Experimental determination of the coefficient of thermal conductivity for a 94% (by volume) solution of ethyl alcohol for the temperature range −75 to +200°. N. V. Tsederberg and D. L. Timrot. *Zhur. Tekh. Fiz* 25, 2135–62 (1955). —The coefficient of thermal cond was detd over the temp range −75 to 200° at atm pressure and at 100 atm. In each case the thermal cond decreased with increasing temp. The values at 100 atm pressure were greater than at atm. pressure. At −60° the values were 0.177 and 0.165, resp. J. Kovtar Leach

(1)

USSR/Physical Chemistry - Liquids and Amorphous Bodies. Gases, B-6

Abst Journal: Referat Zhur - Khimiya, No 1, 1957, 303

Author: Tsederberg, N. V.

Institution: None

Title: General Relationships for the Thermal Conductivity of Gases at Atmospheric Pressure

Original Periodical: Teploenergetika, 1956, No 7, 7-11

Abstract: The following formula is proposed for the thermal conductivity λ of gases: $\lg(\lambda/\lambda_{(kp)}) = a \lg\tau + b(\lg\tau)^2 + c(\lg\tau)3$, where $\tau = T/T_c$. The following values are given for the constants a, b, and c: (1) For $\lg\tau < 0$, for diatomic gases, 1.000, 0, 0; for triatomic gases, 1.325, -0.631, -1.540; for octa-atomic gases (ethane), 1.764, 2.318, 4.787; for seventeen-atom gases, 2.298, 5.038, 13.106; (2) For $\lg\tau > 0$, for diatomic gases, 0.9340, -0.0323, -0.0511; for triatomic gases, 1.440, 0.0115, 0.2141. The maximum deviation of calculated values for λ from experimental values was $\pm$ 11%, with an average deviation

Card 1/2

USSR/Physical Chemistry - Liquids and Amorphous Bodies. Gases, B-6

Abst Journal: Referat Zhur - Khimiya, No 1, 1957, 303

Abstract: of ±4.7% (for 15 measurements).

With a literature survey of 6 items.

Card 2/2

TSEDERBERG, N. V.; TIMROT, D. L.;

"Experimental Determination of the Heat Conductivity of Liquid Oxygen," Zhurnal Tekhnicheskoy Fiziki, No 8, Aug 56, pp 1849-1856.

In an article titled (see above) the authors describe an experimental setup for determining the heat conductivity of liquid and gaseous oxygen. They list the results of their work and compare them with other published data.

The authors report that their data generally conform with those of BOROVIK (Ye. BOROVIK, Zhurnal Eksperimental'noy i teoreticheskoy Fiziki, No 17, 1947, p 328) whereas Hamman's figures are in error by as much as 30% (G. Hamman, Annal. d. Phys., 32, 7, 1938, p 593)

The article presents a detailed description of the experimental methodology and includes several drawings and tables.

AID P - 5005

Subject : USSR/Engineering

Card 1/2 Pub. 110-a - 7/17

Author : Tsederberg, N. V., Kand. Tech. Sci.

Title : Thermal conductivity of liquid binary solutions

Periodical : Teploenergetika, 9, 42-48, S 1956

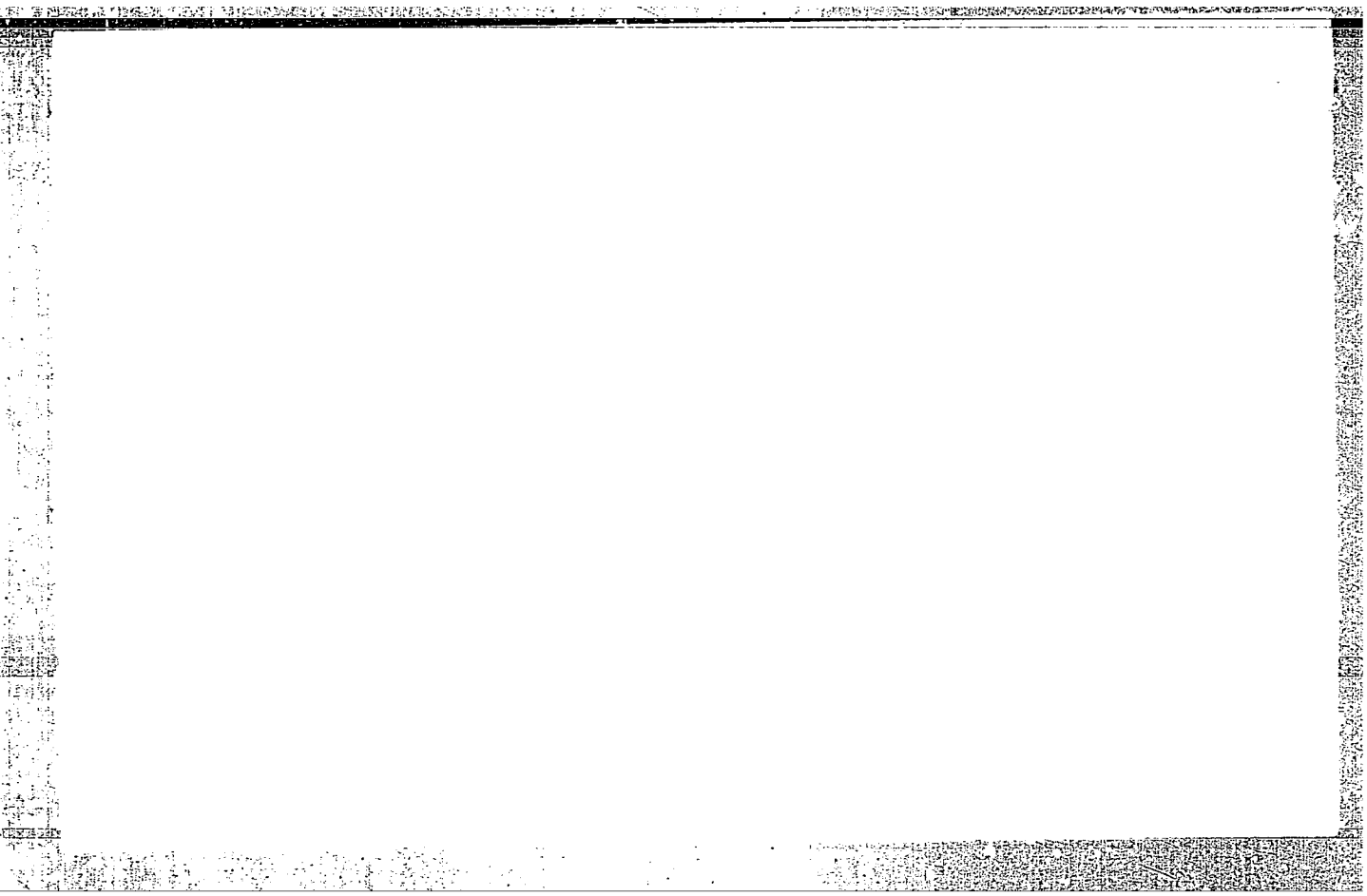
Abstract : This paper presents the results of experimental investigations of the thermal conductivity of ethyl alcohol solutions in water. These tests were made for checking the accuracy of results obtained by O. K. Bates. The methods of testing are described, and the author compares his data with those of various foreign and Soviet scientists. Recommendations are suggested for applying the additive rule for the determination of thermal conductivity on the basis of 15 solutions. 7 tables, 4 diagrams. 21 references.

Teploenergetika, 9, 42-48, S 1956 AID P - 5005

Card 2/2 Pub. 110-a - 7/17

Institution : Moscow Institute of Power Engineering

Submitted : No date



APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001756920016-4"

