YEVLEV, V. N.

"The Burning of Turbulent Combustible Jets in Ducted Burners," a paper presented at the 6th International Conference on Combustion, New Haven, 19-24 August 1956

Cand. Tech. Sci., Inst. Energetics AS USSR, Moscow

A-52806, 9 July 56

YEVLEV, V. N.

"Combustion of Turbulent Jets in Ducted Burners," a paper presented at the 6th International Symposium on Combustion, Yale University, 19-24 Aug 56.

Abstract of papers E-4519, Branch 5

IYEVLEV, V. M.

IYEVLEV, V. M. -- "An Experimental Study of the Process of Gas Combustion in Tunnel Burners." Acad Sci USSR. Power Engineering Inst imeni G. M. Krzhizhanovskiy. Moscow, 1956. (Dissertation for the Degree of Candidate in Technical Sciences)

SOURCE Knizhnaya Letopis', No 6 1956

YEVLEV, V.N

PHASE I BOOK EXPLOITATION   626

Akademiya nauk SSSR. Energeticheskiy insitut

Issledovaniya protsessov goreniya; sbornik statey po rabotam,
vypolnennym v Energeticheskom institute im. G.M. Krzhizhanovskiy
AN SSSR (Study of Combustion Processes; Collection of Articles on
Work Done by the Power Institute imeni G.M. Krzhizhanovskogo AS
USSR) Moscow, Izd-vo AN SSSR, 1958. 123 p. 3,300 copies printed.

Resp. Ed.:   Khitrin, L.N.,Corresponding Member, AS USSR; Ed. of
    Publishing House: Pobedimskiy, V.V.; Tech. Ed.: Polesitskaya, S.M.

PURPOSE: This book is meant for scientists and engineers working in
    the field of fuel combustion.

COVERAGE: This collection of articles represents recent research in
    the field of combustion processes performed at the Institute of
    Power Engineering imeni G.M. Krzhizhanovskiy, AS USSR. Materials
    studied were gaseous and vapor fuels. Problems considered were:

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Study of Combustion Processes (Cont.)   626

ignition of gaseous mixtures and stabilization of the flame front;
conditions for igniting homogeneous mixtures; performance of a
tunnel burner; booster method for tunnel burners,in particular
for the burning of gases with low calorific values; regularities of
flame propagation in laminary and turbulent flows; effect of
preheating and fuel composition on the rate of flame propagation;
heat-engineering calculations of processes in furnaces, boilers,
and other devices, and methods for the estimation of their
performance. A new photopyrometric method is described which serves
for measuring the temperature of burning-coal particles in motion.

TABLE OF CONTENTS:

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Khitrin, L.N. and Gold'denberg, S.A. (Laboratory for the
Intensification of Furnace Processes) Ignition of Gaseous   5
Mixtures and Critical Characteristics

The authors based their research on the assumptions of Ya. B.
Zel'dovich for the determination of ignition characteristics,
such as: concentration limits, boundary flame velocities and
flame stabilization criterion. Heated rods or spheres were used as
ignition sources. N.N. Semenov [Ref. 2] and L.A. Vulis [Ref. 4]
are also mentioned as contributors to combustion theory. The
activation energy for methane-air mixture $(E = 35000)$ is quoted from
the work of V.I. Andreyev and L.A Volodina [p. 36]. There are 9
figures, 14 equations, and 4 Soviet references.

Iyevlev, V.N. and Solov'yeva, L.S. (Laboratory for the Intensification
of Furnace Processes). Experimental Study of Gas Combustion Processes
in Tunnel Burners   14

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Study of Combustion Processes (Cont.)   626

The authors demonstrate that combustion in a tunnel is similar to combustion in a free turbulent flow. The tunnel appears not to have an essential effect on the combustion process, but is a good, convenient flame front stabilizer. The characteristics derived by the authors can be useful in calculations of premixer gas burners. There are 7 figures and 3 Soviet references.

Speysher, V.A. (Laboratory for the Intensification of Furnace Processes). Limit-pressure Tunnel Burners Operating on Low-calory gases   23

Experimental data show that a primix tunnel burner is effective in stabilizing the ignition of gas-air mixtures. This is true for small caliber tunnels (D_T = 48 mm) with producer gas and for larger tunnels (D_T= 550 mm) with gas from underground gasification. There are 3 figures and 2 Soviet references.

Speysher, V.A. and Andreyev, V.I. (Laboratory for the Intensification of Furnace Processes). Effect of Preheating

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of the Gas-air Mixtures on the Ignition Stability in Tunnel
Burners   27

The authors studied the ignition stability of preheated
hydrogen-air mixtures (200 and 390° C). Considerable
widening of the ignition stability range was observed at
higher initial temperatures of the mixture, whereby lower
calorific values were permissible. There are 3 figures and
no references.

Iyevlev, V.N. and Speysher, V.A. (Laboratory for the
Intensification of Furnace Processes). Intensifcation of
Combustion in Tunnel Burners   31

The authors studied the effect of a bluff body in a flow of
combustible gases. A conical insert with mixer (fan) was
placed in the center of the burner nozzle. A threefold to
fourfold intensification of the combustion process was

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Study of Combustion Processes (Cont.)   626

obtained for low-calory gases (from underground gasification). A comparative study of various types of inserts was made by V.N. Iyevlev and L.S. Solov'yeva. Their results are given in table 1. There are 4 figures, 1 table, and 2 Soviet references.

Volodina, L.A. and Andreyev, V.I. Effect of Air Preheating on Flame Stabilization by Bluff Bodies in an Open Flow   36

The authors studied flame stabilization of a methane-air mixture with air preheated to 400°. Cones of stainless steel, 5, 7, and 9 mm in diameter, were used as stabilizers. Results are in agreement with those obtained by Longwell [Ref. 1] and Dezubay [Ref. 2]. There are 2 figures and 2 U.S. references. It was observed that preheating the air component widened the stabilization limits considerably in poor mixtures, and insignificantly in rich mixtures.

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Study of Combustion Processes (Cont.)   626

Khitrin, L.N. and Gol'denberg, S.A. (Laboratory for the
Intensification of Furnace Processes).   Effect of Preheating
the Combustible Mixture and of the Ambient Pressure on Flame
Stablization Limits
                                                                39

The authors studied the effect of the initial temperature
and of pressure on flame stabilization. Experimental data
are given from the work of L.A. Volodina and V.I. Andreyev at
the Power Engineering Institute, AS USSR.   There is good
agreement of experimental data with theoretical computations.
Certain deviations are due to the characteristics of the
stabilizers used. The stability parameters are derived from
the fuel to air ratio $\left(\frac{F}{A}\right)$ according to Longwell [Ref. 10] and

Friedman [Ref. 11]. There are 3 figures, 12 equations, and 13
references, 4 Soviet, and 9 English.

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Study of Combustion Processes (Cont.)   626

The authors studied the effect of pressure on flame velocity for gasoline-air and methane air mixtures. Experiments were conducted with a burner of d=16 mm and d= 12 mm, with a peripheral ignition source, and constant Reynolds number 1700. Pressure was varied from 760 - 100 mm. Results obtained were: for methane $U \simeq \frac{1}{\sqrt[3]{P}}$, and for gasoline $U \simeq \frac{1}{\sqrt[4]{P}}$.

There are 7 figures, 1 table, and 34 references, 10 of which are Soviet, 20 English, 3 German, and 1 French.

Gol'denberg, S.A. and Pelevin, V.S. (Laboratory of Combustion Physics). Effect of Pressure on the Flame Propagation Velocity in a Turbulent Flow

This study is based on the experimental work of the authors. The pressure dependence of flame propagation velocity was studied by means of a burner with d = 16 mm andlength assuring stabili-zation. A gasoline-air mixture was used at pressures of 760 - 100 mm and Reynolds numbers 4 - 20·10³. It was determined that

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Study of Combustion Processes (Cont.)   626

It was established that the effect of preheating on the flame propagation velocity is the same in turbulent and laminar flows. There are 7 figures and no references.

Tsukhanova, O.A. (Laboratory for the Intensification of Furnace Processes). Calculation of the Summary Reaction Rate and Flame Velocity in Gas Mixtures

81

The object of this study is the development of approximation methods for the calculation of the total reaction rate without restricting the order of reaction. The normal flame speed theory of Ya. B. Zel'-dovich, N.N. Semenov, and D.A. Frank-Kamenetskiy was taken as the base for this work. The author gives the equation for the total reaction rate, the equation for normal combustion and its approximate solution, and calculation of the kinetics of CO-air and CO-oxygen combustion with a comparative table of results by various authors (table 1). These data are compared with results of N.A. Karzhavina (fig. 2). Finally, the calculation of flame propagation velocities

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Study of Combustion Processes (Cont.)   626

Ravich, M.B. (Laboratory for the Intensification of Furnace Processes). Methods for the Computation of Flue-Gas Loss Due to Incomplete Combustion from the Composition of Combustion Products

97

The author discusses the possibility of calculating the heat losses through flue gases by a simplified method using data on the composition and temperature of combustion products. Formulas are given for the flue-gas loss and for the gasification efficiency. There is 1 table, and 1 Soviet reference.

