S.M.

Mutual conversion of cyclic and linear polymers. Calorimetric investigation of the polymerisation reaction of ε-caprolactam. S. M. Skuratov, A. A. Strepikheiev, and E. N. Kanarskaja (*Faserforsch. u. Textiltech.*, 1953, **4**, No. 9, 390-392).—A method for direct calorimetric measurement of the polymerisation kinetics of ε-caprolactam by using varying amounts of activator (water) at various temp. is described. Since the polymerisate is liquid at 210° and 230°, the data given refer to the heat of reaction resulting from the conversion of the liquid monomer to the liquid polymer. The amount of activator used is shown to have no effect on the heat of the polymerisation reaction. J. Text. Inst. (R.T.C.).

MF

SKURATOV, S. M. Docent, STREPIKHEYEV, A. A.,Prof., MUROMOVA, R. S., KACHINSKAYA, O. N. BRYKINA, Ye. P., SHTREKHER, S. M. and SHUKO, V. D.

"The Heat of Combustion of Lactams and Amino Acids," a paper given at the All-University Scientific Conference "Lomonosov Lectures", Vest. Mosk. Un., No.8, 1953.

Translation U-7895, 1 Mar 56

[illegible]

Determined [illegible] effect of orientation (stretching) of poly-caprolactam fibers of the adsorption and [illegible] of water. Shows that it is difficult to [illegible] the last traces of water from non-oriented fibers. Assumes that impeded desorption is due to the presence of certain types of [illegible], and that the [illegible] of these can change with pressure.