Name: TSEDERBERG, Nikolay Valerianovich

Dissertation: Heat conductivity of liquid solutions and compressed gases

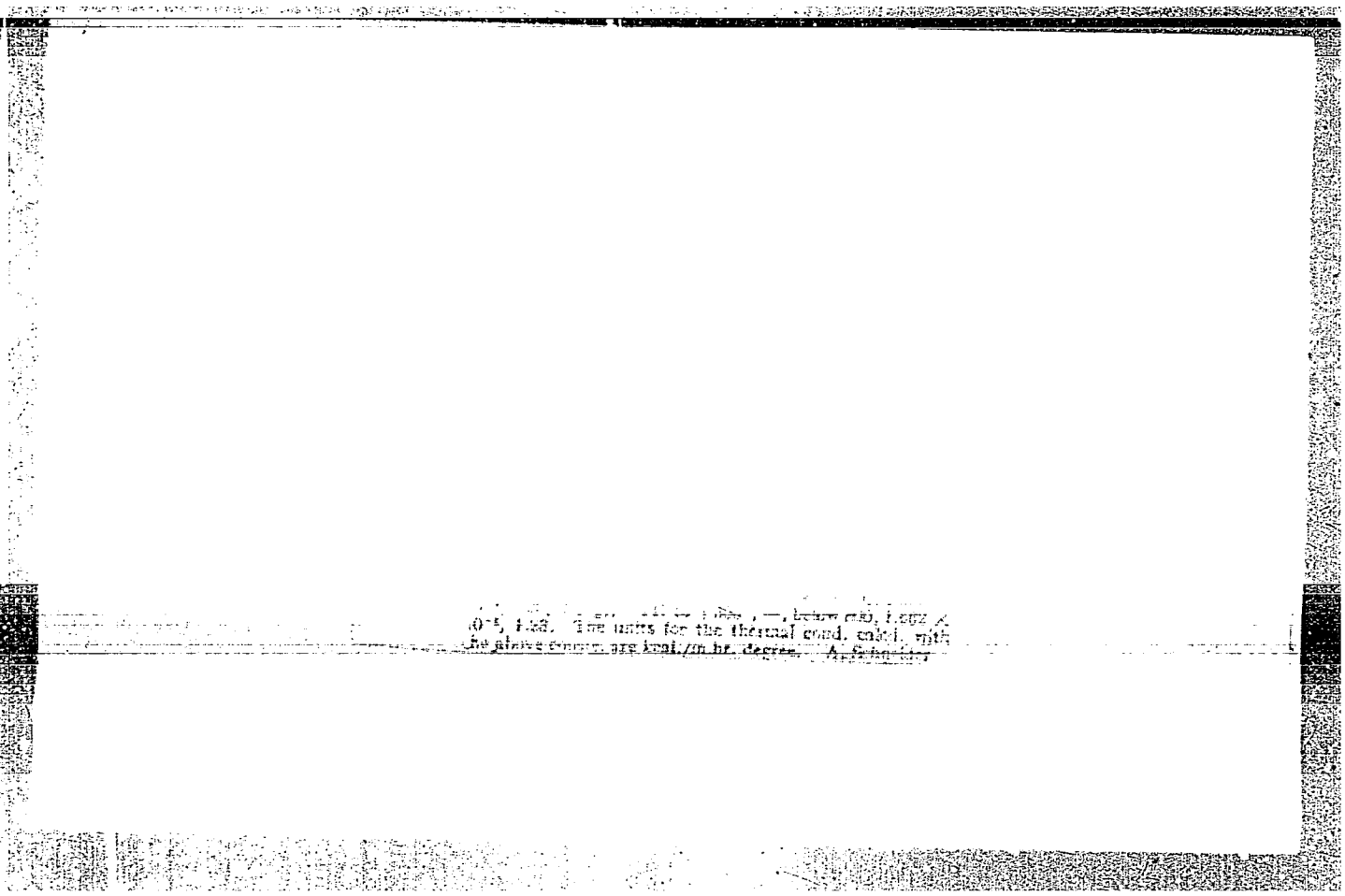
Degree: Doc Tech Sci

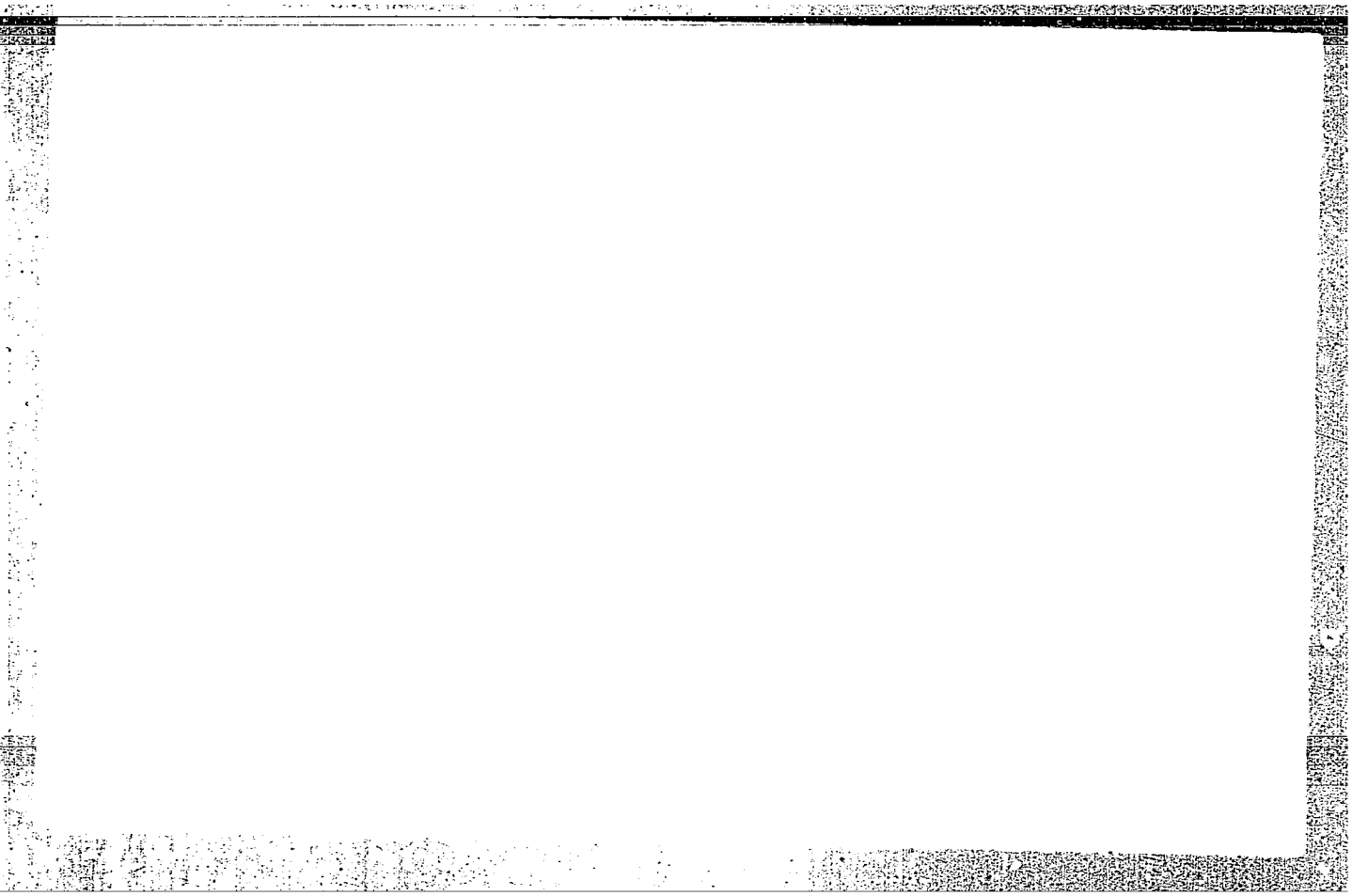
Affiliation: [not indicated]

Defense Date, Place: 29 Jun 57, Council of Moscow Order of Lenin Electrical Engineering Inst

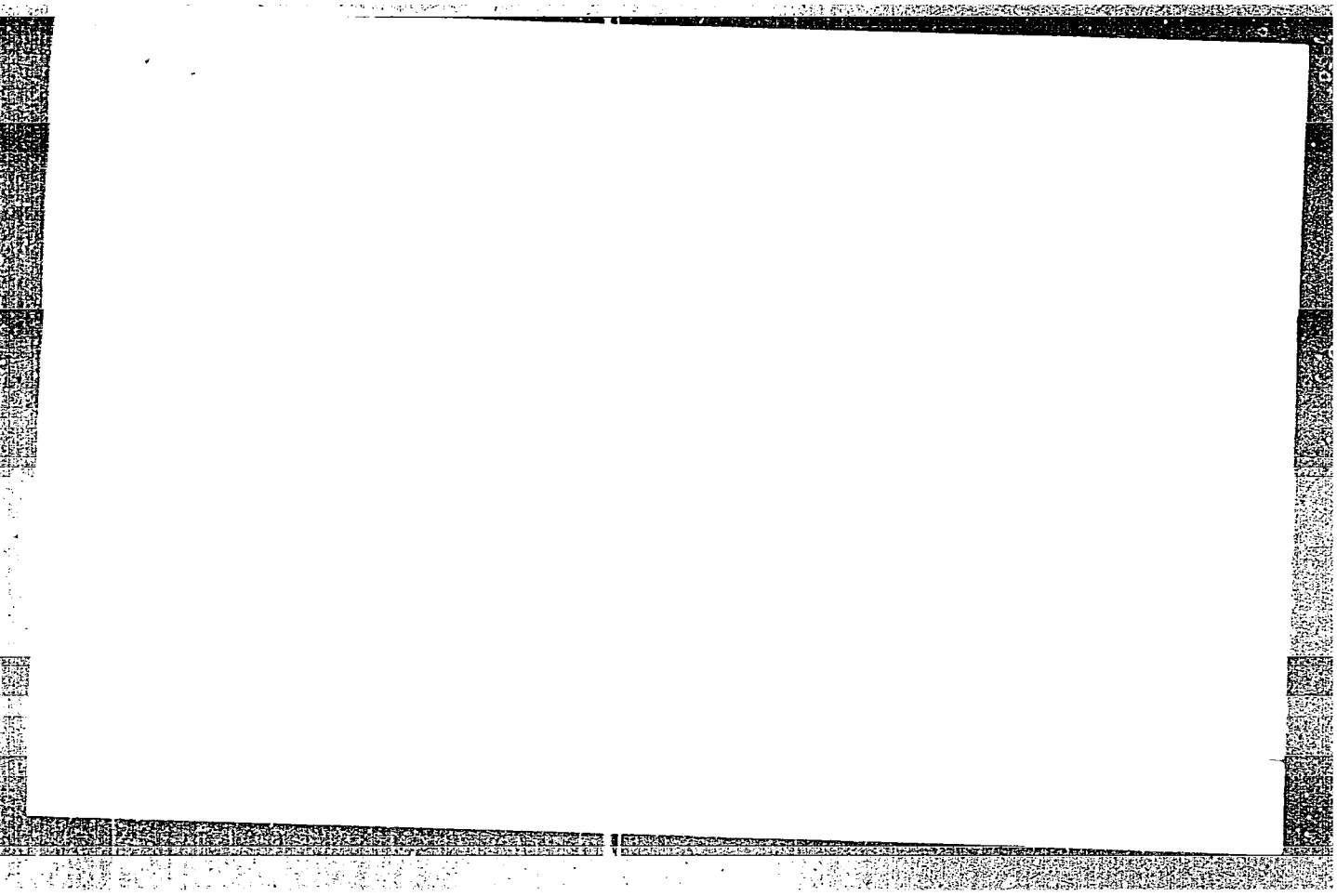
Certification Date: 10 Nov 57

Source: BMVO 24/57





APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001756920016-4"



POPOV, V.N.; TSEDERBERG, N.V.

Experimental determination of the heat of vaporization of liquid fuels. Nauch. dokl. vys. shkoly; energ. no.1:161-168 '58.
(MIRA 11:10)

1.Rekomendovano kafedroy TOT Moskovskogo energeticheskogo instituta.
(Liquid fuels) (Heat of vaporization)

TSEDERBERG, N.V.

Heat conductivity of a binary solution of benzene in ethyl alcohol. Nauch.dokl.vys.shkoly; energ. no.4:189-193 '58.
(MIRA 12:5)
1. Rekomendovana kafedroy teoreticheskikh osnov teplotekhniki Moskovskogo energeticheskogo instituta.
(Heat--Conduction) (Benzene) (Ethyl alcohol)

AUTHOR: Tsederberg, N.V. (Dr.Tech.Sci.) SOV/96-58-10-15/25
Popov, V.N. (Engineer)

TITLE: An experimental investigation of the thermal conductivity of helium. (Eksperimental'noye issledovaniye teploprovodnosti geliya)

PERIODICAL: Teploenergetika, 1958, No.10. (USSR) pp. 61-65

ABSTRACT: Published work on the thermal conductivity of helium is reviewed. experimental values over the pressure range of 1 - 212 kg/cm^2 have been published in only one work and relate to a temperature of 42.8°C. The most reliable data for the temperature range - 200 - + 600°C, at atmospheric pressure, are given in Table.1. The maximum error in these determinations is 1.83%. Determinations were made of the thermal conductivity of helium under pressure, using the hot-wire method in a glass measuring tube. At pressures up to 100 kg/cm^2 a steel bottle of helium was used, and at higher pressures a mercury compressor. The helium was 99.8% pure, the remaining 0.2% being nitrogen. The measuring tube was in thermostatically controlled water, glycerine or molten salts, according to the temperature. The apparatus is described, also the method of use and the way of working out the results. Correction for radiation from the wire and for the leads is explained. The main characteristics of the measuring tube are given in Table.2. The method of ageing is described. The equipment was checked by determining the thermal conductivity of air, comparing the results with those of other authors.

Card 1/2

An experimental investigation of the thermal conductivity of helium. SOV/96-58-10-15/25

Agreement was to within 0.5% of the most reliable values. Graphs of the thermal conductivity of helium as a function of temperature on the isobars of 1, 100, 200, 300, 400 and 500 kg/cm^2, and the results of controlled tests at 10 kg/cm^2, are given in Fig.3. The scatter of experimental points does not exceed 1%. Published data of other authors is included and agreement is good. The use of a logarithmic co-ordinate system is proposed and the experimental results are plotted in this system in Fig.4. Equation (2) accurately represents the thermal conductivity of helium under pressure. Calculated values of the thermal conductivity recommended for practical use are presented in Table.3. There are 4 figures, 3 tables and 7 Soviet references.

ASSOCIATION: Moscow Power Institute (Moskovskiy Energeticheskiy Institut)

Card 2/2

SOV/96-58-13/21

AUTHOR: Popov, V.N. Engineer
Tsederberg, N.V., Doctor of Technical Science

TITLE: The Thermal Conductivity of Liquid Fuels
(Teploprovodnost' zhidkikh topliv)

PERIODICAL: Teploenergetika, 1958, Nr 11, pp 72-76 (USSR)

ABSTRACT: Existing work on the thermal conductivity of liquid fuel, mainly American and German, is briefly referred to. In Teploenergetika 1957, Nr 8, the present authors described work on the thermal conductivity of kerosene. The Predvoditelev-Vargaftik formula for calculating the thermal conductivity of pure normal liquids is given. In order to verify the validity of this formula for other materials, determinations

Card 1/5

The Thermal Conductivity of Liquid Fuels

were made of the thermal conductivity, density and specific heat for benzine B-70, diesel fuel No.3 with a specific gravity at 20°C of 0.848 and initial boiling point of 220°C, and winter diesel fuel No.4. with a specific gravity at 20°C of 0.850 kg/litre and initial boiling point of 190°C. The apparent molecular weights and viscosities of these fuels were determined by V.V. Samokhvalova and R.Z. Suleymanova. The thermal conductivity of the fuel was determined by the use of four measuring tubes similar to those described in the previous work; the main characteristics of the tubes are given in Table 1. The thermal conductivity of benzine B-70 was investigated at a pressure of 10 atm over the temperature range +20-+110°C. The results are plotted in Fig.1. and recorded in Table 2. The thermal conductivities of diesel fuels Nos.3 and 4 were determined at 10 and 50 atm over the temperature range - 50 to + 250°C. The results for the former are given in Fig.2. and Table 3 and for the latter in Fig.3. and Table 4.

The Thermal Conductivity of Liquid Fuels

The root mean square error of individual determinations of thermal conductivity is 1.3%. The relationship between the specific gravity and temperature of Fuel No.3. at various pressures is plotted in Fig.4. and tabulated in Table 5. Similar data for fuel No.4. are given in Fig.5. and Table 6. Table 7 gives the specific gravity of benzine B-70 at atmospheric pressure. The relationship between the specific heat and the temperature of fuel No.3. at constant pressure is given in Fig.6. and Table 8. Similar data for the fuel No.4. are given in Fig.7. and Table 9. Values of the specific heat of benzine No.B-70 are given in Table 10. It will be seen from Figs.Nos.6 and 7. that the pressure has no effect on the specific heat in the range of 1-50 atm. In order to verify the accuracy of the formulae of Cragoe (U.S. Bureau of Standards) and Predvoditelev-Vargaftik the thermal conductivities of benzine B-70 and the two diesel fuels were calculated by these

The Thermal Conductivity of Liquid Fuels

formulae and compared with the experimental results. It is concluded that Cragoe's formula is inaccurate and that the Predvoditelev-Vargaftik formula gives the absolute value of thermal conductivity of the fuel to within 10%. The apparent molecular weights of the fuels in question are given in Table 11 as determined by a cryoscopic method. Experimental results for the thermal conductivity as a function of temperature at atmospheric pressure for all the fuels investigated in the present work are plotted in Fig.8. which also gives data for kerosene T-1 and its heavy fractions. An empirical formula is offered for calculation of the thermal conductivity of fuels in the specific gravity range of 0.750 to 0.850 kg/litre. This formula gives results

The Thermal Conductivity of Liquid Fuels

accurate to within 4%; the only data required is the specific gravity of the fuel at 20°C. There are 8 figures, 11 tables and 5 Soviet references.