Ravich, M.B. (Laboratory for the Intensification of Furnace Processes). Classification of Fuels by Their Thermal Properties 10

Tables are given for certain thermal characteristics of fuels which are divided into two main classes. The first contains fuels with heating values that are higher than 2000°. The second class

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Study of Combustion Processes (Cont.)   626

contains fuels with heating values lower than 2000°, and mostly below 1700°. There are 2 tables and no references.

Ravich, M.B. (Laboratory for the Intensification of Furnace Processes). Methods for the Computation of the Excess-oxygen Coefficient During the Combustion of Fuels in an Atmosphere of Oxygen and Oxygen-nitrogen Mixtures

103

This paper describes the calculation of the coefficient of excess oxygen (α) from the analysis of combustion products without the preliminary determination of the percentage of oxygen in the feed blast. Data are given for various Soviet fuels. There are no references.

Popov, V.A. (Laboratory for the Intensification of Furnace Processes). Measuring the Temperature of Burning Fuel Particles in Motion

106

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Study of Combustion Processes (Cont.)   626

The author presents a photopyrometric method for the determination of temperatures of the combustion process. He believes that this particular method has not been applied elsewhere. The modification of the photometric method is based on two factors: 1) the moving object is photographed by means of a film moving at a given speed, 2) calibration of the standard is performed on a film moving at identical speed with the observation film. It is imperative to keep exposure conditions identical for both instances. Film used was type D with sensitiveness 350° GOST (8000° Kh and D.) Developer used was NIKFI-1. Results showed that the temperature of particles varied from 885 to 925° C, which is in agreement with physicochemical calculations. There are 5 figures, 2 tables, and no references.

Sobolev, G.K. (Laboratory for the Intensification of Furnace Processes). Optical Measurement of Combustion Temperatures in Mixtures of Air with Carbon Monoxide and Methane.

110

This paper discusses the optical measurement of flame temperatures in a given flame zone. The technique of NaCl dust injection into

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Study of Combustion Processes (Cont.)   626

the stream was used for temperature determination by the sodium
D- line reversal method. The optical arrangement ordinarily used
in such cases is described in the 1952 book Metody izmereniya temper-
ayur v promyshlennosti edited by A.N. Gordov. An LT-2 comparison
lamp was used, and the combustion products were analyzed by means
of the VTI gas analyzer. The temperature of combustion products in
the methane-air mixture was estimated as equal to the theoretical
combustion temperature. It was measured at 2-3 mm from the flame
front. The temperature of combustion products of carbon monoxide
at 4-6 mm from the flame front was considerably lower than the
thermodynamic equilibrium temperature, but fairly close to the
temperature calculated from the composition of reaction products
in the studied flame zone. There are 2 figures and no references.

Blinov, V.I. and Khudyakov, G.N. (Laboratory for the Intensific-
tion of Furnace Processes). Certain Regularities in the
Combustion of Petroleum Products in Containers
                                                              113

The combustion of automobile gasoline, kerosine, solar oil,
Diesel oil, transformer oil, petroleum, and mazut was studied
in burners and containers of various dimensions. Their
combustion characteristics are given in table 1. Data for a

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Study of Combustion Processes (Cont.)   626

container with d = 22.9 m were supplied by the Central
Scientific Research Institute of Fire Prevention (TsNIIPO), and
for d= 1.3 and 2.6 m were prepared by the authors in collaboration
with workers of the TsNIIPO. It was shown that combustion of
petroleum products in containers with d= 1 m is turbulent, and
tis velocity, and evidently the relative flame height, do not
change with varying diameters. It can be assumed that the rate
of turbulent combustion of liquids is determined by the amount
of radiation heat obtained from the flame. This amount differs
for different sections of the fuel surface. L.A. Volodin and
A.A. Koryakin cooperated in the collection of experimental data.
There are 2 figures, 4 tables, and 4 Soviet references.

Tsukhanova.O.A. (Laboratory for the Intensification of Furnace
Processes). Solution of Certain Problems of Heterogeneous
Combustion by the Method of Averaging of Equations   119

The author discusses the application of the method of averaging
to the problem of combustion in a carbon channel for the simplest
case of oxygen reaction at the wall to CO_2 and without considering

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Study of Combustion Processes (Cont.)   626

the existence of reduction. This method was suggested by M.V.
Keldysh in the form of an approximation method for the solution
of combustion problems based on the averaging of differential
equations for one of the independent variables. The method of
averaging permits the solution of problems for gas formation
in presence of several simultaneous space and surface reactions.
There are no references.

Khitrin, L.N. (Laboratory for the Intensification of Furnace
Processes). Possible Role of Catalytic Surface Combustion
During the High-Temperature Combustion of Gases in a Flow   123

The author studied the effect of surface combustion in a high-
temperature burning of gases. A tunnel type burner was used
with a layer of fine-grained material. It was determined that
under such conditions the surface catalytic combustion does not
have a noticeable effect and the process is termed an ordinary
space combustion of a flow. The fine-grained layer will reveal
surface processes in the case of high catalytic activity
materials. There are 3 equations, 1 figure, and no references.

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                                            12-3-58

IYEVLEV, V.N.

PHASE I BOOK EXPLOITATION   1112

Nauchno-tekhnicheskoye obshchestvo energeticheskoy promyshlennosti. Tsentral'noye upravleniye. Sektsiya gazifikatsii

Teoriya i praktika szhiganiya gaza; trudy nauchno-tekhnicheskogo soveshchaniya (Theory and Practice of Gas Combustion; Transactions of a Scientific and Technical Meeting) Leningrad, Gostoptekhizdat, 1958. 343 p. 3,500 copies printed.

Ed.: Lyakhovskiy, D.N.; Executive Ed.: Fedotova, M.I.; Tech. Ed.: Yashchurzhinskaya, A.B.

PURPOSE: This book is intended for scientists, designing organizations, heat and power engineers, and workers in the gas industry and in enterprises using gas fuel.

COVERAGE: This volume contains reports and addresses presented at the Scientific-Technical Conference on the Theory and Practice of Gas Combustion. The reports deal with the physics of gas fuel combustion, the construction and operation of gas burners and the practical use of gas fuel in industrial and power plants. References are given at the end of each article.

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Theory and Practice of Gas Combustion (Cont.)   1112

PART III.   GAS COMBUSTION APPARATUS

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Theory and Practice of Gas Combustion (Cont.)   1112

Mikheyev, V.P., Candidate of Technical Sciences. Experience with
    Industrial Gas Combustion in the City of Kuybyshev   289

Avdeyeva, A.A., Engineer. Several Facts Concerning Experiments by the
    ORGRES MES (State Trust for the Organization and Efficiency of Electric
    Power Plants, Ministry of Electric Power Plants) with Boilers Operating
    on Gaseous Fuel   296

Imenitov, B.R., Candidate of Technical Sciences. The Use of Low-heat Gas,
    Burned in Ejector Burners in Warmed Air and Gas, for Heating High-Tem-
    perature Furnaces   309

Bogachev, M.N., Candidate of Technical Sciences. The Transfer of Heat-
    treatment Furnaces to Gaseous Fuel   324

Sazonov, N.I. Gas Supply in Foreign Countries   327

AVAILABLE: Library of Congress

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                                            2-18-59

Translation from: Referativnyy zhurnal. Metallurgiya, 1959, Nr 1, p 10 (USSR)   SOV/137-59-1-75

AUTHORS: Iyevlev, V. N., Solov'yeva, L. S.

TITLE: Experimental Study of the Process of Combustion of Gas in Tunnel Burners (Eksperimental'noye izucheniye protsessa goreniya gaza v tunnel'nykh gorelkakh)

PERIODICAL: V sb.: Issled. protsessov goreniya. Moscow, AN SSSR, 1958, pp 14-22

ABSTRACT: An investigation was carried out with gas-and-air premixing burners with a combustion crater 30 mm in diam and a tunnel duct (D) 80 mm in diam; part of the work was done on industrial burners with crater diameters of 66 and 90 mm and D diam of 260 mm. The delivery speed of the city-gas-and-air mixture varied within the 10 - 30 m/ sec range, the air-excess coefficient was 0.86 - 1.37. In the course of the experiments the concentrations of CO_2 and the pressures varied. The combustion process in the D proceeds similarly to that of a free turbulent jet. Between the walls of the D and the border of the flame jet there lies a zone of completely burned combustion products, which excludes the direct effect of the incandescent walls

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SOV/137-59-1-75

Experimental Study of the Process of Combustion of Gas in Tunnel Burners

on the combustion process in the jet. In the front part of the D there is an area of
negative pressures [static-pressure deficiency; Transl. Ed. Note] which ensures
the movement of the combustion products toward the base of the jet. The supply
of hot combustion products, protected from cooling by the incandescent walls of
the refractory D ensures steady ignition of the current of the fresh combustible
mixture. Experimental data are available on the values for the speeds and con-
centrations for various magnitudes of the excess air coefficient, and on the
initial speeds of the mixture and of diameters of the crater of the burner. The
structure of the flame jet was examined and the determining factor of the two
zones in the formation of the burning jet is clarified.

G. G.

Card 2/2

SOV/137-59-1-71

AUTHORS: Iyevlev, V. N., Speysher, V. A.