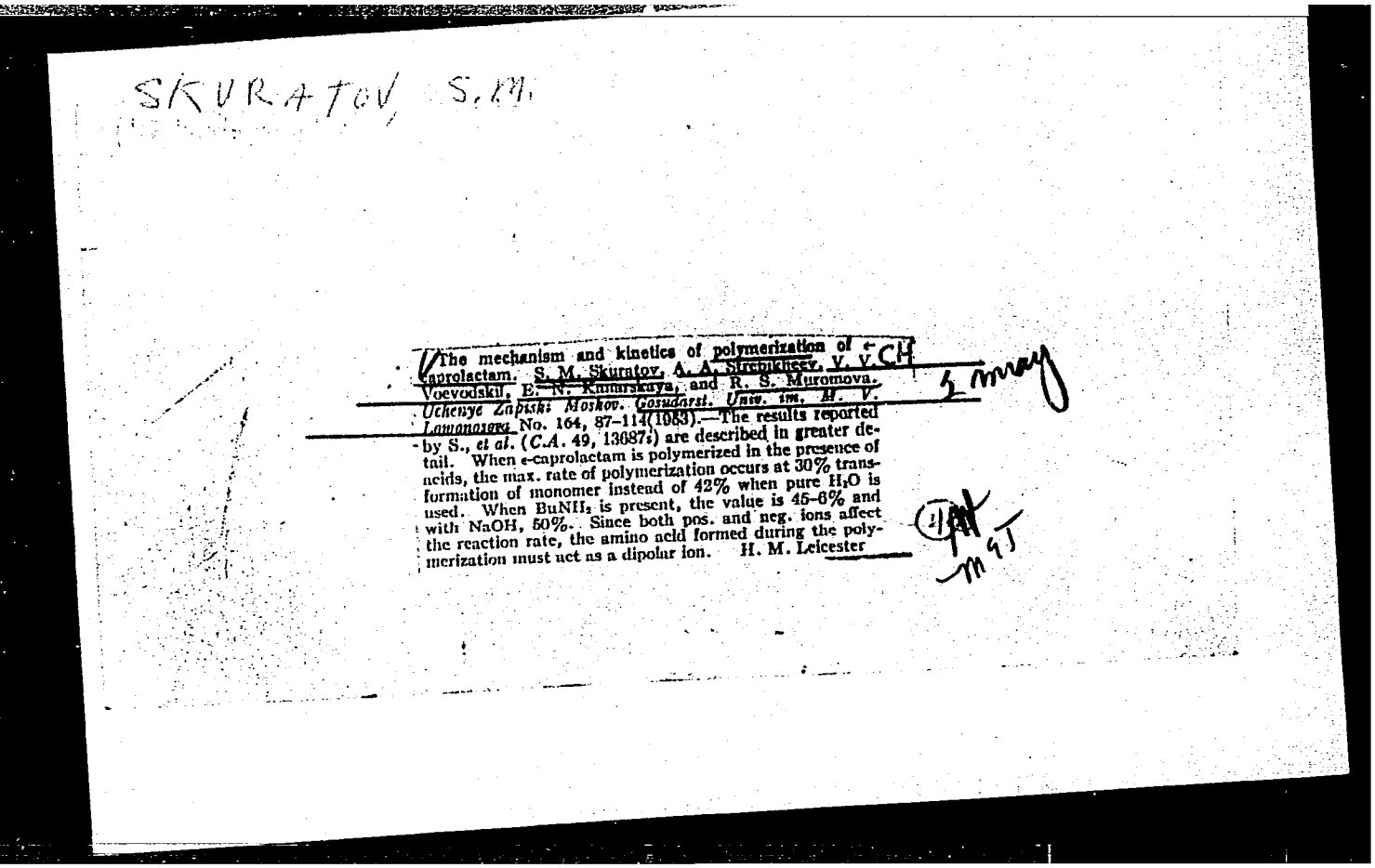
270113

SKURATOV, S. M.

10

USSR

Heat of combustion of heterocyclic compounds. I. Methods. S. M. Skuratov, A. A. Strepikheev, O. N. Kachinskaya, S. M. Shtekher, and E. P. Brykina. *Uchenye Zapiski Moskov. Gosudarst. Univ.* No. 164, 73-85(1953); *Referat. Zhur., Khim.* 1954, No. 37433.—The set-up for this detn. comprising a new calorimetric bomb and special thermometers used are described. M. Hoseli