ASSOCIATION: Moskovskiy energeticheskiy institut
(Moscow Power Institute)

Card 5/5

TSEDERBERG, N.V.

Formulas for calculating the thermal conductivity of binary solutions of liquids. Nauch.dokl.vys.shkoly; energ. no.1: 159-168 '59. (MIRA 12:5)

1. Rekomendovana kafedroy teoreticheskikh osnov teplotekhniki Moskovskogo energeticheskogo instituta.
(Solution (Chemistry)--Tables, etc.)

67647
SOV/96-60-1-16/22

24.5300

AUTHORS: Tsederberg, N. V., Doctor of Technical Sciences and Morozova, N. A., Engineer

TITLE: The Thermal Conductivity of Carbon Dioxide at Pressures from 1 to 200 kg/cm^2 and Temperatures up to 1200°C

PERIODICAL: Teploenergetika, 1960, Nr 1, pp 75-79 (USSR)

ABSTRACT: There is increasing interest in the thermal conductivity of carbon dioxide. Relevant tables have already been published, particularly by Vargaftik, but further reliable experimental results have since become available and there was a need for values at higher temperatures than he quoted. The present article uses published data on the thermal conductivity of carbon dioxide to formulate tables ranging up to 1200°C. Use was made of the results of numerous authors, and all their experimental values for thermal conductivity of carbon dioxide are plotted in Fig 1, which also gives the mean curve. The values obtained by various authors are discussed. The mean curve was used to determine the values of thermal conductivity of carbon dioxide for temperatures from - 75 to + 1200°C which is given in Table 1. The range

Card 1/3

The Thermal Conductivity of Carbon Dioxide at Pressures from 1 to 200 kg/cm^2 and Temperatures up to 1200°C.

from 800 to 1200°C was covered by extrapolation. A list is given of the data used to plot the thermal conductivity as a function of pressure and temperature. Fig 2 gives a graph in logarithmic coordinates: the difference between the thermal conductivity at any given temperature and that at atmospheric pressure and temperature is plotted as a function of the specific gravity of carbon dioxide at the test temperature and pressure. A mean curve was plotted on this graph and equation (2) corresponds thereto. Again the results obtained by various authors are critically reviewed. Eq (2) was used to calculate values of the thermal conductivity at the extreme ends of the curves, at the critical point and on isobars from 30 to 200 kg/cm^2 up to the temperature of 1000°C. Fig 3 gives a graph of the relationship between the thermal conductivity of carbon dioxide and temperature from 0 to 1000°C on isobars from 1 to 200 kg/cm^2. The graph indicates that the thermal conductivity alters considerably with the pressure near the critical

The Thermal Conductivity of Carbon Dioxide at Pressures from 1 to 200 kg/cm^2 and Temperatures up to 1200°C

point. Graphs of the relationship between the thermal conductivity and pressure along the isotherms close to the critical temperature at temperatures of 32, 35 and 40°C are plotted in Fig 4. Table 2 gives values of the thermal conductivity of carbon dioxide on the 32°C isotherm, Table 3 on the 35°C isotherm and Table 4 on the 40°C isotherm. It is concluded that the data are in error by not more than 2%, and are thus more accurate than Vargaftik's earlier tables. There are 4 figures, 4 tables and 22 references, 10 of which are Soviet, 8 English and 4 German.

ASSOCIATION: Moskovskiy energeticheskiy institut (The Moscow Power Institute)

24,5200

69205
S/096/60/000/06/018/025
E194/E284

AUTHORS: Tsederberg, N. V., Doctor of Technical Sciences, Popov, V. N., Candidate of Technical Sciences, and Morozova, N. A., Engineer

TITLE: An Experimental Investigation of the Thermal Conductivity of Argon

PERIODICAL: Teploenergetika, 1960, Nr 6, pp 82-87 (USSR)

ABSTRACT: Previous experimental work on the thermal conductivity of argon is reviewed. Published values for the thermal conductivity of argon in the temperature range from -200 to +600°C at atmospheric pressure from a number of authors are plotted in Fig 1. Available experimental data for the thermal conductivity of argon in the temperature range from 300 to 1100°C at atmospheric pressure is plotted in Fig 2. It will be seen from -200 to +200°C there is good agreement between the results of all authors but there is increasing divergence at temperatures above 200°C. The thermal conductivity of monoatomic gases at atmospheric pressure may be calculated by expression (1) and the curve for argon for temperatures of 0 to 600°C constructed by means of this equation is plotted in Fig 1 and in general

Card 1/4

S/096/60/000/06/018/025
E194/E284

An Experimental Investigation of the Thermal Conductivity of Argon

agreement is good. Values for the thermal conductivity is argon at atmospheric pressure over the temperature range of -200 to +600°C corresponding to the curve given in Fig 1 are presented in Table 1. Higher temperatures are not considered in the present article because of the great differences between the published results of various authors. The thermal conductivity of argon under pressure was studied by the hot wire method using two glass measuring tubes. The instrumentation and experimental procedure are described and the method of working out the results was the same as that used in determination of the thermal conductivity of helium described in an article by the same authors in Teploenergetika, 1958, Nr 10. The principal characteristics of the two measuring tubes used in the tests are given in Table 2. In checking the apparatus measurements were first made of the thermal conductivity of air and good agreement was obtained with published results as

 will be seen from the graph plotted in Fig 3. Graphs

69205
S/096/60/000/06/018/025
E194/E284

An Experimental Investigation of the Thermal Conductivity of Argon.

of the thermal conductivity of argon as function of temperature on isobars ranging from 1 to 500 kg/cm^2 are plotted in Fig 4, in the majority of cases the scatter of experimental points did not exceed 2.5%. Values of thermal conductivity obtained by other authors are also plotted in Fig 4 and it will be seen that the present authors are in good agreement with some other published work. On the basis of available experimental data calculations were made of the specific gravity of argon over the temperature range from -90 to 1000°C and pressures from 100 to 500 kg/cm^2 and the results are given in Table 3. Table 4 gives values of the specific gravity of argon on the upper and lower boundary curves. Fig 5 gives the results of experimental data on thermal conductivity of argon under pressure obtained by various authors when plotted in terms of Eq (3), which is the empirical form of Eq (2) and it is concluded that this

Card 3/4

59205

S/096/60/000/06/018/025
E194/E284

An Experimental Investigation of the Thermal Conductivity of Argon

equation accurately describes the thermal conductivity of argon under pressure. Table 5 gives values of the thermal conductivity of argon at high pressures calculated by means of Eq (3) and recommended for practical use. There are 5 figures, 5 tables and 22 references, 8 of which are Soviet, 11 English and 3 German.

ASSOCIATION: Moskovskiy energeticheskiy institut (Moscow Power Engineering Institute)

Card 4/4

S/096/60/000/010/012/022
E194/E135

11.3100

AUTHORS: Tsederberg, N.V., Popov, V.N., and Morosova, N.A.

TITLE: Investigation of the Thermo-physical Properties of Helium in the Pressure Range 1 to 200 kg/cm^2 and the Temperature Range 0 to 600 °C.

PERIODICAL: Teploenergetika, 1960, No 10, p 95

TEXT: The experimental equipment is described. Equations are given relating the thermal conductivity and viscosity of helium with temperature and pressure, and tables of thermal-physical properties are given. The tabulated data of thermal conductivity and viscosity are determined on the basis of the authors' own experimental work and also published work.

ASSOCIATION: Moskovskiy energeticheskiy institut (Moscow Power Institute)

Card 1/1

TSEDERBERG, Nikolay Valerianovich; POPOV, Valentin Nikolayevich; MOROZOVA, Nadezhda Anisimovna; RASSKAZOV, D.S., red.; VORONIN, K.P., tekhn. red.

[Thermal and physical properties of helium] Teplofizicheskie svoistva geliia. Moskva, Gos. energ. izd-vo, 1961. 118 p. (MIRA 14:8)
(Helium)

ANDRYUSHCHENKO, A.I., doktor tekhn.nauk, prof.; TSEDERBERG, N.V., doktor tekhn.nauk, prof.

Problems concerning research in the field of thermal electric power production. Izv. vys. ucheb. zav.; energ. 4 no.10:52-55 O '61. (MIRA 14:11)

1. Saratovskiy politekhnicheskiy institut (for Andryushchenko).
2. Moskovskiy ordena Lenina energeticheskiy institut (for TSederberg).

(Steam power plants)

ACC NR: AP6027579 SOURCE CODE: UR/0152/66/000/003/0085/0086

AUTHOR: Popov, V. N.; Tsederberg, N. V.; Morozova, N. A.

ORG: Moscow Institute of Energetics (Moskovskiy energeticheskiy institut)

TITLE: Experimental determination of heat capacity of liquid petroleum products

SOURCE: IVUZ. Neft' i gaz, no. 3, 1966, 80 and p. 86

TOPIC TAGS: HEAT CAPACITY, petroleum product, petroleum fuel, diesel fuel, lubricating oil / DS diesel fuel, TS-1 petroleum fuel, M-3 lubricating oil, AK-1 lubricating oil

ABSTRACT: The authors present the results of heat capacity tests performed on DS diesel fuel (density 0.857 g/cu cm), TS-1 fuel (0.786 g/ cu cm), M-3 lubricating oil (0.674 g/cu cm) and AK-1 lubricating oil (0.925 g/cu cm). A calorimeter with an adiabatic enclosure was used for tests at atmospheric pressure while for higher pressures an isometric enclosure was applied. The calorimeters were checked for the known capacities of toluene and water, as shown in two graphs. The results of tests at different temperatures are presented in two tables of which the first covers the tests performed at a pressure of 1 kg/sq cm and the second at 3 kg/sq cm. Orig. art. has: 2 graphs, 2 tables.

SUB CODE: 21 / SUBM DATE: 10Feb65

Card 1/1 UDC: 665.5.:536.22.001.5

TSEDERBERG, N.V., doktor tekhn. nauk, prof.; POPOV, V.N., kand. tekhn. nauk; ANDREYEV, I.I., inzh.

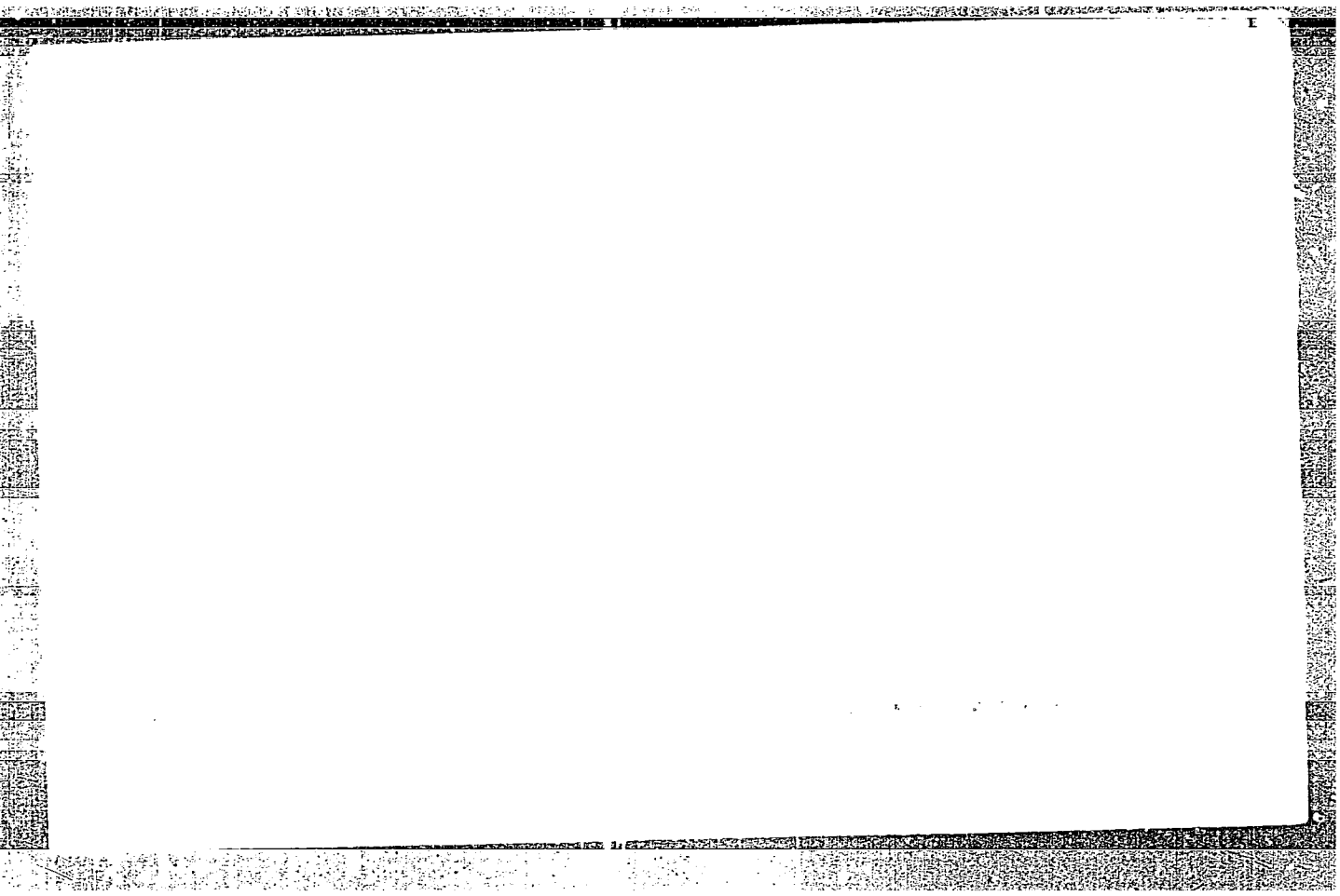
Experimental study of the viscosity of hydrogen. Teploenergetika 12 no.4:84-86 Ap '65. (MIRA 18:5)