TITLE: Intensification of Combustion in Tunnel Burners (Intensifikatsiya
            goreniya v tunnel'nykh gorelkakh)

ABSTRACT: An appreciable shortening of the flame in tunnel burners can be
          achieved by installing a non-streamlined axially-symmetrical body
          close to the combustion-zone crater. In burning city gas in a
          burner with a crater 90 mm in diameter and a tunnel 260 mm in
          diam the installation of a smooth hollow cone 60 mm in diam on the
          axis of the jet shortens the flame by 66% and increases the heat
          liberation from 14 to 43 kcal/m^3 hour. The highest liberation of
          heat and the least increase in resistance are achieved when the
          cone is in the optimum position. Conical insertions with turbulence-
          stimulating blades proved still more effective. The liberation of
          heat increases by 600 and more percent.

Card 1/1   G. G.

Iyevlev, V.N.

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SOV/170-59-2-2/23

10(2,7)

AUTHORS: Gol'denberg, S.A., Iyevlev, V.N.

TITLE: The Determination of the Intensity of Turbulence Along a Heat Source

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, 1959, Nr 2, pp 10-16 (USSR)

ABSTRACT: The paper describes an attempt to establish the applicability of the
            statistical theory of isotropic turbulence for the determination of the
            intensity of turbulence of an air flow, streaming from a cylindrical tube,
            in the region of its core. The authors analyze the basic equation for the
            determination of turbulence parameters in an isotropic turbulent field,
            Formula 1, obtained first by Taylor /Ref 1/ and consider two extreme solu-
            tions: 1. For the case of a short time interval and 2. For the case of a
            long interval of time. In the first case the coefficient of turbulent
            diffusion grows linearly with time, Formula 9; in the second case, i.e.,
            at a considerable distance from the source, the value of this coefficient
            tends to a constant magnitude, Formula 11. The authors then consider
            theoretically the case of a point source of heat and report on the experi-
            ments carried out by them with a gas-oxygen burner, taken as a "point"
            source, placed co-axially in a cylindrical tube of 32 - 34 mm in diameter.
Card 1/3   Figure 1 show typical curves of temperature distribution along a transverse

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SOV/170-59-2-2/23

The Determination of the Intensity of Turbulence Along a Heat Source

direction relative to the air flow at various distances along the flow.
The temperature was measured by a thermo-couple with corrections for
radiation. The analysis of the results shows that the distribution of
temperatures in the central part of the air flow corresponds rather well
to the Gauss law (Figure 2). The calculated values of turbulence intensity
on the tube axis agree well with the data obtained with an ETAM-3A electro-
thermoanemometer by S.G. Tkachuk, a scientific worker of the laboratory of
combustion processes of the ENIN, and V.M. Panteleyev, a radiotechnician.
The experiments carried out by the authors have established that relatively
homogeneous fields of turbulent pulsations are observed in the central part
of the flow streaming out of a tube in the region of ~0.25 D as it is shown
in Figure 4. The intensity of turbulence varies insignificantly at a

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The Determination of the Intensity of Turbulence Along a Heat Source

distance of 2D from the end of the tube and practically does not depend on the flow velocity.

There are: 4 graphs and 5 references, 3 of which are Soviet and 2 English.

ASSOCIATION: Energeticheskiy Institut AN SSSR (Power Engineering Institute of the AS USSR), Moscow.

Card 3/3

IYEVLEV, V.N., kand.tekhn.nauk; COL'DENBERG, S.A., kand.tekhn.nauk

Ignition from a flame source in the flow of homogeneous fuel-air mixtures. Teploenergetika 9 no.5:22-24 My '62. (MIRA 15:4)

1. Energeticheskiy institut im. Krzhizhanovskogo.
(Combustion)

L 14586-63   EPF(c) EWT(m)/BDS   AFFTC APGC RPL   Pr-4   IW AW JW/JD

ACCESSION NR: AP3005805   S/0179/63/000/004/0112/0115

AUTHOR: Gol'denberg, S. A. (Moscow); Iyevlev, V. M. (Moscow)

TITLE: The effect of turbulence in the flow of combustible mixtures on the ignition process

SOURCE: AN SSSR. Izv. Otd. tekh. nauk. Mekhanika i mashinostroyeniye, no. 4, 1963, 112-115

TOPIC TAGS: turbulence effect, ignition temperature, flammability limit, burner, turbulence profile, ignition property

ABSTRACT: The effect of turbulence in the flow of premixed gasoline-air mixtures on the ignition temperature and the limits of flame stability was studied in a tubular burner (diameter, 30 mm; length, 300 mm) which was equipped with a concentrically located water-cooled additional burner (inner diameter, 3.6 mm; outer diameter, 7 mm) serving as the ignition source. The cooling-surface area of the source could be varied to give source temperatures, with methane-oxygen mixtures, ranging from 1300 to 2200C. The source temperature was measured spectroscopically 1—2 mm downstream from the source by the method of sodium-line reversal. Turbulence varying from 5.5 to 10.5% was generated in the vicinity of

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L 13608-63

ACCESSION NR: AP300-305

The source by turbulence grids located inside the burner, 38—105 mm from the
outlet. Turbulence was measured 1 mm downstream from the burner outlet by an electric
thermometer. Radial turbulence profiles in the absence of combus-
tion were measured with and without the source and turbulence grid. The main
results of the study are presented in the enclosure. Fig. 1 shows that with in-
creasing turbulence the ignition properties deteriorate and the ignition tem-
perature increases substantially. Fig. 2 shows that the flammability limits as
a function of the air excess factor with 0% turbulence (grid located 55 mm from
the outlet). Analysis yielded the following formula for correlating flow velo-
city with turbulence at Nu = const:

$$w = w_0 - K(\varepsilon - \varepsilon_0),$$

where w is flow velocity at turbulence ε, w_0 is initial flow velocity at initial
turbulence ε_0, and $K = 4$. Applied to an example, the formula yielded a flow
velocity at a turbulence of 8% of 16 m/sec, compared with 19 m/sec determined by
experiment. This corresponds to 31 m/sec at a turbulence of 9% and identical
Nusselt numbers and ignition temperatures (1500C). "The authors express their
sincere thanks to L. N. Khitrin for his suggestions." Orig. art. has: 7 figures
and 4 formulas.

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ACCESSION NR: AP4024190   S/0294/64/002/001/0058/0064

AUTHOR: Gol'denberg, S. A.; Iyevlev, V. N.; Leont'yeva, Z. S.

TITLE: Determination of electrical conductivity of high-temperature combustion products by the induction method

SOURCE: Teplofizika vy*sokikh temperatur, v. 2, no. 1, 1964, 58-64

TOPIC TAGS: electrical conductivity, high temperature gas, combustion product, combustion, rocket exhaust, induction method

ABSTRACT: The electrical conductivities of combustion products of gasoline-oxygen mixtures in the temperature range of 2600—3000K at atmospheric pressure were measured by the induction method. Fig. 1 of Enclosure shows the experimental assembly used for obtaining the high-temperature gases. A homogeneous gasoline-air mixture passes into the burner, which consists of several sections. In section 1, the combustible mixture is mixed with oxygen injected through small orifices and is then ignited by a continuous-action gas-oxygen ignition source. Above the ignition source, water-cooled combustion chamber 3 is installed, in which intensive mixing and combustion take place.

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ACCESSION NR: AP4024190

Combustion is completed in quartz tube 6, (diameter, 40 mm; length, about 300 mm). To cool the chamber walls, air is passed through the jacket formed by quartz tubes 6 and 7. Salt solutions are introduced into section 2 through an atomizer nozzle to increase the electrical conductivity of the high-temperature gases. The assembly has the following performance parameters: consumption of the air-oxygen mix-> ture, 54—70 m^3/hr, and gasoline consumption, 17—24 kg/hr. The con- centration of oxygen in the mixture is varied from 38 to 60%. The flow velocity of the high-temperature combustion products is varied from 155 to 190 m/sec. The gas temperature, which was calculated on the basis of the gas composition and measured by the method of the sodium D-line reversal, is varied in the range of 2740—3030K. Potassium salt is injected in the form of an aqueous solution of KCNS. Provision is also made for simultaneous injection of dry potassium carbonate. The operation of the IEP-01 instrument used for determining the elec- trical conductivity is based on the interaction of a conductive medium with the radial component of a primary magnetic field. (See Fig. 2.) Fig. 3 shows the experimental and calculated electrical conductivities of the high-temperature gases. Expressions were also derived for calculating the induced electromotive force. The results indicate that the elec- trical conductivities of combustion products containing 0.7—1.5%

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ACCESSION NR: AP4024190

potassium in the temperature range of 2700—3000K vary in the range of
0.3—0.9 ohm^{-1}cm^{-1}. The determined electrical conductivities were in
good agreement with values calculated by use of a correction factor.
Orig. art. has: 4 figures, 3 formulas, and 1 table.

ASSOCIATION: Energeticheskiy institut im. G. M. Krzhishanovskogo
(Power Engineering Institute)

SUBMITTED: 13Jul63   DATE ACQ: 16Apr64   ENCL: 03

SUB CODE: PR   NO REF SOV: 006   OTHER: 009

Card   3/6

ALAD'YEV, I.T.; ALEKSANDROV, B.K.; BAUM, V.A.; GOLOVINA, Ye.S.;
      GOL'DENBERG, S.A.; ZHIMERIN, D.G.; ZAKHARIN, A.G.; IYEVLEV, V.N.;
      KNORRE, V.G.; KOZLOV, G.I.; LEONT'YEVA, Z.I.; MARKOVICH, I.M.;
      MEYEROVICH, E.A.; MIKHNEVICH, G.V.; POPKOV, Z.I.; POPOV, V.A.;
      PREDVODITELEV, A.S.; PYATNITSKIY, L.N.; STYRIKOVICH, M.A.;
      TOLSTOV, Yu.G.; TSUKHANOVA, O.A.; CHUKHANOV, Z.F.; SHEYNDLIN, A.Ye.