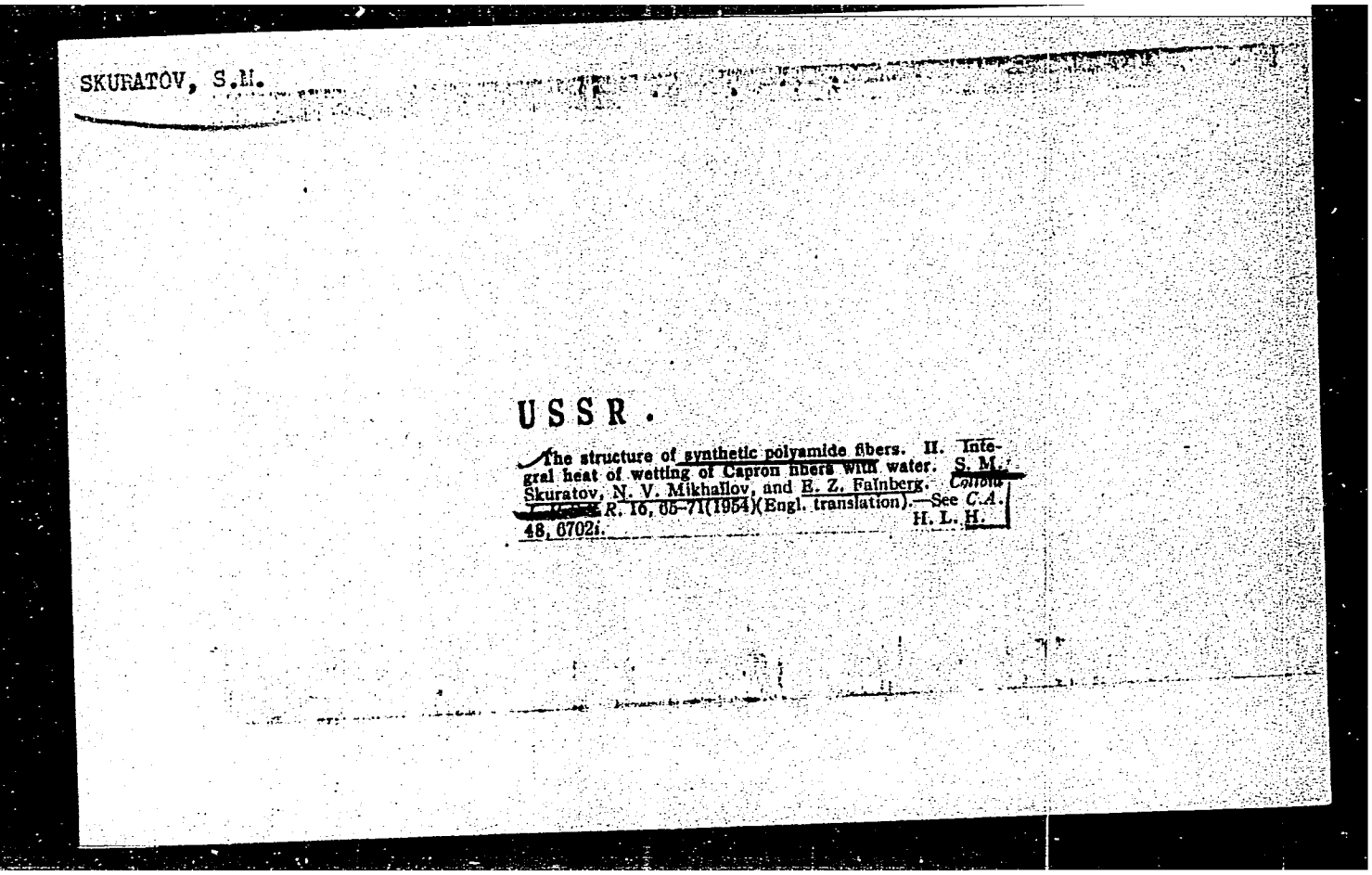


SKURATOV, S.M.

The mechanism and kinetics of polymerization of ε-caprolactam. S. M. Skuratov, A. A. Strepikheev, V. V. Voevodskii, E. N. Kumarskaya, and R. S. Muromova. *Uchenye Zapiski Moskov. Gosudarst. Univ. im. M. V. Lomonosova* No. 164, 87–114(1953).—The results reported by S., *et al.* (*C.A.* 49, 13087*i*) are described in greater detail. When ε-caprolactam is polymerized in the presence of acids, the max. rate of polymerization occurs at 30% transformation of monomer instead of 42% when pure H_2O is used. When $BuNH_2$ is present, the value is 45–6% and with NaOH, 50%. Since both pos. and neg. ions affect the reaction rate, the amino acid formed during the polymerization must act as a dipolar ion. H. M. Leicester

SKURATOV, S.M.

The structure of synthetic polyamide fibers. II. Integral heat of wetting of capron fibers with water. S. M. Skuratov, N. V. Mikhailov, and E. Z. Fainberg. *Kolloid. Zhur.* 16, 58-64(1954); cf. *C.A.* 47, 11740*h*.—The heat *Q* of wetting of dry, unoriented poly-ε-caprolactam (I) fibers increased with time from, e.g., 6.78 cal./g. 10 days to 5.8 cal./g. 4 months after manuf.; it remained const. thereafter. The *Q* of dry, oriented I varied from batch to batch but increased with time in one batch; e.g., it was 5.6 cal./g. 1 month and 8.2 cal./g. 7 months after manuf. Apparently, the structure of unoriented I becomes more regular in time, while in unoriented I slow relaxation occurs. The adiabatic calorimeter used is described. It was tested by detg. the *Q* of hydrocellulose (25.88 cal./g.). J. J. B.



SKURATOV, S.M.

USSR.

The structure of synthetic polyamide fibers. II. Integral heat of wetting of Capron fibers with water. S. M. Skuratov, N. V. Mikhailov, and E. Z. Fainberg. Colloid J. U.S.S.R. 16, 65-71(1954)(Engl. translation).—See C.A. 48, 6702i. H. L. H.

SKURATOV, S. M.

The kinetics and heat effect of the reaction of polymerization of enantholactam. S. M. Skuratov, V. V. Voevodskii, A. A. Strepikheev, E. N. Kunarskaya, R. S. Murova, and N. V. Fok (M. V. Lomonosov State Univ., Moscow). *Doklady Akad. Nauk S.S.S.R.* 95, 591–4 (1954).—The H_2O-catalyzed polymerization of enantholactam (I) was studied calorimetrically in a manner analogous to the method used previously in studying the polymerization of caprolactam (II) (cf. *C.A.* 46, 8506*c*; 49, 13687*i*). The polymerization of I is autocatalytic, with an induction period somewhat smaller than that of II. The period required for the attainment of the max. reaction velocity decreases as the amt. of catalytic H_2O is increased, but the degree of conversion, 30–2%, of I at the point of max. velocity is independent of the amt. of H_2O present. The heat of polymerization of I, 5.19 kcal./mole, is about 2 kcal./mole greater than that of II, which indicates that the ring strain in I is 2 kcal./mole greater than in II. An effective activation energy of 23 kcal./mole is required in the polymerization of I. A rate equation, derived from a proposed reaction scheme, on introduction of the activation energy becomes $W = A_0 e^{-23,000/RT}[H_2O][B]([B_0]^2 - [B]^2)^{1/2}$, where W is the rate of change of B, B is the concn. of I, and B_0 is the initial concn. of I.

Donald B. Miller

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SKURATOV, S.M.; VOYEVODSKIY, V.V.; STREPIKHEYEV, A.A.; KANARSKAYA, Ye.N.; MUROMOVA, R.S.