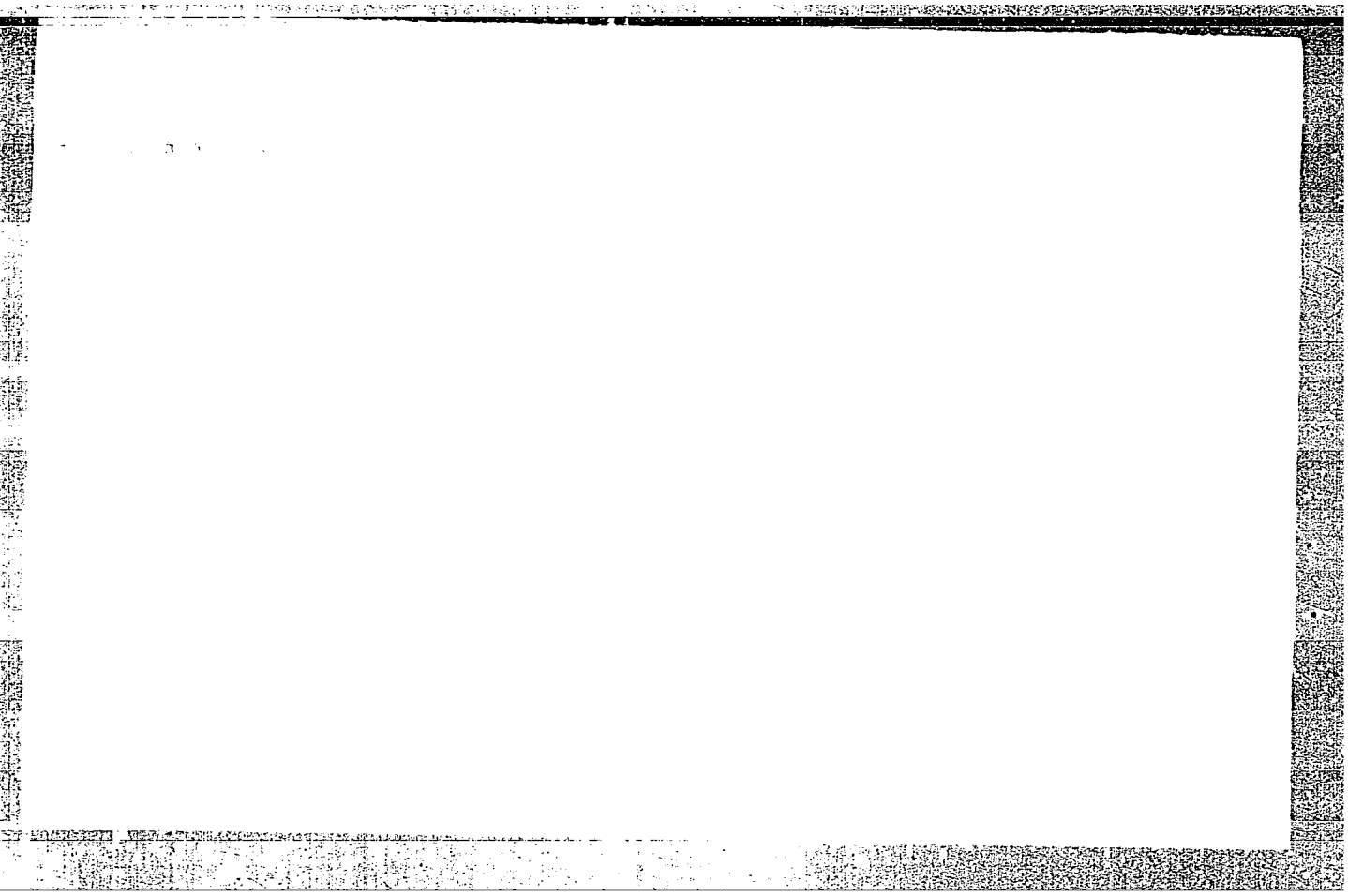
1. Moskovskiy energeticheskiy institut.

POPOV, V.K.; TSEITLIN, N.V.; MOMOTOVA, N.A.

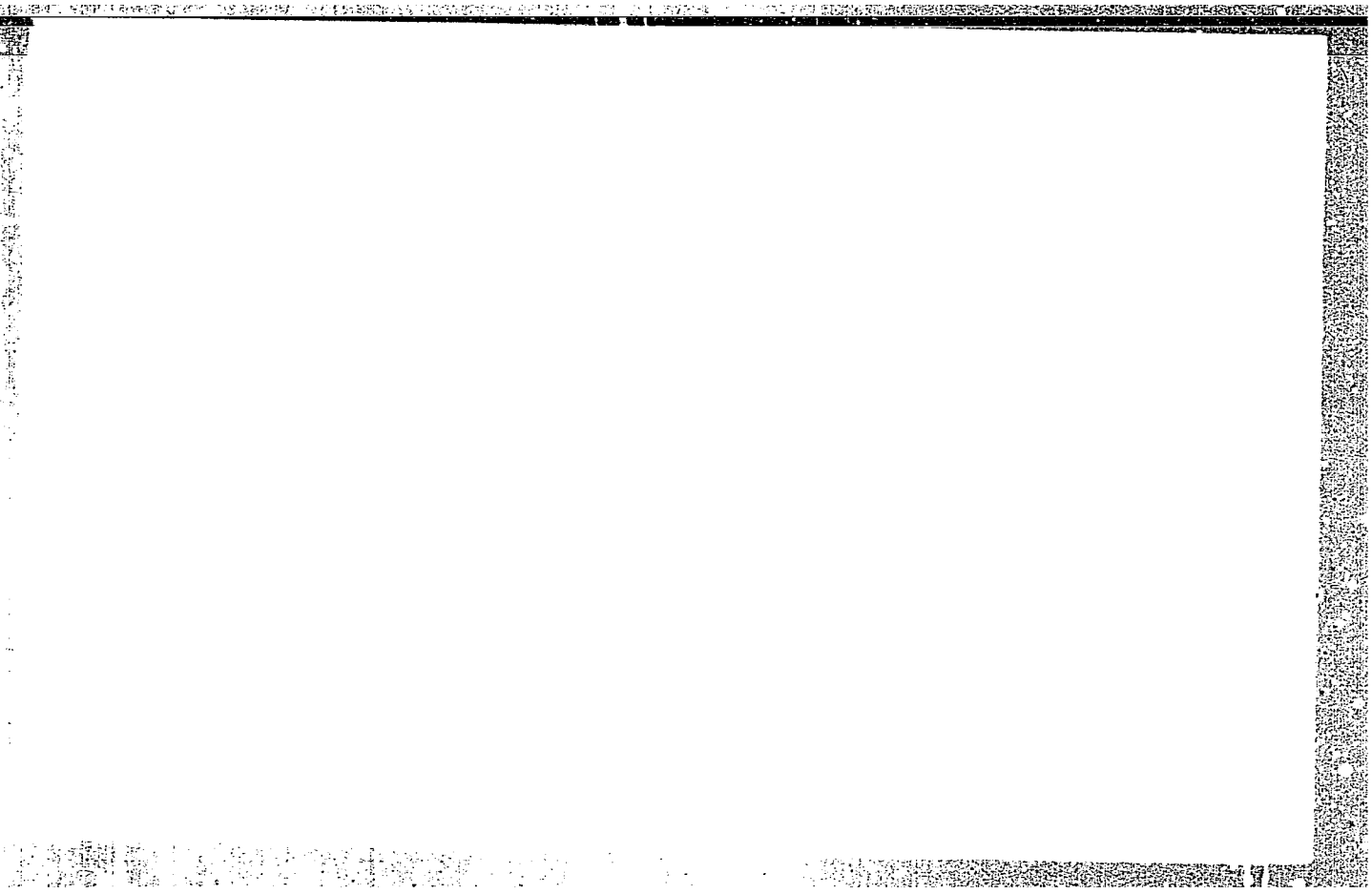
Experimental investigation of the thermophysical properties of petroleum products. Izv. vys. ucheb. zav.; neft' i gaz 8 no.1: 79-81 '65. (MIRA 18:2)

1. Moskovskiy energeticheskiy institut.





APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001756920016-4"



APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001756920016-4"

[illegible], V.N.; TSEDERBERG, N.V.; MOROZOVA, N.A.

Experimental investigation of the heat conductivity of four petroleum products samples. Izv.vys.ucheb.zav.; neft' i gaz 7 no.4:71-74 '64. (MIRA 17:5)

1. Moskovskiy energeticheskiy institut.

MAKAVETSKAS, R.A.; OPOV, V.N.; TSEDERBERG, N.V.

Experimental study of the viscosity of helium and nitrogen.
Teplofiz. vys. temp. 1 no.2:191-197 S-O'63. (MIRA 17:5)

1. Moskovskiy energeticheskiy institut.

MAKAVETSKAS, R.A.; POPOV, V.N.; TSEDERBERG, N.V.

Experimental study of the viscosity of mixtures of nitrogen and helium. Teplofiz. vys. temp. 1 no.3:348-355 N-D '63. (MIRA 17:3)

1. Moskovskiy energeticheskiy institut.

ACCESSION NR: AP4004139 S/0294/63/001/002/0191/0197

AUTHORS: Makavetskas, R. A.; Popov, V. N.; Tsederberg, N. V.

TITLE: Experimental determination of the viscosity of helium and nitrogen

SOURCE: Teplofizika vy*sokikh temperature, v. 1, no. 2, 1963, 191-197

TOPIC TAGS: dynamic viscosity, viscosity, helium, helium viscosity, nitrogen viscosity, gas analyzer, gas analysis, gas property, gas viscosity, nitrogen, helium nitrogen mixture

ABSTRACT: With an aim at filling the temperature gaps in the existing experimental data, the coefficient of dynamic viscosity of helium, nitrogen, and their mixture was investigated experimentally in the temperature range 10--660°C and in the pressure range from 1 to 600 kg/cm^2 using the method of Professor D. L. Timrot (Izv. VTI,

Card 1/1

ACCESSION NR: AP4004139

No. 3, 1940), which employs a capillary and an annular balance. The smoothed data obtained from several sets of isotherms agree with the experimental values within 2%. Orig. art. has: 3 figures, 5 formulas, and 3 tables.

ASSOCIATION: Moskowskiy energeticheskiy institut (Moscow Power Engineering Institute)

SUBMITTED: 03Jul63 DATE ACQ: 26Dec63 ENCL: 02

SUB CODE: AS, PH NO REF SOV: 004 OTHER: 006

Card 2/4

AM4008932 BOOK EXPLOITATION S/

Tsederberg, Nikolay Valerianovich

Thermal conductivity of gases and liquids (Teploprovodnost' gazov i zhidkostey) Moscow, Gosenergoizdat, 1963. 408 p. illus., biblio. Errata slip inserted. Editor: D. S. Rasskazov, Technical Editor: N. A. Bul'dyayev. 6000 copies.