Lev Nikolaevich Khitrin, 1907-1965; obituary. Izv. AN SSSR. Energ.
i transp. no.2:159-160 Mr-Ap '65.   (MIRA 18:6)

L 24077-66   EWT(1)/EWP(m)/EWT(m)/EWA(d)/T/EWA(h)/EWA(1)   JKT/WW/JW/JWD/WE/JT
ACC NR: AP6014966   SOURCE CODE: UR/0281/65/000/002/0158/0159

AUTHOR: Alad'yov, I. T.; Aleksandrov, B. K.; Baum, V. A.; Golovina, Ye. S.;
Gol'denberg, S. A.; Zhimerin, D. G.; Zakharin, A. G.; Ivevlev, V. M.; Knorre, V. G.;
Kozlov, G. I.; Leont'yeva, Z. I.; Markovich, I. M.; Meyerovich, E. A.; Mikhnovich, G.V.;
Popkov, V. I.; Popov, V. A.; Predvoditelev, A. S.; Pyatnitskiy, L. N.; Styrikovich,
M. A.; Tolstoy, Yu. G.; Tsukhanova, O. A.; Chukhanov, Z. F.; Sheyndlin, A. Ye.

ORG: none

TITLE: Lev Nikolayevich Khitrin

SOURCE: AN SSSR. Izvestiya. Energetika i transport, no. 2, 1965, 158-159

TOPIC TAGS: academic personnel, physics personnel, combustion, carbon, high
temperature research, plasma beam, fuel

ABSTRACT: Professor L. N. Khitrin Corresponding Member, Academy of Sciences
USSR, State Price Laureate, and Doctor of Engineering Sciences, died after a
short but severe illness at the age of 58. He was well known here and abroad
as an outstanding scientist and specialist in the field of combustion theory
and the development of methods for speeding up burning of fuel. He began his
scientific work at the All Union Heat Engineering Institute after graduating
from the physics department of Moscow University in 1930. His early work was
on the propagation of flames in gases, and on heterogenous combustion. In
1948 he defended his Doctor's Dissertation on the theory of combustion of car-

Card 1/2   UDC: 621.036:92

L 24077-66

ACC NR: AP6014966

bon. His monograph "Combustion of Carbon" was awarded the State Prize in 1950.
In 1951 he became the permanent director of the laboratory for the intensifica-
tion of combustion processes of the G. M. Krzhizhanovskiy Power Institute. He
was elected a corresponding member of the Academy of Sciences USSR in 1953. He
headed the All Union Advisory Board on combustion, represented Soviet science
at International Symposia, and was a member of the International Institute of
combustion. For a number of years, he directed the Moscow general seminar on
combustion, and took an active part in the work of the Scientific Council of
the Academy of Sciences USSR, on high temperature heat physics, and of the
scientific council on the comprehensive utilization of fuel. He devoted a
large amount of attention to teaching work. He directed the Combustion Divi-
sion of the Physics Department of Moscow State University. His monograph
"Physics of Combustion and Explosion" (1957) is a basic text for students in
this field. Three Doctor's Dissertations and fifteen Candidate Dissertations
were defended under his direction. In the last years of his life he directed
work on methods for comprehensive utilization of fuel at power stations so as
to obtain valuable products from the mineral part of the fuel, as well as work
on the physical chemical processes in a plasma stream, and the mechanism of
interaction between carbon and gases. He was the author of more than 60
scientific works, for which he was awarded the Order of the Red Banner of
Labor and medals. Orig. art. has: 1 figure. [JPRS]

SUB CODE: 21, 20 / SUBM DATE: none

Card 2/2

KRIVTSOV, A. T.; IYEVLEV, V. S.

Transporting auxiliary materials in hydraulic mines. Ugol'
Ukr. 7 no.4:25-27 Ap '63.   (MIRA 16:4)

1. Gosudarstvennyy institut po proyektirovaniyu shakhtnogo
stroitel'stva v yuzhnykh rayonakh SSSR.

(Hydraulic mining)   (Mine haulage)

Iyevlev, U.V.

USSR /Chemical Technology. Chemical Products   H-5
       and Their Application
       Water treatment. Sewage water.

Abs Jour: Referat Zhur - Khimiya, No 1, 1958, 1811

Author   : Iyevlev V.V.

Inst   : State Union Institute of Planning of Establish-
            ments of the Coal-Tar Chemical Industry

Title   : Decontamination of Sewage Water of the Installa-
            tions for the Removal of Hydrogen Sulfide from
            Coke Gas by the Arsenate-Soda Method

Orig Pub: Soobshch. Gos. soyuz. in-ta po proyektir. pred-
           priyatiy koksokhim. prom-sti, 1956, No 17,
           150-161

Abstract: The sewage water contains (in g/liter): Na_2SO_3
           up to 250, NaCNS 70-90 and Na_2SO_4 up to 60. To

Card 1/2

USSR /Chemical Technology. Chemical Products   H-5
    and Their Application
    Water treatment. Sewage water.

Abs Jour: Referat Zhur - Khimiya, No 1, 1958, 1811

        decontaminate the sewage water it is proposed to
        evaporate it after removing the Fe admixtures
        (by precipitation with NH). The evaporation
        residue is calcined in muffle furnaces and con-
        sists thereafter of 96% Na_2SO_4. The flue gases
        contain 4.5-5.5% SO_2 and are used for the pro-
        duction of H_2SO_4. Another suggested procedure
        for the treatment of sewage water is a treatment
        with H_2SO_4. The S that separates is used in the
        production of H_2SO_4, while evaporation of the
        solution of sulfate and thiocyanate yields Na_2SO_4
        which meets the specifications of GOST 1363-47.

Card 2/2

IYEVLEV, V.V., kand.tekhn.nauk

Decontamination by evaporation of the tar water from coke and coal chemical plants. Koks i khim. no.8:42-46 '63. (MIRA 16:9)

1. Ukrainskiy uglekhimicheskiy institut.
(Coke industry—By-products)
(Industrial wastes—Purification)

MIKHAYLOV, N.V.; GORBACHEVA, V.O.; IYEVLEVA, A.K.

Determination of the specific volumes of synthetic fibers at elevated temperatures. Khim. volok. no.5:26-28 '63.

(MIRA 16:10)

1. Vsesoyuznyy nauchn-insledovatel'skiy institut iskusstvennogo volokna.

IYEVLEVA, G., prepodavatel'

University of culture in a technical school. Prof.-tekh. obr.
20 no.3:22-23 Mr '63.   (MIRA 16:3)

1. Novosibirskiy industrial'nyy tekhnikum.
     (Vocational education)   (Aesthetics—Study and teaching)

IVANOVA, G.A.; NEKHOTENOVA, T.I.; IYEVLEVA, I.A.

Extension of the storage life of fruit jelly concentrates.
Kons.i ov.prom. 16 no.3:18-19 Mr '61.   (MIRA 14:3)

1. TSentral'nyy nauchno-issledovatel'skiy institut konservnoy
i ovoshchesushil'noy promyshlennosti.
                    (Jelly—Preservation)

KHAKHINA, L.P., starshiy nauchnyy sotrudnik; IYEVLEVA, I.A., mladshiy
      nauchnyy sotrudnik

   Freeze-dried meat as a semiprocessed product for manufacturing
   food concentrates. Trudy VNIIKOP no.10:82-108 '59.   (MIRA 14:8)
         (Meat, Dried) (Food, Concentrated)

IVANOVA, G.A., starshiy nauchnyy sotrudnik; KHAKHINA, L.P., starshiy
  nauchnyy sotrudnik; CHINENOVA, E.G., starshiy nauchnyy sotrudnik;
  PETKEVICH, V.P., starshiy nauchnyy sotrudnik; IYEVLEVA, I.A.,
  mladshiy nauchnyy sotrudnik; MINKVITS, M.L., mladshiy nauchnyy
  sotrudnik

  Industrial production of dried meat, a semiprocessed product
  for food concentrates. Trudy VNIIKOP no.10:109-115 '59.
                                        (MIRA 14:8)
       (Meat, Dried)   (Food, Concentrated)

KHAKHINA, L.P.; IVANOVA, G.A.; IYEVLEVA, I.A.

    Powdered sauces. Kons. i ov. prom. 16 no.10:26-27 O '61.

                                       (MIRA 14:11)

    1. TSentral'nyy nauchno-issledovatel'skiy institut konservnoy
i ovoshchesushil'noy promyshlennosti.

                        (Sauces)

VOLOBUYEV, V.I.; BIDA, L.S.; KUKUSHKINA, G.Ye.; NENARTOVICH, L.V.;
    KALMYKOVA, Zh.I.; KAS'YANENKO, S.I.; IYEVLEVA, L.A.; ROYEVA,
    Zh.M.; Prinimali uchastiye: KHMELIK, A.I.; VOSKANYAN, A.O.;
    SHAPOVALOVA, L.P.