Acid catalysis of the polymerization of ε-caprolactam. Dokl.AN SSSR 95 no.4:829-832 Ap '54. (MLRA 7:3)

1. Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova. 2. Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo volokna. 3. Institut khimicheskoy fiziki Akademii nauk SSSR. (Polymers and polymerization) (Caprolactam) (Acids)

SKURATOV, S.M.; VOYEVODSKIY, V.V.; STREPIKHEYEV, A.A.; KANARSKAYA, Ye.N.; MUROMOVA, R.S.

Catalysis of the reaction of polymerization of ε-caprolactam by bases. Dokl.AN SSSR 95 no.5:1017-1020 Ap '54. (MLRA 7:4)

1. Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo volokna Institut khimicheskoy fiziki Akademii nauk SSSR. Predstavleno akademikom V.N.Kondrat'yevym. (Polymers and polymerization) (Caprolactam)

SKURATOV, S. M

USSR/ Chemistry - Organic chemistry

Card 1/1 Pub. 22 - 26/49

Authors : Strepikheyev, A. A.; Skuratov, S. M.; Kachinskaya, O. N.; Moromova, R. S.; Brykina, Ye. P.; and Shtekher, S. M.

Title : The intensity of lactam

Periodical : Dok. AN SSSR 102/1, 105-108, May 1, 1955

Abstract : Experiments were conducted to determine the heat of combustion of certain lactams and to estimate their intensity on the basis of data obtained. The simplest and most direct way of dotermining the intensity of the cycle was found to be the comparison of the combustion heats of a monomeric cyclic compound to that of a homologous polymer. Another way of determining the intensity is also described. Six references: 4 USSR; 1 USA and 1 Fr. (1947-1954). Tables.

Institution : The Moscow State University im. M. V. Lomonosov

Presented by : Academician I. L. Knunyants, December 13, 1954

SKURATOV, S. M.

USSR/ Chemistry - Organic chemistry

Card 1/1 Pub. 22 - 33/62

Authors : Strepikheyev, A. A.; Skuratov, S. M.; Shtekher, S. M.; Muromova, R. S.; Brykina, Ye. P.; and Kachinskaya, O. N.

Title : Interaction of amino- and carboxyl groups in amino acids

Periodical : Dok. AN SSSR 102/3, 543 - 545, May 21, 1955

Abstract : It is known that the interaction of atoms in a molecule or the interaction of molecules in a substance in different phase and states of aggregation is one of the most important factors in determining the properties of chemical compounds including their reactivity. Results obtained during the determination of heats of combustion of several amino acids of the fatty series having the amino group in different arrangements relative to the carboxyl are presented. The interaction of amino and carboxyl groups in amino acids was also used as a basis in determining the heat of combustion of salts of alkylenediamines with alkylenedicarboxylic acids. Three references: 2 USSR and 1 French (1927-1954). Tables.

Institution : The M. V. Lomonosov State University, Moscow

Presented by: Academician I. L. Knunyants, December 13, 1954

SKURATOV, S. M.

In memory of Aleksandr Aleksandrovich [illegible]. A. N. Nesmeyanov, I. L. Knunyants, M. M. [illegible], B. M. Bogoslovskii, S. M. Skuratov, A. A. Konkin, V. A. Derevitskaya, and Z. [illegible]. *Zhur. Obshchei Khim.* 26, 3224-7(1956).—Obituary, with portrait and summary of S.'s work in the field of cellulose and high polymers (1912-55).
G. M. Kosolapoff

SKURATOV, S.M.; STREPIKHEYEV, A.A. [deceased]; SHTEKHER, S.M.; VOLOKHINA, A.V.

Polymerization enthalpy of cyclic formals. Dokl. AN SSSR 117 no.2: 263-265 N '57. (MIRA 11:3)

1. Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova. Predstavleno akademikom A.A. Balandinym.
(Enthalpy) (Acetals)

Skuratov, S. M.

20-3-26/52

AUTHORS: Skuratov, S. M., Strepikheyev, A. A. (Deceased), Kozina, M. P.