TOPIC TAGS: thermal conductivity of gases, thermal conductivity of liquids, hot wire measurement, coaxial cylinder measurement, dilatometric measurement, Burhorn apparatus, 13 000 K measurement, Sonin polynomial, nitrogen plasma, inert gas mixtures, air plasma, additivity, electrolyte solutions, liquid petroleum products

PURPOSE AND COVERAGE: This book is intended for the personnel at scientific-research institutes and design organizations and bureaus, engineers and technicians in industry, and aspirants and students in higher educational institutions. Existing experimental methods of measuring thermal conductivity are reviewed, and basic typical experimental installations are described. Existing theories of the thermal conductivity of gases at atmospheric pressure and formulas for computing the thermal conductivity of gases and liquids and their

Card 1/3

AM4008932

mixtures are reviewed. Generalized relationships for the thermal conductivity of gases at atmospheric pressure and its dependence on pressure and temperature are presented. Reliable data are presented for the thermal conductivity of gases and liquids and their mixtures for wide ranges of temperature and pressure. Thanks are expressed to N. A. Morozova for rendering the author invaluable aid in illustrating the monograph.

TABLE OF CONTENTS (abridged):

Card 2/3

AM4008932

SUB CODE: CH, PH SUBMITTED: 26JUN63 NR REF SOV: 197

OTHER: 183 DATE ACQ: 29Oct63

Card 3/3

Card

TSEDERBERG, V. V.

"The Wool Quality of Kazakh Fine Fleece Sheep." Cand Agr Sci, Inst of Animal Husbandry, Alma-Ata, 1953. (RZhBiol, No. 7, Dec 54)

Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (12)
SO: SUM. No. 556, 24 Jun 55

TSEDERBERG, Vera Valerianovna, kandidat sel'skokhozyaystvennykh nauk; SHVYDKO, Z.A., redaktor; ZLOBIN, M.V., tekhnicheskiy redaktor

[More high-grade wool] Bol'she vysokokachestvennoy shersti. Alma-Ata, Kazakhskoe gos. izd-vo, 1956. 22 p. (MLRA 9:10)
(Wool)

YEFREMOV, G.V.; ZVEREVA, M.N.; TSEDEVSUREN, TS.

Separation of thallium from element impurities on an anion exchanger. Zav.lab. 28 no.2:159-161 '62. (MIRA 15:3)

1. Leningradskiy gosudarstvennyy universitet.
(Thallium--Analysis) (Ion exchange)

Tsed, K - Tomashevich, Z. F

USSR/Cultivable Plants - Grains. M-2

Abs Jour : Ref Zhur - Biol., No 3, 1958, 10746 K.

Author : Tsedik-Tomashevich, Z.F., Skvortsov, S.N., Edit.
Inst :
Title : Corn in 1955. No 6. The Rayons of the South of the USSR.

Orig Pub : Moskva, Sel'khozgiz, 182 pp., Illus., 4 rubles 30 kopecks.

Abstract : No abstract.

Card 1/1

TSEDIK-TOMASHEVICH, Z.F., kandidat biologicheskikh nauk; SKVORTSOV, S.N.; KAVUN, P.K., redaktor; PEVZNER, V.I., tekhnicheskiy redaktor

[Corn in 1955] Kukuruza v 1955 godu. Moskva, Gos. izd-vo selkhoz. lit-ry. No.3. [Southern districts of the U.S.S.R.] Raiony iuga SSSR. 1956. 380 p. (MIRA 9:9)

1. Nachal'nik otdela rastenievodstva Glavnogo upravleniya sel'skokhozyaystvennoy nauki Ministerstva sel'skogo khozyaystva SSSR (for TSedik-Tomashevich) 2. Glavnyy agronom otdela rasteniyevodstva (for Skvortsov)
(Russia, Southern--Corn (Maize))

1. TSEDIK-TOMASHEVICH, Z. F.

2. USSR (600)

4. Science

7. Protocol for drawing up scientific reports.
Dost. sel'khoz. No. 11, 1952

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

1. TSEDIK-TOMASHEVICH, Z. F.

2. USSR (600)

4. Report Writing

7. Protocol for drawing up scientific reports. Dost. sel'khoz. no. 11, 1952.

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

1. TSEDIK-TOMASHEVICH, Z. F.; NECHIPORENKO, N. A.

2. USSR (600).

4. Agriculture - Experimentation

7. Work results in scientific research institutes on agriculture for 1951. Dost. sel'khoz. no. 5, 1952

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

TSEDIK-TOMASHEVICH, Z. F.

Trees

Intra-and interv[illegible]rietal relationships between trees. Sel. i sem. 19 No. [illegible], 1952.

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

Trees

Intra- and intervarietal relationships between trees. Bot. i sel. 19 No. 2, 1952.

Monthly List of Russian Accessions, Library of Congress, October 1952. UNCLASSIFIED.

1. [illegible], A.

2. USSR (600)

4. Bricks

7. Porous brick. Sel'. stroi. 2 no. 6 1947.

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

VORONOVA, Mariya Zinov'yevna; TSEDILIN, I.V., red.

[Analysis of the administrative operations of fishing industry enterprises] Analiz khoziaistvennoi deiatel'nosti predpriiatii rybnoi promyshlennosti. Moskva, Finansy, 1965. 103 p. (MIRA 18:4)

DMITRIYEVA, R.I.; ZHAGIRNOVSKIY, S.G.; MOLYAKOV, D.S.; MOREYNIS, Ya.I.; SIMONOVA, TS.M.; TSEDILI, I.V.; SHEYGAM, G.I.; SHERIKH, M.D.; MAZURKEVICH, M., red. izd-va; TELEGINA, T., tekhn. red.

[Auditing financial operations of the enterprises of regional economic councils] Proverka finansovoi deiatel'nosti predpriiatii sovnarkhozov. (MIRA 15:2)
(Industrial management) (Finance) (Auditing)

TSEDILIN, S.A.; TSETLIN, V.M.

Siren for the acoustical coagulation of aerosols. Akust. zhur. 7 no.1:78-86 '61. (MIRA 14:4)

1. Gosudarstvennyy nauchno-issledovatel'skiy institut tsvetnykh metallov, Moskva.
(Aerosols) (Coagulation)

20238
S/046/61/007/001/009/015
B104/B204

6.8000 (and 1063, 1155)

AUTHORS: Tsedilin, S. A., Tsetlin, V. M.

TITLE: Siren for acoustic coagulation of aerosols

PERIODICAL: Akusticheskiy zhurnal, v. 7, no. 1, 1961, 78-86

TEXT: The siren described was developed and tested by the Institute mentioned under Association. It is an axial sound generator, which is smaller and of simpler structure than radial sound generators, and requires no parabolic reflector. The fundamental frequency of the sound produced is 6-7 kc, and the intensity depends on the passage of air. Stator and rotor are circular and have 75 openings with a diameter of 3.9 mm on a pitch diameter of 200 mm. Fig. 1 shows a section of this siren. The ground rotor consists of an aluminum body, onto which a steel disk with 75 openings is screwed. As may be seen from Fig. 1, air inlet 1 and stator 2 of the system are detachably connected, which is of advantage especially for adjusting the air gap between rotor and stator. As may be seen from close investigations of this siren, the aerodynamic resistance of the siren itself is not great at the given working conditions. It follows herefrom that a decrease

Card 1/6

of the aerodynamic resistance in the air supply of the siren increases the efficiency of these sirens. For measuring the sound intensity, the effective sound pressure was experimentally determined. In Fig. 3, the intensity I and the logarithmic level L are graphically represented as a function of the radius. Further, it follows from the measurements that the direction diagram of the siren depends considerably on frequency. Measured results concerning the acoustic efficiency are given in Table 3, where the efficiency was calculated by means of formula $\eta = N/QR$, where N is the acoustic efficiency of the siren, Q is the air consumption, and R the aerodynamic resistance. Close investigations carried out on a coagulation chamber having a length of 10.9 m and a diameter of 610 mm, which was erected in a perpendicular position, were carried out. As sound insulation, a 100 mm thick layer of slag was used. During the experiment, the coagulation chamber was open at the bottom, while the siren was on top. In Fig. 7, L and I are graphically represented as function of the radius (as in Fig. 3), measured at a distance of 5.45 m from the mouth of the siren. As subsequently stated, the siren described meets the demands made on it. There are 7 figures, 6 tables, and 2 Soviet-bloc references.

Siren for acoustic ...

ASSOCIATION: Gosudarstvennyy nauchno-issledovatel'skiy institut tsvetnykh metallov Moskva (State Scientific Research Institute of Nonferrous Metals, Moscow)

SUBMITTED: April 19, 1960

Legend to Fig. 1: 1) Mouth; 2) stator; 10) rotor. (For Fig. 1 see card 6 of 6)

1 f, кгц	2 Q, нм³/час	3 L, дб	4 N, вт	5 N, вт / Q, нм³/сек	6 η, %	1 f, кгц	2 Q, нм³/час	3 L, дб	4 N, вт	5 N, вт / Q, нм³/сек	6 η, %
1,5	79	146,6	14,9	675	14,0	4,5	73	147,2	17,1	855	14,6
1,5	117	149,7	30,4	921	10,6	4,5	107	152,6	59,2	1975	18,3
1,5	168	155,7	121,0	2575	18,4	4,5	157	158,9	253,0	5750	29,0
1,5	193	158,6	235,0	4300	22,4	4,5	165	160,1	333,0	7240	35,4
3,0	66	147,8	13,2	734	18,0	7,2	67	148,6	12,0	631	16,8
3,0	114	152,8	41,7	1305	15,0	7,2	125	156,0	65,7	1880	20,4
3,0	161	157,7	129,0	2870	20,4	7,2	155	160,3	177,0	4120	25,4
3,0	182	159,2	182,0	3570	20,4	7,2	169	162,3	280,0	5960	31,0

TABLE 3

Card 3/6

S/046/61/007/001/009/015
B104/B204

Siren for acoustic ...

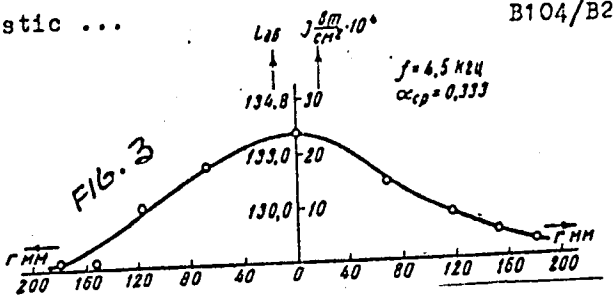


Fig. 3

Legend to Fig. 3: Sound intensity I (watts per cm^2) and logarithmic sound gauge L (decibel) as a function of the radius of the mouth at a frequency of 4.5 kc.

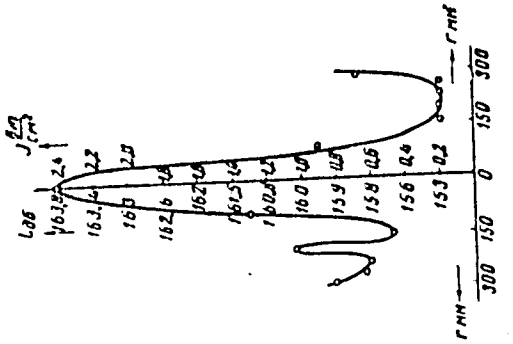
Legend to Table 3: 1) Frequency; 2) air consumption in normal cubic meters per hr; 3) sound gauge L in decibel; 4) efficiency in watts; 5) efficiency/air consumption; 6) efficiency.

Card 4/6

S/046/61/007/001/009/015
B104/B204

Siren for acoustic ...

Legend to Fig. 7: L and I as a function of the diameter of the coagulation tube at a distance of 5.45 m from the mouth of the siren.

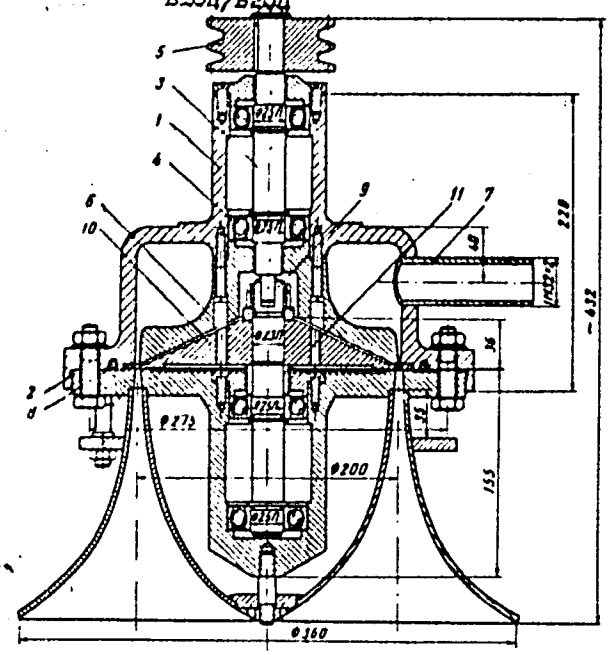


Card 5/6

20238

Siren for acoustic ...