New wholesale prices for cast iron, blast furnace ferroalloys,
open-hearth and converter steel. Sbor.trud. UNIIM no.11:131-137
'65.   (MIRA 18:11)

IYEVLEVA, L.S., Cand Tech Sci -- (diss) "Sensitivity

of telephone networks to *interference*." Len, 1958, 13 pp

(Min of Railways USSR. Len Order of Lenin Inst of

Engineers of Railroad Transport im Acadamician V.N.

Obraztsov) 100 copies.(KL, 29-58, 132)

- 54 -

6(7)   SOV/112-59-4-8317

Translation from: Referativnyy zhurnal. Elektrotekhnika, 1959, Nr 4,
    pp 271-272 (USSR)

AUTHOR: Iyevleva, L. S.

TITLE: Sensitivity of Telephone Circuits to Noise

PERIODICAL: Sb. Leningr. in-ta inzh. zh.-d. transp., 1958, Nr 158, pp 368-386

ABSTRACT: The existing methods of determining the sensitivity factor of a
    telephone circuit to noise are discussed. Wave phenomena in asymmetrical
    lines and the sensitivity factor of an asymmetrical line are examined. New
    methods for measuring noise sensitivity of an asymmetrical line, without
    breaking it in the middle, is offered; the new method requires less time.
    Bibliography: 10 items.

                                                                          N.A.U.

Card 1/1

KALLER, M.Ya., kand.tekhn.nauk, dotsent; IYEVLEVA, L.S., kand.tekhn.nauk

Methods for taking into account the natural asymmetry of a
two-wire circuit on the magnitude of noise induced in it.
Sbor. trud. LIIZHT no.179:61-80 '61.   (MIRA 16:11)

IYEVLEVA, L. V.:
     Second Moscow State Medical Inst imeni I. V. Stalin.

IYEVLEVA, L. V.:
     "On the use of salicylic preparations and X-ray to treat rheumatism patients."
Second Moscow State Medical Inst imeni I. V. Stalin. Moscow, 1956.
   (Dissertation for the Degree of Candidate in Medical Sciences)

SO: Knizhnaya Letopis', No. 20, 1956.

Yevleva, L. V.

NESTEROV, A.I., prof.; IEVLEVA, L.V., kand.med.nauk; SIGIDIN, Ya.A. (Moskva)

So-called collagen diseases. Terap.arkh. 29 no.2:3-17 '57.
(MIRA 11:1)

1. Deystvitel'nyy chlen AMN SSSR (for Nesterov)
(COLLAGEN DISEASES,
review (Rus))

IYEVLEVA, L.V., kand. med. nauk; SIGIDIN, Ia.A.

Some clinical variants of the so-called collagen diseases. Terap. arkh.
30 no.11:16-23 N '58.   (MIRA 12:7)

1. Iz kafedry fakul'tetskoy terapii (zav. - deyatv. chlen AMN SSSR
prof. A.I. Nesterov) II Moskovskogo meditsinskogo instituta imeni
N.I. Pirogova.
         (COLLAGEN DISEASES)

IYEVLEVA, L.V.;   ANOKHIN, V.N.

Combined therapy and its influence on the dynamics of certain
immunological indices in patients with rheumatic fever.   Klin.
med. 38 no. 2:76-85 F '60.   (MIRA 14:1)
                    (RHEUMATIC FEVER)

IYEVLEVA, O.E. (Voronezh)

Minor oscillations of a pendulum having a spherical cavity
filled with a viscous liquid. Prikl. mat. i mekh. 28 no.6:
1132-1134 N-D '64   (MIRA 18:2)

IYEVLEVA,O.B. (Voronezh)

"Vibrations of a body having a spherical cavity filled with a viscous liquid"

report presented at the 2nd All-Union Congress on Theoretical and Applied Mechanics, Moscow, 29 Jan - 5 Feb 64.

L 40115-66   EWT(m)/EWP(j)/T   DS/RM/RH

ACC NR: AP6013912   SOURCE CODE: UR/0076/66/040/004/0925/0927

60
13

AUTHOR: Blyum, G. Z.; Iyevleva, S. S.; Klimkina, Z. A.

ORG: Moscow All-Union Institute of Chemical Reagents and Specially Pure Substances
(Moskovskiy vsesoyuznyy institut khimicheskikh reaktivov i osobo chistykh veshchestv)

TITLE: A study of equilibrium of the liquid-vapor phase in the trichlorosilane-chloroform
system

SOURCE: Zhurnal fizicheskoy khimii, v. 40, no. 4, 1966, 925-927

TOPIC TAGS: phase equilibrium, chloroform, silane, IR spectroscopy

ABSTRACT: The phase composition of a binary mixture of specially purified trichlorosilane
and redistilled chloroform was analyzed by infrared spectroscopy (UR-10 spectrometer, rela-
tive error 3 — 7%). The results were interpreted statistically and verified thermodynamically.
The data obtained were used to calculate coefficients of relative volatility and activity. The
system is characterized by a negative deviation from Raoult's principle. The measurements
on the UR-10 were performed by B. V. Zhadanov. Orig. art. has: 5 figures and 1 table.

SUB CODE: 07/ SUBM DATE: 18Dec64/   ORIG REF: 003/ OTH REF: 001

Card 1/1   UDC: 541.8

GOLUBKOVA, Yevgeniya Stepanovna; IYEVLEVA, T.A., red.; GALAKTIONOVA, Ye.N., tekhn. red.

[Reinforced concrete bridges] Zhelezobetonnye mosty. Moskva, Nauchno-tekhn. izd-vo avtotransp. lit-ry, 1958. 74 p. (MIRA 11:10)
(Bridges, Concrete)

IVANOV, Nikolay Nikolayevich, prof.; ORNATSKIY, Nikolay Vasil'yevich,
    prof.; BABKOV, Valeriy Fedorovich, prof.; IYEVLEVA, T.A., red.;
    MAL'KOVA, N.V., tekhn.red.

[Fourth International Conference on Soil Mechanics and Foundation
Engineering] IV Mezhdunarodnyi kongress po mekhanike gruntov i
fundamentostroeniiu, London, 1957.g. Moskva, Nauchno-tekhn.izd-vo
M-va avtomobil'nogo transp. i shosseinykh dorog RSFSR, 1958.
178 p.   (MIRA 12:6)
    (London--Soil mechanics--Congresses) (Great Britain--Road construction)

ORNATSKIY, N.V., prof., otshchiy red.; VAKHRUSHIN, N.P., red.; IYEVLEVA,
    T.A., red.; MAL'KOVA, N.V., tekhn.red.

    [Research on durability of the road materials] Issledovanie
    prochnosti dorozhnykh odezhd. Pod red. N.V.Ornatskogo. Moskva,
    Nauchno-tekhn.izd-vo M-va avtomobil'nogo transp. i shosseinykh
    dorog RSFSR, 1959. 298 p.   (MIRA 12:8)

    1. Moscow. Vsesoyuznyy dorozhnyy nauchno-issledovatel'skiy
    institut.
                (Road materials--Testing)

TROFIMOV, Grigoriy Terent'yevich; IYEVLEVA, T.A., red.; DONSKAYA,
G.D., tekhn.red.

[Highway construction on permafrost] Stroitel'stvo avto-
mobil'nykh dorog v usloviiakh mnogoletnei merzloty. Moskva,
Nauchno-tekhn.izd-vo M-va avtomobil'nogo transporta i shosseinykh
dorog RSFSR, 1960. 43 p.   (MIRA 13:5)
              (Road construction--Cold weather conditions)

ANDREYEV, Oleg Vladimirovich, dotsent, kand.tekhn.nauk; LEVI, I.I.,
prof., doktor tekhn.nauk, retsenzent; MILASHECHKIN, A.A.,
prof., retsenzent; IYEVLEVA, T.A., red.; GALAKTIONOVA, Ye.N.,
tekhn.red.

[Designing bridges] Proektirovanie mostovykh perekhodov.
Izd.2., perer. Moskva, Nauchno-tekhn.izd-vo M-va avtomobil'-
nogo transp. i shosseinykh dorog RSFSR, 1960.   294 p.
(MIRA 14:2)

(Bridges)

IYEVLEVA, T.M. [Iievleva, T.M.]

Case of tetanus following criminal abortion. Ped., akush. i gin. 20
no.1:62 '58.   (MIRA 13:1)

1. I-ya infektsionnaya bol'nitsa (glavnyy vrach - N.F. Babyak),
g. Zaporozh'ye.
            (ABORTION)   (TETANUS)

Chemical Abstracts
Vol. 48 No. 5
Mar. 10, 1954
Biological Chemistry

Protein fractions of blood serum in suppurative diseases.
N. M. Turanov and B. A. Ievlena (Central Dermatol.-Venereal. Inst. Ministry Health, Moscow). Vestnik Venerol. Dermatol. 1953, No. 5, 10-14.—An increase of the γ-globulin fraction is observed in the electrophoretic curve of serum proteins in specimens from patients with suppurative processes in comparison with normal levels. In exptl. rabbit pyoderma there is observed a similar increase of both α- and γ-globulin fractions.   G. M. Kosolapoff

YEVLEVA, Ye.A.

... and electrophoretic study of sera dried with ... serodiagnosis of syphilis ... ... Permanski 30 ... ... stabilizer ... ... well as changes in ... which indicates the loss ... ... of the globulin fractions, which ... ... single electrophoretic peak.   G. M. K. ...