TITLE: The Reactivity of 5- and 6-Member Heterocyclic Compounds (O reaktsionnoy sposobnosti pyati- i shestichlennykh geterotsiklicheskikh soyedineniy)

PERIODICAL: Doklady AN SSSR, 1957, Vol. 117, Nr 3, pp. 452 - 454 (USSR)

ABSTRACT: The enthalpy on the cyclization can characterize the reactivity of a given cyclic compound in the well known manner during its transformation into linear compounds. The main problem of this paper is to extend the conclusion drawn to γ - and δ -monosaccharides the polymerization of which may play an important part in the biosynthesis of natural compounds. Besides, it was possible, in this paper, to clear up several other interesting problems. The enthalpy of the cyclization of a given cyclical compound can be computed in two ways: 1.) By comparing the experimentally determined combustion heat of this compound with its combustion heat added up from the increments of the corresponding groups. 2.) By comparing the combustion heat of the 5-member and 6-member compounds of a given series. For the determination of the enthalpy of cyclization of the 5-member cycle a formula is given. The experimentally determinable quantities are the combustion heats of the respective

Card 1/3

The Reactivity of 5- and 6-Member Heterocyclic Compounds

compounds. The calorimetric apparatus and the method for measuring the combustion heats have already been described (reference 6). The combustion heats of all investigated substances are shown in a table. The data obtained allow, among others, the following conclusions: The enthalpy of the cyclization of a 6-member cycle is nearly equal to zero, but for a 5-member cycle this enthalpy is $\sim$ 5 cal. The authors intended to verify the method on any pure hydrocarbon (or a substance of similar structure); for this purpose they selected αd-glucose. Quite simple additive methods of computation may be applied in the case of the class of hydrocarbons. It may be assumed that in hydrocarbons the enthalpy of the cyclization of a 6-member cycle is nearly equal to zero. This permits estimation of the enthalpy of the cyclization of a 5-member cycle of ßd-CH_3-glucofuranocide by comparing its combustion heat with that of the 6-member cycle of the ßd-CH_3-glucopyranocide. There are 1 table and 14 references, 4 of which are Slavic.

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20-3-26/52

The Reactivity of 5- and 6-Member Heterocyclic Compounds

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

PRESENTED: May 25, 1957, by A. A. Balandin, Academician

SUBMITTED: May 16, 1957

AVAILABLE: Library of Congress

Card 3/3

SKURATOV, S.M.; SHTEKHER, S.M.

Heat of combustion of cycloheptanone. Khim.nauk i prom. 3 no.5:688 '58. (MIRA 11:11)

1. Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova.
(Cycloheptanone) (Heat of combustion)

SKURATOV, S. M.

SOV/55-58-6-30/31

AUTHORS: Gerasimov, Ya. I., Yerasin, Ye. M., Kiselev, A. I., Lebedev, V. P., Skurmoy, S. M., Topchiyeva, K. V., Shakhparonov, M. I.

TITLE: Training and Education of Teachers of Higher Schools, and of Scientists and Researchers (O putyakh podgotovki prepodavateley vysshey shkoly i nauchnykh rabotnikov)

PERIODICAL: Vestnik Moskovskogo universiteta. Seriya matematiki, mekhaniki, astronomii, fiziki, khimii, 1958, Nr 6, pp 235 - 238 (USSR)

ABSTRACT: According to the opinion of the authors the actual training and education of qualified specialists in the field of natural sciences suffers from certain drawbacks: they first go through a 'three-years' stage as candidates. This kind of activity is in no way a guarantee for thoroughly penetrating into all necessary fields of theoretical and experimental work in the domain of physics and physical chemistry, and of the other sciences related therewith. Besides the time is too short for defending and proving again the truth of the scientific investigations carried out. It is obvious that the brevity of time prevents the candidates from ascending in their investigations from a perfunctory to a more scientific level. There is no possibility of selecting certain more interesting theses.

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and the like. Finally the time is too short for giving the candidate sufficient pedagogical training. Consequently, it is suggested to replace the term of three years for candidates by a five years' term for assistants-on-trial during which time the practical work and the seminars will be conducted according to pedagogical principles and the scientific investigations will be carried out in accordance with the plans of the Chair. The examination on the special scientific training can only be passed, if the assistant-on-trial adduces the proof of having made a number of particular scientific reports, and of having passed the examination on the fundamentals of marxism and leninism, as well as that of foreign languages. After having completed his trial term and having successfully passed the final examination, he may become candidate lecturer at his own or at any other school. By a well-controlled guidance of the assistant-on-trial, an excellent selection is warranted of first-class men of science. Besides, this system will succeed-fully further and advance the scientific work of the assistants-on-trial. The authors believe that the chief result of this

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reorganization will be a good training both in the scientific sector and, in the pedagogical field, and will therefore be the best way of forming first-class higher school instructors.