S/046/61/007/001/009/015
B104/B204



Card 6/6

Fig 1

TSETLIN, V.M.; DENISOV, V.F.; TSEDILIN, S.A.; Prinimali uchastiye:
SASIN, V.I., mladshiy nauchnyy sotrudnik; UDIN, B.S., master;
DRACHEVA, T.V., laborantka; OL'KOV, V.T., laborant;
SLOVIKOVSKIY, A.A., laborant

Investigating the effect of various factors on the process of nonferrous metal dust coagulation in a sound field. Sbor. nauch. trud. Gintsvetmeta no.19:595-607 '62.
(MIRA 16:7)
(Nonferrous metals—Metallurgy) (Aerosols)
(Sound waves—Industrial applications)

TSEDILIN, Yu.A., podpolkovnik meditsinskoy sluzhby

Significance of the gastroscopic method of study in achylous states. Voen.-med. zhur. no. 6:71-74 Je '60. (MIRA 13:7)
(GASTROSCOPY) (STOMACH--DISEASES)

PETROV, Al.A.; TSEBULIN, A.M.; K[illegible], L.[illegible]

Some characteristics of the liquid phase dehydrocondensation of high molecular weight bicyclic hydrocarbons. Izv. AN SSSR. Otd. khim. nauk no. 1:174-176 Ja '61. (MIRA 14:1)

1. Institut geologii i razrabotki goryuchikh iskopayemykh AN SSSR.
(Dehydrogenation) (Docosane) (Propane)

PETROV, Al.A.; SANIN, P.I.; TSEDILINA, A.L.; BAGRIY, Ye.I.; YEPISHEV, V.I.

Synthesis and properties of C_{24} cyclic hydrocarbons. Neftekhimiia 3 no.4:465-471 Jl-Ag '63. (MIRA 16:11)

AUTHORS: Petrov, Al. A., Sergiyenko, S. R., Tsedilina, A. L., Kislinskiy, A. N., Gal'pern, G. D. SOV/62-58-6-13/37

TITLE: The Isomerization of Saturated Hydrocarbons (Izomerizatsiya nasyshchennykh uglevodorodov) Communication 3. The Isomeric Transformation of Cyclanes (Soobshcheniye 3. Izomernyye prevrashcheniya tsiklanov)

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye khimicheskikh nauk, 1958, Nr 6, pp. 730 - 738 (USSR)

ABSTRACT: In various earlier papers the isomeric transformations of alkanes are discussed, which develop in the presence of polyfunctional catalysts under hydrogen pressure (Refs 1,2). The main purpose of this paper is the investigation of the rules governing the isomerization of hydrocarbons and of the connection between structure on the one hand and kinetic and thermodynamic parameters on the other. The catalytic isomerization of the cycloparaffin hydrocarbons C_6 - C_9 in the presence of a polyfunctional catalyst under hydrogen pressure was carried out. Furthermore, it was found that the isomerization products of the cycloparaffins C_7 and C_8 correspond with respect to their composition to the thermodynamic values obtained by calculation.

Card 1/2

The Isomerization of Saturated Hydrocarbons. SOV/62-59-6-13/37
Communication 3. The Isomeric Transformation of Cyclanes

A mechanism for the isomerization of cycloparaffins was suggested, according to which the formation of unsaturated hydrocarbons figures as the first stage of reaction. Furthermore the influence exercised by pressure and temperature upon the direction of the reactions of cycloparaffins in the presence of a polyfunctional catalyst was shown. There are 5 tables and 17 references, 8 of which are Soviet.

ASSOCIATION: Institut nefti Akademii nauk SSSR (Petroleum Institute AS USSR)
SUBMITTED: November 19, 1956

1. Hydrocarbons--Isomerism 2. Catalysts--Performance 3. Pressure --Chemical effects 4. Temperature--Chemical effects

Card 2/2

5 (3) SOV/62-59-6-22/36

AUTHORS: Petrov, Al. A., Sergiyenko, S. R., Nechitaylo, N. A., Tsedilina, A. L.

TITLE: Synthesis and Properties of the Monomethyl-substituted Alkanes of the Composition C_{12}-C_{16} (Sintez i svoystva monometil-zameshchennykh alkanov sostava C_{12}-C_{16})

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1959, Nr 6, pp 1091 - 1097 (USSR)

ABSTRACT: Since the hydrocarbons of this structure are not yet sufficiently investigated, the synthesis of the monomethylated alkanes with a boiling temperature of more than 200° was investigated. With this monomethylated alkanes one may synthesize all theoretically possible isomers (there are only 29 compounds). They are furthermore of interest because they have thermodynamically stable structures and meet with all technical requirements of motorization. The hydrocarbons were synthesized according to Grignard's reaction (magnesiumbromoalkyls with methylketones). In this reaction the purity of the compounds obtained depends in a high degree on the purity of the initial substances (alkylbromides). This fact was especially considered

Card 1/4

in the present investigation. The methylketones were obtained by decomposition of the corresponding alkyl-acetoacetic acid. As intermediates tertary alcohols were at first obtained which were dehydrated at 280°, redistilled , and hydrated in the autoclave on nickel at a temperature of from 150-170°. The temperature at which the hydrocarbons obtained crystallize was determined by plotting the heating curve by means of the photo--recording Kurnakov pyrometer. The purity degree was determined by means of a special thermographic device. N. I. Lyashkevich, to whom the authors express their gratitude, carried out the measurements in the laboratory for petroleum chemistry of the institute mentioned in the Association. The purity degree of the synthesized hydrocarbons was 97-98%. The thermogram was recorded by a special aluminum block which was designed in the Institut obshchey i neorganicheskoy khimii AN SSSR (Institute of General and Inorganic Chemistry of the AS USSR). By this automatic recording of the heating curves the melting process could be fixed exactly (Fig 1). With almost all compounds obtained two stages in the melting process (-46 and -45.4° melt-

ing and crystallisation temperature) were observed. The properties of the hydrocarbons are given in a table by which it is shown that the density and the refractive index scarcely depend on the position of the outer methyl groups in the main chain, what is well in line with data by Tatevskiy (Ref 5). The crystallisation temperature is, however, strongly influenced by these methyl groups. The change of the crystallisation temperature at the transition of one homolog to the other, and of one isomer into the other is not steady (Figs 2,3 with comparative data from Ref 10). This unsteadiness is caused by the presence of either an even or an odd number of hydrocarbons in the main chain. The transition from an odd to an even number of hydrocarbons exerts a parallel influence on the melting point, the reverse transition, that is an increase in the molecular weight, exerts an antiparallel influence. The laws holding for paraffins, olefins, and greases, which are well known, may thus also be applied to ramificated alkanes. The crystallisation process of the latter takes place by forming such crystals as exhibit the shortest possible carbon chain.

Synthesis and Properties of the Monomethyl-substituted Alkanes of the Composition C_{12}-C_{16} SOV/65-59-6-28/36

There are 3 figures, 1 table, and 11 references, 5 of which are Soviet.

ASSOCIATION: Institut nefti Akademii nauk SSSR (Petroleum Institute of the Academy of Sciences, USSR)

SUBMITTED: September 5, 1957

Card 4/4

L 15486-63 EWP(j)/EPF(c)/EWT(m)/BDS Pc-4/Pr-4 RM/WW

ACCESSION NR: AP3005445 S/0204/63/003/004/0465/0471

AUTHORS: Petrov, Al. A.; Sanin, P. I.; Tsedilina, A. L.; Bagriy, Ye. I.; Yepishev, V. I.

67
66

TITLE: Synthesis and properties of C sub 24-hydrocarbons

SOURCE: Neftekhimiya, v. 3, no. 4, 1963, 465-471

TOPIC TAGS: C sub 24-hydrocarbon synthesis, hydrocarbon structure, naphthene

ABSTRACT: The following 24 new C24-hydrocarbons, containing varied structures including 5- and 6-membered naphthene rings of different degrees of substitution were synthesized and described. 10-cyclopentylnonadecane; 1-methyl-2-octadecylcyclopentane; 1,7-dicyclopentyl-4-heptylheptane; 1,7-di-(3-methylcyclopentyl)-4-amylheptane; 1,10-di-(2,4-dimethylcyclopentyl)-decane; 1,7-dicyclopentyl-4-(B-ethylcyclopentyl)-heptane; 1-phenyl-4-hexyl-7-cyclopentylheptane; 1-cyclohexyl-4-hexyl-7-cyclopentylheptane; 7-(4-cyclopentylphenyl)-tridecane; 7-(4-cyclopentylcyclohexyl)-tridecane; 1,7-dicyclopentyl-4-benzyl-

Card 1/2

L 15486-63

ACCESSION NR: AP3005445

heptane; 1,7-dicyclopentyl-4-methylcyclohexylheptane; 6-(2,4,5-trimethylphenyl)-pentadecane; 6-(2,4,5-trimethylcyclohexyl)-pentadecane; 1-phenyl-3-(2,5-dimethylbenzyl)-nonane; 1-cyclohexyl-3-(2,5-dimethylmethylcyclohexyl)-nonane; 1,1-di-(4-isopropylphenyl)-hexane; 1,1-di-(4-isopropylcyclohexyl)-hexane; 1,1-di-(2,4,5-trimethylphenyl)-hexane; 1,1-di-(2,4,5-trimethylcyclohexyl)-hexane; 1,3-di-(5-indanyl)-2-propylpropane; 1,3-di-(5-hydrindanyl)-2-propylpropane; 1-phenyl-4-(2-dodecyl)-benzene; 1-cyclohexyl-4-(2-dodecyl)-cyclohexane. "Synthesis (of 1,3-di-(5-indanyl)-2-propylpropane) carried out by L. N. Stukanov". Orig. art. has: 29 formulas.

ASSOCIATION: None

SUBMITTED: 00	DATE ACQ: 06Sep63	ENCL: 00
SUB CODE: CH	NO REF SOV: 008	OTHER: 007

Card 2/2

84858

53300 2209, 1153 only

S/062/60/000/010/012/018
B015/B064

AUTHORS: Petrov, Al. A., Sergiyenko, S. R., Tsedilina, A. L., Sanin, P. I., Nikitskaya, Ye. A., and Nechitaylo, N. A.

TITLE: Synthesis and Properties of High-molecular Hydrocarbons of Mixed Structures. Information 1. Synthesis of Hydrocarbons of the Composition C_{24} 1

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1960, No. 10, pp. 1848 - 1857

TEXT: The authors synthesized several hydrocarbons that, up to a certain extent, may serve as models for the hydrocarbons contained in high-boiling petroleum fractions. The present paper reports on the synthesis and properties of 23 hydrocarbons with mixed structures, containing 24 hydrocarbon atoms per molecule. Compared to a similar investigation carried out by R. Schiessler et al. (Ref.2), the present studies were made on a larger scale. The influence of the degree of cyclization of the hydrocarbon molecules, the effect of the relative position of some cycles in the paraffin chain of the molecules, and the effect of the

Card 1/3

Synthesis and Properties of High-molecular Hydrocarbons of Mixed Structures. Information 1. Synthesis of Hydrocarbons of the Composition C_{24}

S/062/60/000/010/012/018
B015/B064

degree of substitution of the aromatic or cycloparaffin rings in the molecule upon the properties of the whole molecule were investigated (cf. Scheme of the structural changes). The hydrocarbons were synthesized by the Grignard reaction. The alcohols were dehydrated in the vapor phase by means of an aluminum catalyst used (method of the American Petroleum Institute); this was, however, done in vacuum (3-4 mm). Purification was carried out by distillation and absorption. The conditions of synthesis are described in detail for 1,1-diphenyl dodecane, while only a short information is given on the preparation of the remaining 22 hydrocarbons. Since a peculiar behavior of 2,4,6-trimethyl chloro benzyl was observed under the preparation conditions of the Grignard reagent, the characteristics of the reaction between methylated benzyl halides and magnesium are discussed (Table 1, data on diaryl ethanes obtained by reacting some substituted benzyl chlorides with magnesium). Table 2 gives the structural formulas and the most important properties of the 23 hydrocarbons obtained. The anomalies of viscosity as a function of the temperature of the polymethyl-substituted benzene derivatives are remarkable, i.e., the aromatic hydrocarbons having

84858

Synthesis and Properties of High-molecular Hydrocarbons of Mixed Structures. Information 1. Synthesis of Hydrocarbons of the Composition C_{24}

S/062/60/000/010/012/018
B015/B064

several methyl groups on the ring have a much higher viscosity than the monosubstituted isomers. In the near future, the authors will publish a paper on the physico-chemical properties of the hydrocarbons described here (data on various spectra). There are 2 tables and 10 references: 5 Soviet, 3 US, 1 German, and 1 British.