AKOPYAN, A.T., RAKHMALEVICH, Ye.M., AVAKYAN, A.A., OVCHINNIKOV, N.M.,
ZALKAN, P.M., IYEVLEVA, YE.A., IVANOVA, N.K., ZERTSALOVA, G.I.

Experimental data on the study of causative agent of pemphigus in
the developing chick embryo [with summary in English]. Vest.derm.
i ven. 32 no.4:3-9 Jl-Ag '58   (MIRA 11:10)

1. Iz tsentral'nogo kozhno- venerologicheskogo instituta
dir N.M. Turanov) i Instituta virusologii Akademii meditsinskikh
nauk SSSR (dir. P.N. Kosyakov).
            (PEMPHIGUS, virus,
                culture in chick embryo (Rus))

MALYKIN, R.Ya., prof. [deceased]; KHRUNOVA, A.P., kand.med.nauk; IYEVLEVA, Ye.A.,
    mladshiy nauchnyy sotrudnik

    Some physiological mechanisms of the activity of ganglion-blocking
    preparations and of electronarcosis on the functional state of the
    skin: experimental investigations. Vest.derm.i ven. 33 no.5:18-24
    S-O '59.   (MIRA 13:2)

    1. Iz otdela patofiziologii (zaveduyushchiy – prof. R.Ya. Malykin)
    TSentral'nogo nauchno-issledovatel'skogo kozhno-venerologicheskogo
    instituta (direktor – kand.med.nauk N.M. Turanov) Ministerstva zdra-
    vookhraneniya RSFSR.
                (SKIN physiol.)
                (AUTONOMIC DRUGS pharmacol.)
                (ELECTRONARCOSIS eff.)

LEBEDEV, B.M.; IEVLEVA, E.A.; IYEVLEVA, Ye.A.

Skin reaction to β-radiations during the use of applicators
with radioactive phosphorus. Med. rad. 5 no.8:13-14 '60.
(MIRA 13:12)

(PHOSPHORUS—ISOTOPES)   (SKIN)

IYEVLEVA, Ye.A.

Effect of the pathogens of leprosy and tuberculosis on changes in skin reactivity in experimental animals. Zhur. mikrobiol. epid. i immun. 31 no. 5:50-53 My '60.   (MIRA 13:10)

1. Iz TEentral'nogo kozhno-venerologicheskogo instituta Ministerstva zdravookhraneniya RSFSR.
          (MYCOBACTERIUM TUBERCULOSIS) (MYCOBACTERIUM LEPRAE)
                         (SKIN)

SMELOV, N.S., prof.; ZALKAN, P.M., prof.; BOL'SHAKOVA, G.M.; IYEVLEVA, Ye.A.;
STOYANOV, B.G.

Cortisone in the treatment of eczema and neurodermatitis. Sov.
med. 25 no.3:91-96 Mr '61.   (MIRA 14:3)

1. Iz otdela dermatologii (zav. - prof. N.S.Smelov) TSentral'nogo
nauchno-issledovatel'skogo kozhno-venerologicheskogo instituta
(direktor - kand.med.nauk N.M.Turanov) Ministerstva zdravookhraneniya
RSFSR.
        (ECZEMA)   (CORTISONE)   (SKIN—DISEASES)

IEVLEVA, Ye.A.; LEBEDEV, B.M.

Effect of irradiation with radioactive phosphorus on the sensitivity of the skin of guinea pigs to dinitrochlorobenzene. Vest. derm.i ven. 35 no.1:23-24 Ja '61. (MIRA 14:3)

1. Iz otdela eksperimental'noy dermatologii (nav. - prof. P.M. Zakali) TSentral'nogo nauchno-issledovatel'skogo kozhno-venerologicheskogo instituta (dir. - kand.med.nauk N.M. Turanov) Ministerstva zdravookhraneniya RSFSR.
    (PHOSPHORUS--ISOTOPES) (RADIATION SICKNESS) (BENZENE) (SKIN)

IYEVLEVA, Ye. A.

Method for studying the effect of medicinal ointments, cleansing
preparations and cosmetics on skin reactivity in guinea pigs.
Vest. derm. i ven. no.3:83-85 '62.   (MIRA 15:6)

1. Iz otdeleniya eksperimental'noy dermatologii (zav. - prof. P. M.
Zalkan) TSentral'nogo nauchno-issledovatel'skogo kozhno-venerolo-
gicheskogo instituta (dir. - kandidat meditsinskikh nauk N. M.
Turanov) Ministerstva zdravookhraneniya RSFSR.

        (SKIN)   (OINTMENTS—PHYSIOLOGICAL EFFECT)
            (COSMETICS—PHYSIOLOGICAL EFFECT)

ALYUSHIN, M.T.; IYEVLEVA, Ye.A.

Experimental studies on the effect of polyorganosiloxane liquids
on the reactivity of the skin. Vest. derm. i ven. 38 no.6:29-34
Je '64.   (MIRA 18:6)

1. Laboratoriya tekhnologii lekarstvennykh form i galenovykh
preparatov (zav. - kand.med.nauk O.I.Bulova) TSentral'nogo
nauchno-issledovatel'skogo aptechnogo instituta (dir. - kand.
farmakologicheskikh nauk A.K.Mel'nichenko) Ministerstva
zdravcokhraneniya SSSR i otdeleniye eksperimental'noy dermatologii
(zav. - prof. P.M.Zalkan) TSentral'nogo nauchno-issledovatel'skogo
kozhno-venerologicheskogo instituta (dir. - kand.med.nauk N.M.
Turanov) Ministerstva zdravcokhraneniya SSSR, Moskva.

LEZHNEV, O.M.; IYEVLEVA, Ye.S.; ZIL'BER, L.A.

Humoral antibodie. against methylcholanthrene-induced sarcomas.
Dokl. AN SSSR 162 no.6:1440-1443 Ja '65.   (MIRA 18:7)

1. Institut epidemiologii i mikrobiologii im. N.F.Gamalei. 2. Deystvitel'nyy
chlen AMN SSSR (for Zil'ber).

STROGANOV, N.S.; IYEVLEVA, Ye.S.

Determination of the degree of relationship in fishes by the method
of precipitation on agar. Zool zhur. 43 no.2:214-219 '64.

(MIRA 17:6)

1. Biologo-pochvennyy fakul'tet Moskovskogo gosudarstvennogo
universiteta.

Ievleva Z.V.

USSR/Chemical Technology – Chemical Products and Their   I-8
             Application. Treatment of Natural Gases and Petroleum.
             Motor and Jet Fuels. Lubricants.

Author   : Ievleva, Z.V., Tesner, P.A.

Inst   : All-Union Scientific Research Institute of Natural Gases

Title   : Investigation of the Process of Acetylene Formation on
             Incomplete Combustion of Methane in Oxygen.

Abstract   : A study of the process of incomplete combustion of methane
             (I) in oxygen, in the flame of a burner of the Bunsen type,
             and in a heated tube. On incomplete combustion of I in
             oxygen, within the inner cone of the Bunsen flame and in
             the heated tube, the process is clearly divided in two

Card 1/2

USSR/Chemical Technology - Chemical Products and Their   I-8
          Application. Treatment of Natural Gases and Petroleum.
          Motor and Jet Fuels. Lubricants.

Abs Jour   : Ref Zhur - Khimiya, No 1, 1958, 2580

          stages: a stage of rapid combustion and a subsequent sta-
          ge of a relatively slow reaction. The major amount of
          C_2H_2 (II) is formed within the zone of rapid combustion,
          wherein the components of the water gas reaction are not
          in equilibrium; this equilibrium becomes established im-
          mediately beyond the zone of rapid combustion. On combus-
          tion of $\underline{I}$ in O_2, at atmospheric pressure, a maximum yield
          of II is determined, essentially, by the $CH_4:O_2$ ratio in
          the initial mixture. On combustion, in O_2, of a mixture
          of $\underline{I}$ and propane the yield of II is higher than on combus-
          tion of pure $\underline{I}$.

Card 2/2

Iyevleva, Z. V.

AUTHORS   Iyevleva, Z.,V., and Tesner, P.A.   20-3-32/59

TITLE   Formation of Acetylene on Incomplete Combustion of Methane in Oxygen.
(Obrazovaniye atsetilena pri nepolnom gorenii metana v kislorode).

PERIODICAL   Doklady Akademii Nauk, 1957, Vol. 115, Nr 3, pp. 537 - 540 (USSR.).

ABSTRACT   One of the most productive methods of obtaining acetylene from natural gas is at present the oxidation pyrolysis i.e. the incomplete combustion of natural gas in oxygen. Several industrial plants are already working according to this method. The mechanism of formation of the acetylene in the flame is, however, completely uninvestigated. In the case of present methods, burners of the Bunsen type were used. Experiments with separated and open flame at various relations of methane and oxygen in the initial mixture were carried out, as well as experiments with the addition of propane. The curves of figure 1 show that the main part of methane and oxygen enters into the reaction in a very short section of the flame. In this section on the whole all reaction products are formed CO_2, C_2H_2, CO and H. In reality the combustion zone is obviously still smaller. Analogous results are also obtained in the case of a deviating composition of the initial mixture. The concentration of acetylene is reduced with increasing oxygen quantity. In the combustion of the propane-methane mixture the concentration of acetylene is increased. The latter is lower in the undivided flame. The H-concentration also passes a maximum whereas in the divided flame

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Formation of Acetylene on Incomplete Combustion of Methane in Oxygen.