Card 3/3

3-58-7-3/36

AUTHORS: Gerasimov, Ya.I., Yeremin, Ye.N., Kiselev, A.V., Skuratov, S.M., Topchiyeva, K.V., Professors; Shakhparonov, M.I., Doctor of Chemical Sciences and Lebedev, V.P., Dotsent

TITLE: The National Economy Needs Physico-Chemists (Narodnomu khozyaystvu nuzhny fiziko-khimiki)

PERIODICAL: Vestnik vysshey shkoly, 1958, Nr 7, pp 14-16 (USSR)

ABSTRACT: The authors stress the necessity of creating special faculties on physico-chemistry in universities. At present, faculties train chemists whose knowledge of physics is rather limited. The student is not trained in a special branch of chemistry, and the shortage of time does not allow him to develop his knowledge of practical methods.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet imeni Lomonosova (The Moscow State University imeni Lomonosov)

Card 1/1

GERASIMOV, Ya.I.; YEREMIN, Ye.N.; KISELEV, A.V.; LEBEDEV, V.P.; SKURATOV, S.M.; TOPCHIYEVA, K.V.; SHAKHPARONOV, M.I.

Methods of preparing scientific workers and teachers of institutions of higher education. Vest.Mosk.un.Ser.mat.,mekh.,astron., fiz.,khim. 13 no.1:235-238 '58. (MIRA 12:4)
(Science--Study and teaching)

SOV/76-32-11-19/32

5(4)
AUTHORS: Vorob'yev, A. F., Skuratov, S. M.

TITLE: Using the Electric Arc in Calorimetry (Ispol'zovaniye elektricheskoy dugi v kalorimetrii)

PERIODICAL: Zhurnal fizicheskoy khimii, 1958, Vol 32, Nr 11, pp 2580-2585 (USSR)

ABSTRACT: A special calorimetric bomb was constructed (Fig). The combustion of the sample is carried out by means of an electric arc formed between a tungsten electrode and the shell(for the sample) made of tantalum or heat resistant steel. An open calorimeter with an isothermal water jacket was used. In the latter the temperature was exactly maintained at 0.01°. To determine the energy of the electric arc a special electrodynamic d.c. meter was constructed (with V. A. Matsnev, Engineer, taking part in this work). The results obtained in calibrating the meter are given (Table 1). The heat value of the calorimeter was determined according to the diathermal method. A standard benzoic acid was used that had been synthesized by the Vsesoyuznyy nauchno-issledovatel'skiy institut metrologii im. D. I. Mendeleyeva (All-Union Scientific Research

Card 1/2

Using the Electric Arc in Calorimetry

Institute for Metrology imeni D. I. Mendeleyev). The obtained values are given (Tables 2 and 2a). The enthalpy of the magnesium oxide formation was determined by means of the calorimeter described. The combustion took place at an oxygen pressure of 1.5 atmospheres absolute pressure. The experimental results obtained (Table 3) agree well with the values given in publications (Refs 3-8). It is assumed that the measurement method described will be applied within a wide field of measurements of the heat effects of high-temperature reactions. There are 1 figure, 3 tables, and 9 references, 1 of which is Soviet.

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

SUBMITTED: May 25, 1957

SOV/2o-122-1-3o/44

5(4)
AUTHORS: Skuratov, S. M., Kozina, M. P.

TITLE: The Combustion Heat of Tetrahydropyrane (Teplota goreniya tetragidropirana)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol 122, Nr 1, pp 1o9-11o (USSR)

ABSTRACT: In the Thermochemical Bulletin 1957, Nr 3, the values of the combustion heat of tetrahydrofuran and tetrahydropyrane were published. (These values were found in an English and in a Soviet Laboratory). For tetrahydrofuran, the difference between the results of the 2 laboratories is relatively small, but it amounts to 0,5 % for tetrahydropyrane. Such a difference cannot be explained by the errors of the calorimetric measurements, but it is caused, evidently, by the insufficient purity of the substance. Therefore, English authors and the authors of this paper decided to repeat the measurements of the combustion heat of tetrahydropyrane. The value found by English authors was practically equal to that published in the Thermochemical Bulletin. This paper, however, gives the results of the repeated determina-

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tion of the combustion heat of tetrahydropyrane. This substance was purified in various ways. The combustion heats of these samples were equal within the limits of experimental errors. The results of this paper are given in a table. According to these results, the tetrahydropyrane investigated by the authors may be considered as being sufficiently pure. There are 1 table and 2 references, 1 of which is Soviet.

PRESENTED: June 30, 1958, by A. N. Frumkin, Academician

SUBMITTED: July 1, 1958

5(3) SOV/156-59-1-28/54

AUTHORS: Bonetskaya, A. K., Skuratov, S. M., Monayenkova, A. S.