ASSOCIATION: Institut geologii i razrabotki goryuchikh iskopayemykh Akademii nauk SSSR (Institute of Geology and Prospecting of Mineral Fuels of the Academy of Sciences USSR)

SUBMITTED: May 6, 1959

Card 3/3

AUTHORS: Tsetlin, V.M. and Tsedilin, S.A. 136-58-3-14/21

TITLE: A sonic siren for dust catching (Zvukovaya sirena dlya pyleulavliva iya)

PERIODICAL: Tsvetnyye Metally, 1958, Nr.3, pp. 76-78 (USSR)

ABSTRACT: The very finely divided sublimates arising in non-ferrous metals production are difficult to trap. The coagulation of such particles is assisted by sonic vibrations and the authors describe a siren for this purpose designed, built and tested in Gintsvetmet. The working parts of the siren (fig.1) have 75 circular holes with their centres on a circle of 200 mm diameter. The siren consists of two halves (the casing and the stator), which facilitates its assembly and control of gaps between the working parts. The authors discuss the choice of hole diameter and shape of gas passages; rotor holes are made 0.3 mm less in diameter than the 4.2 mm diameter stator holes, and the latter are conical with the larger diameter 7.2 mm. The axial gap between rotor and stator is less than 0.05 mm. Pressure drop and noise intensity are plotted (figs. 2 & 3) against air flow (30-500 nm^3/hour). The frequency generated is 3 kilohertz. There are 3 figures.

ASSOCIATION: Gintsvetmet

AVAILABLE: Library of Congress.

Card 1/1

1. Sound-Applications 2. Dust-Effects of sonic vibrations
3. Sonic vibrations-Applications

TSEDILIN, V.M.; TSEDILIN, S.A.

Sound siren for dust detection. Tsvet. met. 31 no.3:76-78 Mr '58.
(MIRA 11:4)

1. Gintsvetmet.
(Nonferrous metals--Metallurgy) (Fly ash)

TSEDILIN, V.M.; TSEDILIN, S.A.

Sound siren for dust detection. Tsvet. met. 31 no.3:76-78 Mr '58.
(MIRA 11:4)

1. Gintsvetmet.
(Nonferrous metals--Metallurgy) (Fly ash)

S/570/60/000/017/012/012
E032/E114

9,9100

AUTHORS: Vsekhsvyatskaya, I.S., and Tsedilina, Ye.Ye.

TITLE: Amplitude correlation function for signals scattered from a perfectly rough screen

SOURCE: Akademiya nauk SSSR. Institut zemnogo magnetizma, ionosfery i rasprostraneniye radiovoln. Trudy, no. 17(27). Moscow, 1960. Rasprostraneniye radiovoln i ionosfera. 287-291

TEXT: A calculation is reported of the amplitude correlation function for signals reflected from the ionosphere with allowance both for random and directed motions in the ionosphere. The problem is solved for a plane ionosphere located at a certain height above the observer and looked upon as a perfectly rough scattering screen. The calculation is illustrated in Fig.1. Let v_1 be the drift velocity of the screen, v_0 the root mean square velocity of random motion, and suppose that a spherical wave is emitted from the point of observation O which is the origin of the polar coordinate system. Assuming that the random motion velocity distribution is of the form:

Card 1/4

Amplitude correlation function for ...

$$W(v) = \frac{1}{v_o \sqrt{2\pi}} \exp\left[-\frac{(u - v_1 \sin\theta \cos\varphi)^2}{2v_o^2}\right] \qquad (2)$$

where: $u = v + v_1 \sin\theta \cos\varphi$, $v_o^2 = \overline{v^2}$, $f - f_o = \frac{2f_o}{c} u$, and f_o is the carrier frequency. it can be shown that the energy scattered by an element $d\Omega$ in the ionosphere is given by:

$$W(f)d\theta\, d\varphi\, df = \frac{c}{2\sqrt{2\pi} v_o f_o} \exp\left[-\frac{c^2}{8v_o^2 f_o^2}\left(f - f_o - \frac{2f_o v_1}{c}\sin\theta \cos\varphi\right)^2\right] \qquad (3)$$

$$\times \sin\theta \cos\theta\, d\theta\, d\varphi\, df.$$

Using this expression for the scattered energy, the author shows that the auto-correlation function is given by:

Card 2/4

Amplitude correlation function for ...

$$\rho_R(\tau) = \exp\left[-\frac{8\pi^2 f_o^2 \tau^2 v_o^2}{c^2}\right]\left\{\frac{J_1\left(\frac{4\pi\tau f_o v_1}{c}\right)}{\frac{2\pi\tau f_o v_1}{c}}\right\} \qquad (16)$$

This is a general expression which holds in the presence of both random and directed motions. The formula obtained for this coefficient by Booker et al (Ref.6: Booker, Ratcliffe, Schinn. Philos. Trans. Roy. Soc., v.242, 579, 1950) is a special case of this expression. Acknowledgments are expressed to Ya.L. Al'pert for suggesting this problem and to Yu.K. Kalinin and L.P. Pitayevskiy for discussions. It is pointed out in an appended note that an analogous result was obtained by a somewhat different method by J.E. Drummond (J. Atm. Terr. Phys., v.9, 282, 1956) but this paper became available to the present authors after the present manuscript was submitted for publication. There are 1 figure and 7 references: 2 Soviet-bloc and 5 non-Soviet-bloc. The four most recent English language references read:

Ref.2: Ratcliffe. Rept. Progr. Phys., v.19, 188, 1956.
Ref.3: R.B. Banerji. Proc. Phys. Soc., B 66, 105, 1953.
Ref.4: R.B. Banerji. J. Atm. Terr. Phys., 6, 50 (1955).
Ref.5: E.N. Bramley. Proc. IEE, p.III, v.98, 19, 1951.

4

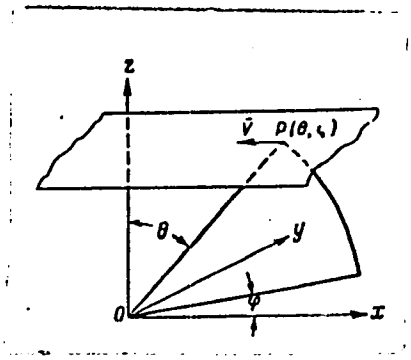


Fig.1

GUREVICH, A.V.; TSEDILINA, Ye.Ye.

Effect of a constant electric field on electron temperature in the ionosphere. Geomag. i aer. 1 no.1:34-40 Ja-F '61. (MIRA 14:7)

1. Fizicheskiy institut AN SSSR imeni P.N. Lebedeva i Institut zemnogo magnetizma, ionosfery i rasprostraneniya radiovoln AN SSSR.
(Ionosphere) (Electrons) (Electric fields)

42128

9.9125

AUTHOR: Tsedilina, Ye. Ye.

S/203/62/002/002/003/017
I046/I246

TITLE: Temperature of electrons in the ionosphere in a constant electric field

PERIODICAL: Geomagnetizm i aeronomiya, v. 2, no. 2, 1962, 242-248

TEXT: In 1 – 5 μV/m electric fields oriented along the geomagnetic field in the ionosphere at altitudes over 200 km, electrons attain two stable temperature states: $(1 - 2)\cdot10^3$ deg. and $(10 - 30)\cdot10^3$ deg. The characteristic time required for the electrons to heat up in this temperature interval ranges from 10 to 300 sec. The resulting current density is 0.1 to 10 milliamp/m^2. The minimum dimensions of the electric field required to start the heating-up effects at altitudes of 250 to 500 km are 10–30 km along the magnetic field, and 100 m across. The additional magnetic field produced by such cylindrical regions less than 2 km across is masked by the daily variations inthe geomagnetic field. The accelerating electrons change the degree of ionization noticeably if the electric field remains effective for at least 1 – 10 hours. All the conclusions are in agreement with the experimental results, and the heating-up mechanism may thus also be responsible for large-scale inhomogeneities in the ionosphere. There are 7 figures and 5 tables.

ASSOCIATION: IZMIRAN

SUBMTTED: January 9, 1962

Card 1/1

42907
S/203/62/002/005/003/010
I046/I246

AUTHOR: Tsecilina, Ye.Ye.

TITLE: The Doppler effect in magnetoactive ionosphere

PERIODICAL: Geomagnetizm i aeronomiya, v.2, no.5, 1962, 865-872

TEXT: This is the first analysis of the Doppler effect of radio-signals which allows for the geomagnetic field. The Doppler frequency shift in a magnetoactive medium differs from the analogous shift in an isotropic medium by a term which is proportional to ω_H/ω (ω_H the gyroscopic frequency). This additional term is of no consequence in the differential Doppler effect for coherent frequencies, since here $(\omega_H/\omega) \ll 1$. In the rotational Doppler effect (otherwise known as the Faraday effect: time dependence of the rotational angle of the plane of polarization of received radio-waves), the additional term introduces new significant factors (sinusoidal modulation of the rotational Doppler effect, for instance). These were overlooked by Carriott and by Kelco (Ref.5:

Card 1/2

O.K.Carriott. J.Geophys.Res., 1960, 65, 1150; Ref.6: E.M.Kelco. J.Geophys.Res., 1960, 66, 1107) because of their failure to allow for the geomagnetic field. The analysis is of particular significance because of the growing use of the differential and the rotational Doppler effects in ionospheric electron density determinations with rockets and artificial satellites. There is 1 figure.

ASSOCIATION: Institut zemnogo magnetizma, ionosfery i rasprostraneniya radiovoln AN SSSR (Institute of the Terrestrial Magnetism, the Ionosphere and Propagation of Radiowaves AS USSR)

SUBMITTED: June 18, 1962

ACCESSION NR: AP4040710 S/0203/64/004/003/0503/0508

AUTHOR: Tsedilina, Ye. Ye.; Khary*bina, A. A.

TITLE: Study of the nonhomogeneous structure of the ionosphere on the basis of radio observations of the artificial earth satellites Cosmos 1, Cosmos 2, and Cosmos 11 at coherent frequencies

SOURCE: Geomagnetizm i aeronomiya, v. 4, no. 3, 1964, 503-508

TOPIC TAGS: Cosmos 1, Cosmos 2, Cosmos 11, ionospheric inhomogeneity, artificial earth satellite, doppler shift, coherent frequency, ionospheric inhomogeneity, ionospheric inhomogeneity spectrum, coherent oscillation

ABSTRACT: The phase differences in the coherent oscillations radiated from Cosmos 1, Cosmos 2, and Cosmos 11 at 20.005 and 90.0225 mc were recorded in 1962 and 1963 at various Soviet stations. The recordings were made for various months and for different hours of the day. Measurement of these phase differences made it possible to obtain the ionospheric inhomogeneity spectrum W(ρ). Analysis of this spectrum

Card 1/2

ACCESSION NR: AP4040710

showed that: 1) $W(\rho)$ has three steady maxima at $\rho_1 \sim 14—16$, $\rho_2 \sim 28—32$, and $\rho_3 \sim 90—110$ km; 2) apparently, the lengths of ρ_1, ρ_2, and ρ_3 do not depend on the hour of the day or season; 3) an investigation of the dependence of $W(\rho)$ on altitude revealed that the maximum number of inhomogeneities occurs at 50—100 km below the main maximum of the F_2 region; 4) the total number of inhomogeneities decreases with an increase in altitude; and 5) small-scale inhomogeneities — $\rho \sim 1$ km — have not been detected at altitudes above 350—400 km. Orig. art. has: 5 figures and 1 table.

ASSOCIATION: Institut zemnogo magnetizma, ionosfery i rasprostraneniya radiovoln AN SSSR (Institute of Terrestrial Magnetism, Ionosphere and Radio Wave Propagation, AN SSSR)

SUBMITTED: 24Aug63 ATD PRESS: 3048 ENCL: 00

SUB CODE: OP, ES NO REF SOV: 005 OTHER: 001

Card: 2/2

ACCESSION NR: AP4041714 S/0203/64/004/003/0584/0586

AUTHOR: Tsedilina, Ye. Ye.