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an uninterrupted increase of the H-content is noticed. Figure 2 shows the content curves at 11 flame cross sections for various distances from the edge of the burner. According to this the concentration of the acetylene has its maximum above the peak of the inner cone (cross section x=3,7 mm) at the axis, its minimum beyond the peak. The reaction of the incomplete combustion of methane in O which takes place simultaneously with a considerable formation of acetylene is on the whole completed within a zone of a breadth of some tenths of mm. Outside of this zone, above the peak of the inner cone, the reaction takes place essentially more slowly. The acetylene content increases outside the O-zone up to a maximum which is 0,3 - 0,4 mm from the end of the O-zone. Then the acetylene content begins to decrease. For the purpose of studying the first stages of the reaction, experiments with simultaneous ignition of the initial mixture at the entire cross section were carried out. Thus it could be concluded that acetylene formation on the whole occurs at the end of the O-zone and is completed immediately after having left its vicinity. Figure 3 shows the temperature distribution curve along the vertical axis of the flame. The temperature rises quickly in the O-zone and then re-

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Formation of Acetylene on Incomplete Combustion of Methane in Oxygen.

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mains almost constant (about 1850). Figure 4 shows the results concerning the modification of concentration along the vertical axis of the flame. At the beginning of the O-zone the formation of CO and water takes place most quickly. Acetylene formation obtains a noticeable velocity only at the end of the O-zone, the velocity of the H-formation increasing simultaneously. This is in contradiction to the mechanism of Benedek and Laszlo according to which acetylene develops in the interaction between formaldehyde and methanol. Obviously the acetylene formation has a merely technical mechanism which takes place simultaneously with the H-formation and with an interaction of methane molecules or corresponding C-radicals after a sufficiently high temperature was obtained by combustion of CO, H_2O and CO_2. The water gas reaction has, however, to be taken into consideration by which the rise of velocity of the H-formation at the end of the O-zone is explained. It must take place here in the direction $CO + H_2O \rightarrow CO_2 + H_2$. The CO_2-concentration in the combustion products is, however, somewhat lower than the H-concentration, and thus this reaction alone cannot lead to the formation of the whole quantity of developing H.

Card 3/3

YELVSKAYA, N. M.

Yevskaya, N. M. -- "A Study of the Magnetic Resonance of Protons." Cand Phys-Math Sci,
Moscow State U, Moscow 1953. (Referativnyy Zhurnal--Fizika, Jan 54)

SO: SUM 163, 22 July 1954

... Physics - Magnetic resonance of nuclei

Card 1/1

Pub. 146 - 13/26

FD-2876

Author   : Gvozdover, S. D.; Iyevskaya, N. M.

Title   : Determining the time of transverse relaxation during magnetic resonance of atomic nuclei in weak high-frequency magnetic field

Periodical : Zhur. eksp. i teor. fiz., 29, August 1955, 227-236

Abstract   : The authors develop a procedure for measuring the time of transverse relaxation which is based on a determination of the time interval between extrema of dispersion signal in a weak high-frequency magnetic field in the case of non-adiabatic transition through resonance. They obtain relations and construct graphs which permit one to determine the time of transverse relaxation. For an experimental verification of the procedure they measure the dependence of time of transverse relaxation upon the concentration of paramagnetic ions in aqueous solutions of copper sulfate and iron nitrate. Seven references: e.g. S. D. Gvozdover and A. A. Magazanik, ibid., 20, 705, 1950; S. D. Gvozdover and N. M. Iyevskaya, ibid., 25, 435, 1953; N. Bloembergen, Nuclear Magnetic Relaxation, Hague, 1948.

Institution : Moscow State University

Submitted   : May 22, 1954

IYEVSKAYA, N. M.

USSR/Nuclear Physics - Nuclear Relaxation

FD-3339

Card 1/1   Pub. 146 - 11/28

Author   :   Gvozdover, S. D. and Iyevskaya, N. M.

Title   :   Determination of longitudinal relaxation time at magnetic
                resonance of atomic nuclei in a strong high frequency magnetic
                field

Periodical :   Zhur. Eksp. i Teor. Fiz., 29, No 5, 637-644, 1955

Abstract   :   Two methods of longitudinal relaxation time determination are
                devised, by using the envelop of dispersion signals observed in
                a strong high frequency magnetic field during the variation of a
                constant magnetic field, and by measuring the distance in time to
                the inversion point. Correlations allowing the determination of
                longitudinal relaxation time are derived. As experimental tests
                of the method, measurements are carried out of the relation of the
                longitudinal relaxation time to the concentration of paramagnetic
                ions in aqueous solutions of copper sulfate and of iron nitrate.
                Eight references, including 4 foreign.

Institution :   Moscow State University

Submitted   :   June 18, 1954

Iyevskaya, N.M.

AUTHOR: Iyevskaya, N.M.

TITLE: On the Shape of Signals at Magnetic Resonanace of Atomic
              Nucloi in case of Modium Relaxation Times (O forme
              signalov pri magnitnom rezonanse atomnykh yader v sluch-
              aye srednikh vremen relaksatsii)

PERIODICAL: Isvestiya Akademii Nauk, Vol. XX, #11, pp 1226 - 1231
              1956, USSR, Seriya fizicheskaya

ABSTRACT: This article investigates the shape of dispersion and
              absorption signals, which originate in weak and strong
              high-frequency magnetic fields at sinusoidal modulat-
              ion of the longitudinal magnetic field in case of
              medium relaxation times.

              A special installation was constructed for observation
              of signals originated in magnetic resonance, The shape
              of these signals appearing on the oscillograph depends
              on the values of longitudinal and transversal relaxat-
Card 1/3   ion times and on some external conditions.

IYEVSKAYA, N.M.

PA - 1232

CARD 1 / 2

SUBJECT   USSR / PHYSICS
AUTHOR   IEVSKAJA, N.M.
TITLE   On the Form of Dispersion Signals in Connection with the Mag-
             netic Resonance of Atomic Nuclei in a Strong High Frequency
             Magnetic Field.
PERIODICAL   Žurn. eksp. i teor. fis, 30, 1040-1046 (1956)
             Publ. 6 / 1956   reviewed 9 / 1956

The present work investigates the form of the signal occurring in a strong
high frequency magnetic field in the case of a sinusoidal modulation of
the longitudinal magnetic field at average relaxation times. In this case
the period T_m of the modulating magnetic field and the longitudinal and
transversal relaxation times T_1 and T_2 respectively are of the same order.

The solution is given in form of a development in series with respect to
$\lambda = \omega_m H_m / |\gamma| H_1^2$. Here ω_m denotes the frequency of the modulating mag-
netic field, H_m - its amplitude, H_1 - the half amplitude of the high fre-
quency magnetic field. The zero[th] approximation is explicitly written down.
If λ is small, the form of the signal is described with accuracy by the
zero[th] approximation down to the terms which are small in the second order.
At first the form of the signal in the steady state and with symmetrical
modulation is studied. In the steady state the form is the same as in the

... half width of the signal on the situation on the
... was experimentally invest-

S/058/61/000/010/030/100
A001/A101

24.7900

AUTHORS: Iyevskaya, N.M., Umarkhodzhayev, R.M.

TITLE: Development of an installation for observing fine structure of nuc-
             lear magnetic resonance signals from protons

PERIODICAL: Referativnyy zhurnal. Fizika, no: 10, 1961, 155, abstract 10V285 (V
             sb. "Paramagnitn. rezonans", Kazan', Kazansk. un-t, 1960, 137-141)

TEXT: The authors describe an installation for observing nuclear resonance
signals of protons with high resolution. The installation makes use of radio-
frequency bridge, superheterodyne amplification and amplitude or phase detection.
Signals are observed by means of an oscillograph. Spectra from protons of acetic
acid and ethyl alcohol have been obtained. Splitting separations between the
spectral lines are respectively equal to 5.6×10^{-6} and 4.4×10^{-6} relative units.
At slow scanning of magnetic field, fluctuations of signal intensity were observ-
ed, caused apparently by nutation of the nuclear magnetization vector. To eli-
minate this phenomenon, it is necessary that the ratio of the rate of magnetic

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9.6000 (and 1013, 1139)

20328
S/188/60/000/006/001/011
B101/B204

AUTHORS: Iyevskaya, N. M., Umarkhodzhayev, R. M.