TITLE: The Determination of the Purity of Organic Substances With the Aid of Melting Curves (Opredeleniye chistoty organicheskikh veshchestv po krivym plavleniya)

PERIODICAL: Nauchnyye doklady vysshey shkoly. Khimiya i khimicheskaya tekhnologiya, 1959, Nr 1, pp 113-116 (USSR)

ABSTRACT: A method is proposed for which only small quantities are required (0.4 mole). The apparatus shown comprises an aluminum block, which is electrically heated from the outside and in which the cone-shaped measuring vessel is introduced. In the measuring vessel (which consists of 0.4 mm thin silver plate) a solid silver cone is centrically suspended with a clearance of 0.6-0.7 mm between the cone and the wall of the measuring vessel. The cone contains a thermocouple of high sensitivity. The temperature gradient between the aluminum block and the sample is maintained constant by another thermocouple. The sample is introduced in a molten state into the measuring vessel and the silver cone is suspended in the vessel to urge the sample as a thin layer against the wall of the vessel. The apparatus was tested with diphenyl-amine,

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The Determination of the Purity of Organic Substances With the Aid of Melting Curves

diphenyl and caprolactam, to which up to 1 mole-percent of other substances had been admixed. The tables show that impurities between 0.3 and 0.7 mole-percent were indicated with an accuracy of ± 0.03 mole-percent. Ye. N. Kanarskaya, I. Ye. Paukov, V. V. Ponomarev, and Yu. I. Rubtsov assisted in this work. There are 1 figure, 2 tables, and 9 references, 1 of which is Soviet.

ASSOCIATION: Kafedra fizicheskoy khimii Moskovskogo gosudarstvennogo universiteta im. M. V. Lomonosova
(Chair of Physical Chemistry of Moscow State University imeni M. V. Lomonosov)

SUBMITTED: June 28, 1958

SOV/78-4-6-3/44

5(4)
AUTHORS: Kolesov, V. P., Popov, M. M. (Deceased), Skuratov, S. M.

TITLE: The Formation Enthalpy of Beryllium Fluoride (Ental'piya obrazovaniya ftoristogo berilliya)

PERIODICAL: Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 6, pp 1233-1236 (USSR)

ABSTRACT: An experimental determination of the formation enthalpy of BeF_2 in crystalline modification was carried out. A direct method was used for the determination of the formation enthalpy of the crystalline beryllium fluoride from simpler components. The following reactions were taken into account:

$$Be_{cryst} + \frac{1}{2} O_2\ gas = BeO;\ \Delta H_1 \qquad (1)$$

$$BeO + 2HF_{solution\ 342HF.1300H_2O} = BeF_2\ solution\ BeF_2 \cdot 340HF \cdot 1301H_2O + H_2O_{solution\ BeF_2 \cdot 340HF \cdot 1301H_2O};\ \Delta H_2 \qquad (2)$$

$$BeF_2\ cryst + solution\ 340HF.1301H_2O = BeF_2\ solution\ BeF_2 \cdot 340HF \cdot 1301H_2O;\ \Delta H_3 \qquad (3)$$

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H_2 gas + F_2 gas + solution 340HF.1300H_2O = 2HF solution 342HF. (4)

. 1300H_2O; ΔH_4

H_2 gas + $\frac{1}{2}$ O_2 gas + solution 3400HF.1300 = H_2O solution 340HF. (5)

. 1301H_2O; ΔH_5

Be_{cryst} + F_2 gas = BeF_2 cryst; $\Delta H^o_{formation}$

$\Delta H^o_{formation} = \Delta H_1 + \Delta H_2 + \Delta H_4$; $\Delta H_3 - \Delta H_5$

Beryllium fluoride was produced by thermal dissociation of ammonium beryllium fluoride in the argon current at 360-380°. The compound $(NH_4)_2BeF_4$ was produced by O. I. Vorob'yeva.

The calorimetric determinations were carried out in a platinum calorimeter. The temperature during the calorimetric determinations could be determined with an accuracy of 0.0002-0.0003°.

The enthalpy of the reaction BeO with hydrofluoric acid

SOV/78-4-6-4/44

5(4)

AUTHORS: Kolesov, V. P., Skuratov, S. M., Zaykin, I. D.