TITLE: Three-dimensional modulation of the Doppler shift in frequency of radio waves received from artificial satellites

SOURCE: Geomagnetizm i aeronomiya, v. 4, no. 3, 1964, 584-586

TOPIC TAGS: Doppler effect, radio wave, artificial satellite/ Cosmos I, Cosmos II, Cosmos XI

ABSTRACT: The author points out that records from Cosmos I, Cosmos II, and Cosmos XI indicate that modulation of the Doppler shift is due chiefly to inhomogeneities along or near the orbit of the satellite. She attempts to show that this conclusion may be reached theoretically by virtue of the fact that the Doppler shift due to inhomogeneities along the orbit of the satellite is always proportional to the velocity of the satellite along its path. She begins with an equation from N. A. Mityakov and E. Ye. Mityakova (Geomagn. i aeronomiya, 1963, 3, No. 5, 858), defining the Doppler shift in a two-dimensional approximation for the case when the electron concentration depends on the three coordinates x, y, and z. These coordinates are so chosen that the vertical plane xOz passes through the satellite and the point of observation. After analytical evaluation of electron concentration, the resulting

Card 1/3

ACCESSION NR: AP4040714

equation simplifies to $\delta\tilde{\Phi}(t)\lambda^{-1} \sim \left(\dot{x}_c' \frac{\lambda_1}{\lambda_2} - \frac{\dot{z}_c}{\cos\varphi_0}\right) \Delta\tilde{N}_0(z_c)$, where $\dot{x}_c'$ is the satellite velocity at x', parallel to the plane of the orbit and to the surface of the earth, $\dot{z}_c$ is the satellite velocity along the z axis, z_c is the height of the satellite, λ_2 and λ_1 are linear scales of inhomogeneity along x' and along the line connecting the source with the point of observation, respectively, and N_0 is the initial electron density. The amplitude of three-dimensional modulation of the Doppler frequency shift is thus found to be proportional to the satellite velocity along the orbit, and this leads to an increase in the amplitude of modulation of this shift. The conclusion needs detailed proof and stricter consideration of the height dependence of modulation depth and periodic structure. "In conclusion, I express thanks to Ya. L. Al'pert for his remarks during discussion of the paper." Orig. art. has: 9 formulas.

ASSOCIATION: Institut zemnogo magnetizma, ionosfery* i rasprostraneniya radiovoln AN SSSR (Institute of Terrestrial Magnetism, the Ionosphere, and Propagation of Radio Waves, AN SSSR)

Card 2/3

ACCESSION NR: AP4040714

SUBMITTED: 27Dec63

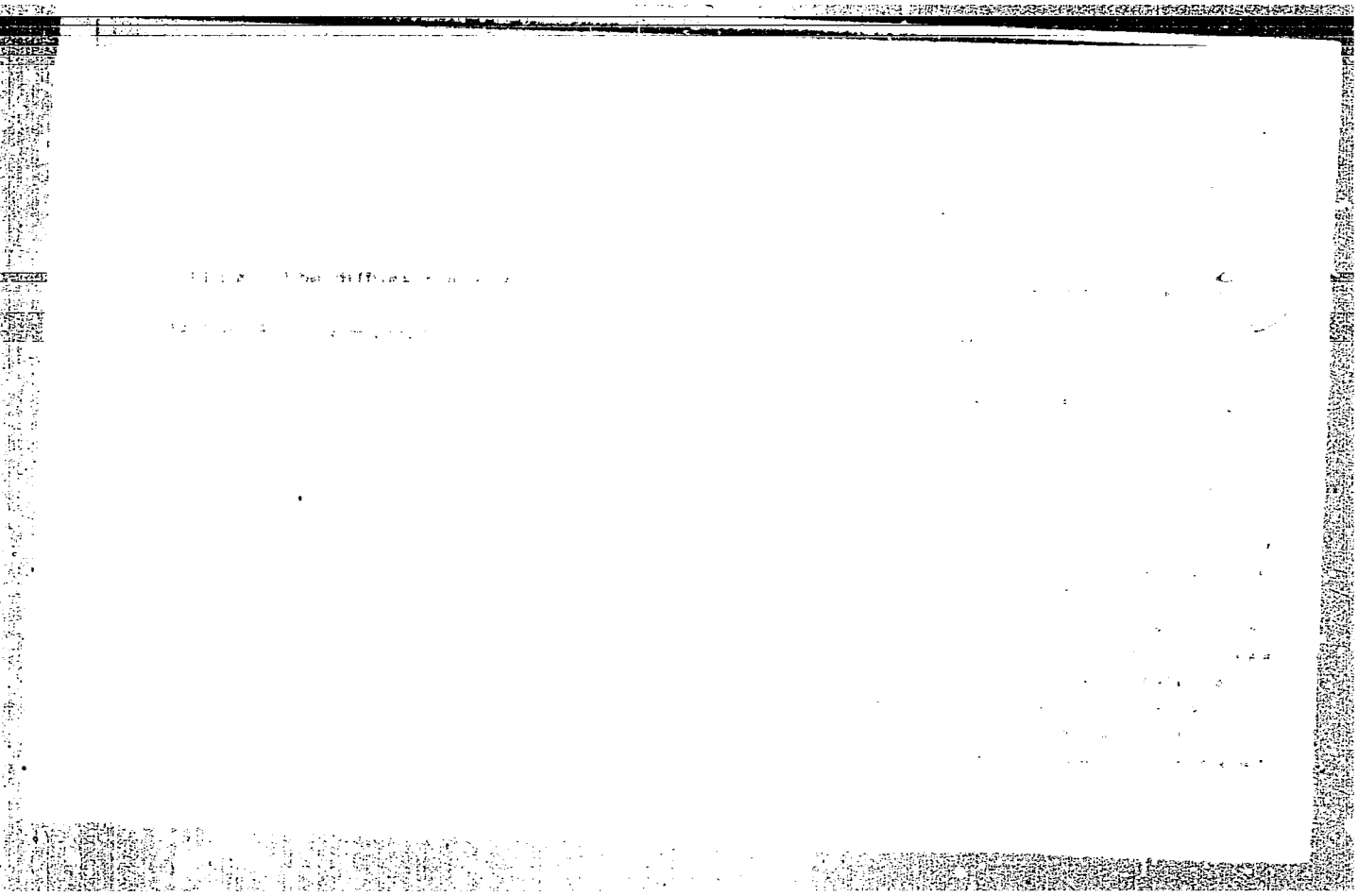
SUB CODE: ES, SV

NO REF SOV: 005

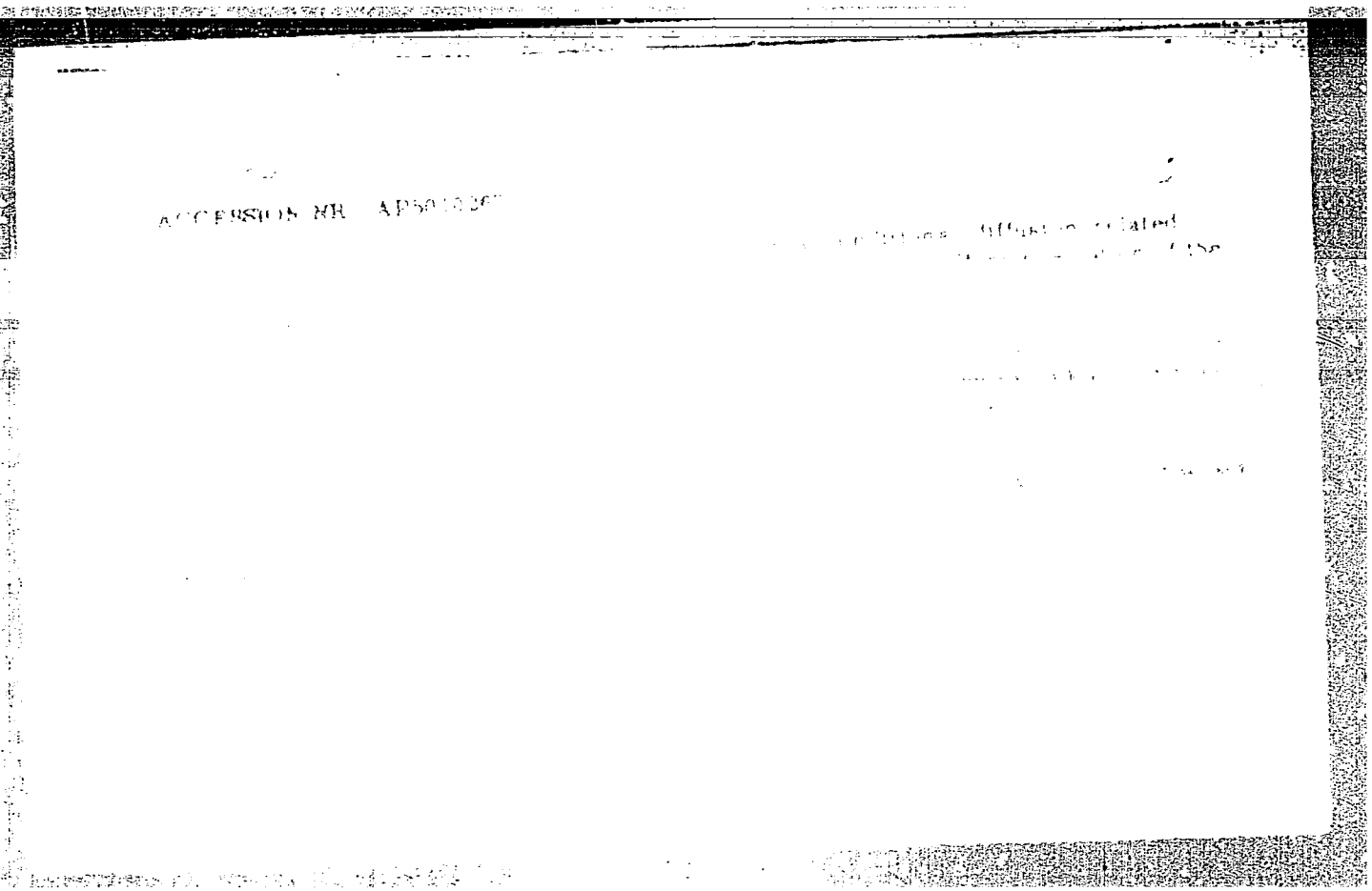
ENCL: 00

OTHER: 000

Card 3/3



APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001756920016-4"



L 33279-66 EWT(1) IJP(c) AT

ACC NR: AP6011695 SOURCE CODE: UR/0203/66/006/002/0255/0265

AUTHOR: Gurevich, A. V.; Tsedilina, Ye. Ye.

ORG: Physics Institute im. P. N. Lebedev AN SSSR (Fizicheskiy institut AN SSSR); Institute of Terrestrial Magnetism, the Ionosphere, and Radio-wave Propagation, AN SSSR (Institut zemnogo magnetizma, ionosfery i rasprostraneniya radiovoln AN SSSR)

TITLE: Character of dispersion and form of inhomogeneities in plasma

SOURCE: Geomagnetizm i aeronomiya, v. 6, no. 2, 1966, 255-265

TOPIC TAGS: plasma magnetic field, plasma diffusion, plasma charged particle

ABSTRACT: The authors analyze the character of dispersion in plasma in a magnetic field of inhomogeneities whose dimensions are many times greater than the free path length of the particles. It is shown that in the absence of drift the disturbances of the particle concentration in an inhomogeneity decreases with time in proportion to $1/t^{3/2}$, the same as in ordinary diffusion. The form of the inhomogeneity, however, appreciably differs from ellipsoidal. The asymptotic behavior of the disturbances of the concentration changes qualitatively at large distances: with an increase of r they decrease only by the power law $\delta N \sim 1/r^5$ and not by the exponential law $\delta N \sim \exp\{-r^2/rDt\}$ which is characteristic for

Card 1/2 UDC 550.388.2

L 33279-66

ACC NR: AP6011695

ordinary diffusion. The rate of movement of the inhomogeneity across a magnetic field many times exceeds the rate of transverse diffusion of electrons. It is shown that in the presence of drift of charged particles in the plasma the dispersion of the inhomogeneities no longer bears a diffusion character. A new ("dispersion") mechanism plays an important role of scattering. Disturbances of the concentration decrease in proportion to $1/t^2$, and in one direction in proportion to $1/t^{7/4}$. The form of the inhomogeneity is severely drawn out in a direction which does not coincide with the direction of the magnetic field in the plasma. The ratio of the longitudinal and transverse dimensions of the inhomogeneity increases in proportion to the square root of t with the course of time. It is found that dispersion scattering substantially changes the character of the decrease of the concentration of particles in an inhomogeneity and completely determines its form. However, the authors point out that drift itself and the dispersion of the drift velocity in no way affects the amplitudes of the Fourier component of concentration disturbances. During diffusion the amplitudes decrease exponentially with time. Therefore, although dispersion of the drift velocity leads to scattering of the inhomogeneity and substantially affects the particle concentration and shape of the inhomogeneity, it does not change the scattering cross section of electromagnetic waves since the corss section depends only on the amplitudes of the components of the Fourier disturbances of electron density. The authors thank Yu. N. Zhivlyuk for performing the numerical calculations. Orig. art. has: 3 figures and 32 formulas.

SUB CODE: 20 / SUBM DATE: 24May65 / ORIG REF: 005

Card 2/2