TITLE: Conditions for observing the fine structure of signals of nuclear magnetic resonance

PERIODICAL: Vestnik Moskovskogo universiteta. Seriya 3, fizika, astronomiya, no. 6, 1960, 3-7

TEXT: For the purpose of obtaining undistorted signals of nuclear magnetic resonance (nmr), it is necessary that corresponding experimental conditions be observed. Therefore, the effect of tuning the resonance circuit containing the specimen upon the shape of the dispersion component u and the absorption component v of the nmr was studied. The change in voltage in the case of occurrence of v and u signals is understood to be a change in R and L of the circuit, and for the emf e_v and e_u

$$e_v = k(pL\omega\Delta L - R\Delta R)/(R^2 + p^2L^2); \quad e_u = k(R\omega\Delta L + pL\Delta R)/(R^2 + p^2L^2) \quad (1)$$

is written down. Here $p = (\omega_o^2 - \omega^2)/\omega$; ω_c denotes the natural frequency

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Conditions for observing...

of the circuit, ω - the generator frequency, k - a coefficient depending on the experimental conditions chosen. From (1) it follows that by changing the tuning of the circuit either the signal components or their mixture is recorded. For a weak highfrequency field H_1 and a slow passage through resonance the following is written down:

$\gamma^2 H_1^2 T_1 T_2 \ll 1$ (2), and $\sqrt{a} T_2 < 1/2$ (3). $a = \gamma dH_m/dt$ is the passage velocity. If the relaxation times T_1 and T_2 are unknown, it is difficult to choose the amplitude of H_1 in such a manner that the signals are recorded with a maximum amplitude. Therefore, the question was studied in what way the shape of the signals changes if the condition (2) is not satisfied. The experiments showed that both decreased passage velocity and increase of the amplitude of the highfrequency field distorts the signals with given modulation rate. The oscillations occurring during passage through resonance are explained by a simplified representation of the motion of the magnetization vector $\vec{M}$ with large T_1 and T_2. In this case, only the applied magnetic fields H_0 and H_1 produce an effect.

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Conditions for observing...

In a system of coordinates x_r, y_r, z_r, rotating round the direction $\vec{H}_o \uparrow\uparrow \vec{z}_r$ with the field frequency ω, $\vec{M}$ performs a precession round the effective field $\vec{H}_{er}$ (Fig. 3). Seen from the viewpoint of the observer, $\vec{M}$ shows two motions: 1) precession round the constant field $\vec{H}_o$ with the Larmor frequency $\omega = \gamma H_o$, 2) nutation with the frequency $\omega' = \gamma H_{er}$. According to the ratio between nutation period $2\pi/\gamma H_1$ and the time T_{res} of the passage through the resonance ($T_{res} = 2\gamma H_1/a$), different conditions apply to $\vec{M}$. The following is written down: $(2\pi/\gamma H_1)/T_{res} = \pi\lambda$ (4), where $\lambda = a/\gamma^2 H_1^2$. If $T_{res} < 2\pi/\gamma H_1$, and $\lambda > 1$, $\vec{M}$ deviates only little from the equilibrium value M_o during passage through resonance. In the opposite case, $\vec{M}$ performs several rotations round $\vec{H}_{er}$ during passage through resonance, whereby the distortions observed are caused. For the shape of the signals the following was found under the conditions $\lambda > 1$,

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and $T_1 = T_2 = T \approx T_{res}$, as well as linear modulation of the constant magnetic field $H_m = -at/\gamma$:

$$v = -\frac{M_0\tau}{\sqrt{\tau^2+t^2}}\left(\frac{1}{T}+\frac{1}{\sqrt{\tau^2+t^2}}\right)\left(\frac{\gamma H_1}{\frac{1}{T^2}+\gamma^2 H_1^2}+\right.$$

$$\left. +\sqrt{D_1^2+D_2^2}\,e^{-\frac{t+\tau}{T}}\sin[\gamma H_1(t+\tau)-\psi]\right),$$

$$u = \frac{M_0\tau}{\sqrt{\tau+t^2}}\left\{1+\frac{t}{\sqrt{\tau^2+t^2}}\left(\frac{1}{T}+\frac{1}{\sqrt{\tau^2+t^2}}\right)\times\right.$$

(5)

$$\left.\times\left(\frac{\frac{1}{T}}{\frac{1}{T^2}+\gamma^2 H_1^2}+\sqrt{D_1^2+D_2^2}\,e^{-\frac{t+\tau}{T}}\cos[\gamma H_1(t+\tau)-\psi]\right)\right\}.$$

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Conditions for observing...

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B101/B204

$\tau = \gamma H_1/a$; $\psi = \arctan D_2/D_1$. D_1, D_2 are coefficients, which depend on a, H_1 and T. Using the equations by F. Bloch, (5) was solved in a system of coordinates x_θ, y_θ, z_θ, which revolves round $\vec{H}_0$ with the frequency ω, and whose z_θ axis lies in the direction $\vec{H}_{er}$ (Fig. 3). Analysis of Eq. (5) shows that a distortion of the fine structure of the nmr signals is avoided, if the conditions $\lambda \gg 1$, $T < T_{res}$ are adhered to. The amplitude of H_1 may be determined by measuring the nutation frequency.

There are 3 figures and 7 references: 4 Soviet-bloc and 2 non-Soviet-bloc.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet, Kafedra obshchey
               fiziki dlya khimikov
               (Moscow State University, Department of General Physics
               for Chemists)

SUBMITTED: February 2, 1960

Card 5/6

33207

24.7000 (1143, 1144, 1160)

S/141/61/004/005/009/021
E032/E114

AUTHORS: Iyevskaya, N.M., Kvlividze, V.I., and
            Umarkhodzhayev, R.M.

TITLE: On the observation of nutation in nuclear magnetic
            resonance experiments

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy,
            Radiofizika, v.4, no.5, 1961, 903-911

TEXT: The authors report a study of the form of the
absorption and dispersion signals which are produced in a strong
high-frequency magnetic field. Explicit expressions are derived
for the z-component of the magnetization vector and the form of
the absorption and dispersion signals in the special case of
equal relaxation times. An approximate solution is also obtained
for the case of linear modulation of the magnetic field.
Conditions are derived for the appearance of the nutation of the
magnetization vector. It is pointed out that the theoretical and
experimental work carried out by the present authors indicates
that great care must be exercised in distinguishing between fine
structure of NMR signals and the nutation effect. The rate at

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On the observation of nutation in ...   S/141/61/004/005/009/021
E032/E114

which resonance position is traversed must be such that $|\lambda| \gg 1$
where

$$\lambda = a/\gamma^2 H_1^2 \, , \tag{2}$$

$a = |\gamma| \, dH_m/dt$, and H_1 is the amplitude of the high-frequency
magnetic field. When $|\lambda| \ll 1$ and the relaxation times are
comparable or greater than the resonance value T_r the form of
the signal is distorted and oscillations appear on passing
through resonance. It is pointed out that the phenomenon of
nutation can be used to determine the amplitude of the high-
frequency magnetic field by measuring the period of the
oscillations at resonance. The period is given by:

$$1/f_1 = 2\pi/|\gamma| \, H_1 \, .$$

There are 4 figures and 9 references: 5 Soviet-bloc and 4 non-
Soviet-bloc. The English language references read as follows:
Ref.1; B.A. Jacobsohn, R.K. Wangsness,
       Phys. Rev., v.73, 942 (1948).

Card 2/3

33207

On the observation of nutation ...   S/141/61/004/005/009/021
E032/E114

Ref.4: F. Bloch, Phys. Rev., v.70, 460 (1946).
Ref.6: H.C. Torrey, Phys. Rev., v.76, 1059 (1949),
Ref.9: A.G. Redfield, Phys. Rev., v.98, 1787 (1955).

ASSOCIATION: Moskovskiy gosudarstvennyy universitet
              (Moscow State University)

SUBMITTED: September 16, 1960

Card 3/3

35065

5.111

AUTHORS: Kvlividze, V.I., Iyevskaya, N.M., Yegorova, T.S., Kiselev, V.F., and Sokolov, N.D.

TITLE: NMR studies of water vapour adsorption on the surface of silica gel

PERIODICAL: Kinetika i kataliz, v.3, no.1, 1962, 91-98

TEXT: The mechanism of adsorption and the state of the adsorbed molecules on the surface of an adsorbent cannot be elucidated on the basis of purely adsorptive measurement. For this purpose some additional data on the system adsorbed substance - adsorbent obtained by physical methods are necessary. As a first stage in the investigations the authors studied signals of nuclear magnetic resonance from protons of hydroxyl groups of water adsorbed on the surface of silica gel. The results obtained were compared with adsorption properties of silica gel, with measurements of heats of adsorption and available spectroscopic data. Silica gels K-2 (K-2) and K-4 (K-4) obtained by the hydrolysis of $SiCl_4$ and a purified sample of technical silica gel

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NMR studies of water vapour ...   S/195/62/003/001/006/010
                                         E071/E136

KCK-3 (KSK-3) were used for the investigation. The NMR measure-
ments were carried out at room temperature on a sample of
0.2-0.3 g. The width of the lines was measured as the distance
between maxima on the differential curve. The second moment was
calculated from the differential curve of the signal absorption.
Additions of water vapour in the ampule with silica gel for NMR
and adsorption measurements were carried out by means of a
spring balance. Heats of adsorption were determined either
directly from calorimetric measurements or by the differentiation
of the curve relating the heat of wetting and the amount of water
adsorbed on the specimen. From the adsorption data and heat of
wetting curves, differential curves of the changes in free energy
and entropy of adsorption were calculated. It was shown that
molecules of water are absent on the surface of the samples
evacuated at 200 °C. In the initial stage of adsorption a sharp
decrease in the width of the line of the second moment was
observed. These changes in the NMR signals agree with the
trends of the curves of differential heat and entropy of
adsorption. The possibility of interaction of water molecules
Card 2/3

IYEVLEV, V.N.; GOL'DENBERG, S.A.

Effect of diffusion factors on flame stabilization. Inzh.-fiz. zhur.
5 no.7:18-22 Jl '62.   (MIRA 15:7)

1. Energeticheskiy institut imeni G.M.Krzhizhanovskogo, Moskva.
          (Flame)   (Diffusion)