TITLE: The Formation Enthalpy of Lithium Oxide (Ental'piya obrazovaniya okisi litiya)

PERIODICAL: Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 6, pp 1237-1240 (USSR)

ABSTRACT: The enthalpy of the reaction of crystalline lithium oxide with water was calculated. Purest lithium oxide was used as initial material. The analysis results concerning the purity of lithium oxide are summarized in table 1. The calorimetric determinations were carried out with the apparatus mentioned in reference 6, the results are given in table 2. The reaction enthalpy of lithium oxide with water amounts to $\Delta H = 31.41 \pm 0.08$ kcal/mol at 20°, and that of Li_2O to $\Delta H = -142.8 \pm 0.3$ kcal/mol at 25°. There are 2 tables and 17 references, 3 of which are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Moscow State University imeni M. V. Lomonosov). Termokhimicheskaya laboratoriya im. V. F. Luginina (Thermochemical Laboratory imeni V. F. Luginin)

SUBMITTED: March 5, 1958

Card 1/1

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SOV/126-8-1-15/25

AUTHORS: Popov, M. M., Timokhina, Ye. N., Skuratov, S.M. and Kalinina, Ye. N.

TITLE: Latent Energy of Plastic Deformation of Alloy of Aluminium with Copper

PERIODICAL: Fizika metallov i metallovedeniye, 1959, Vol 8, Nr 1, pp 103-113 (USSR)

ABSTRACT: Some of the work of plastic deformation is stored in the metal as internal stresses and only appears as heat when these stresses are removed by annealing. This latent energy of deformation can be found from measurements of the difference between the specific heats (or apparent specific heats) of the deformed alloy in the un-annealed and annealed states. In the research described this method was applied to aluminium-copper alloys (3 and 5% Cu) deformed to 30% by forging. The authors review published work of a similar character (Refs 1-16) tabulating the material, type of deformation, work, method of measuring work, additional measurements for some (Refs 1-12). In their own work the "apparent" specific heat was determined by a method described by M. M. Popov and G. L. Gal'chenko (Ref 29). An unusual

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Latent Energy of Plastic Deformation of Alloy of Aluminium with Copper

calorimeter (Fig 1) was used, consisting of a squat cylindrical heater on either side of which two initially cylindrical specimens 20 mm in diameter and 30 mm high were placed. The outer ends of the specimens were in contact with thermocouple-containing silver cylinders. The assembly was bound with wire and suspended inside a massive silver container in a furnace. Systematic errors in the results were of no significance in the procedure adopted. Fig 2 shows specific heats as functions of temperature for the annealed and for hardened undeformed alloys, together with the corresponding additive functions. Deviations between the former and latter and the complex shape of the "apparent" specific heat functions indicate exo- or endo-thermic transformations. Specific heats of annealed and hardened 3% Cu alloys for successive reheatings are shown in Fig 3 as functions of temperature. Since annealed specimens gave unreproducible results, tests on deformed alloys were restricted to the hardened or semi-hardened (i.e. cooled from 520 to 80°C in 16 hours) alloys.

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Latent Energy of Plastic Deformation of Alloy of Aluminium with Copper

Deformation, limited to 30% by a ring, was effected by a free-falling bob. Fig 4 shows specific-heat vs. temperature curves for hardened deformed and undeformed 3 and 5% Cu alloys. Further experiments were carried out in which determination of the latent heat of deformation was reduced to 1) deformation of a semi-hardened specimen, 2) determination of the difference between enthalpies at two given temperatures for the first heating and for the second and subsequent heatings. This was carried out with six pairs of the 5% Cu alloy (Figs 5 and 6 give the corresponding specific heat vs. temperature curves), showing that 1) less heat is required for the first than for subsequent heating between the same temperatures; 2) the latent heat of deformation for the six pairs varied from 0.4 to 2.3 cal/g; the latent heat of deformation is released over a wide temperature range. The authors consider their experimental errors such that only the order of magnitude of the latent heat of deformation can be found.

Card 3/4

SOV/115-59-9-18/37

24(8)
AUTHOR: Skuratov, S.M.

TITLE: The Problem of Units of Measure of Heat Quantities

PERIODICAL: Izmeritel'naya tekhnika, 1959, Nr 9, pp 32-33 (USSR)

ABSTRACT: The author discusses the introduction of the joule as the basic unit for measuring the amount of heat instead of the outdated calory. GOST 8550-57 "Thermal Units" introduces the absolute joule as the unit for measuring the amount of heat. However, the calory is still widely used. Nevertheless, the calory should be replaced by the joule. Reviewing the history of the introduction of the joule as the basic unit for measuring the amount of heat, the author lists different ratios of the international joule to the absolute joule. These differences were caused, since the methods of determining the absolute joule have been constantly improved. Since 1948, the international joule is not longer used; 1 international joule = 1.00019 absolute joule and 1 calory = 4.1840 absolute joule. Although the absolute joule

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The Problem of Units of Measure of Heat Quantities

should be used for all scientific work, the author recommends indicating which ratio of the joule to the calory has been used, if heat units are expressed in calories. There is 1 Soviet reference.

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