"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3

MUKHA, K.G. [Mukha, K.H.], agronom

Effectiveness of hill dropping in vegetable cultivation.
Mekh.sil'hosp. 10 no.2:23-24 F '59. (MIRA 12:6)
(Vegetable gardening)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3

L 04852-65 AFWL/RAEM(a)/ESD(gs)/ESD(t)

ACCESSION NR: AP4048425 S/0181/64/006/011/3438/3443

AUTHORS: Lebed', B. M.; Mukha, L. Ya.; Mosel', V. I.

TITLE: Nonlinear phenomena in an yttrium iron garnet at low frequencies

SOURCE: Fizika tverdogo tela, v. 6, no. 11, 1964, 3438-3443

TOPIC TAGS: yttrium iron garnet, nonlinearity, single crystal, resonance line width, temperature dependence

ABSTRACT: To extend earlier investigations by one of the authors (Yu. M. Yakovlev, B. M. Lebed') over a wider range of crystallographic directions, temperatures, and alternating-field amplitudes, the temperature dependence of the width (ΔH) of the ferromagnetic resonance line in polished spherical single-crystal $Y_3Fe_5O_{12}$ (1.2 mm dia.) was investigated at field amplitudes above threshold. The measurements were made at 2590 and 1496 Mcs by a method explained

Card 1/2

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L 11852-65
ACCESSION NR: AP4048425

elsewhere (B. M. Lebed' and Yu. M. Yakovlev, PTE no. 6, 107, 1962). Comparison of the curves obtained for different crystallographic directions shows that the nonlinear relaxation present at temperatures below 20° has a clearly pronounced anisotropy, with a maximum in the [100] direction. A fine structure in the temperature variation of the line width is observed at both frequencies. It is suggested that the observed jumplike broadening of the resonance lines is due to the existence of nonlinear phenomena connected with the many-magnon relaxation processes. The threshold value of the amplitude of the alternating field is independent of the temperature or of the frequency (in the 1000--2590 Mc range). Orig. art. has: 3 figures and 6 formulas.

ASSOCIATION: None

SUBMITTED: 27Dec63 ENCL: 00

SUB CODE: SS, EM NR REF SOV: 004 OTHER: 005

Card 2/2

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3

L 02257-67 EWT(1)/EWT(m)/T/EWP(t)/ETI IJP(c) GG/WW/JD

ACC NR: AP6015475 (N) SOURCE CODE: UR/0181/66/008/005/1533/1535

AUTHOR: Lebed', B. M.; Mukha, L. Ya.; Mosel', V. I.; Titova, A. G.

ORG: one

54
52
B

TITLE: Ferromagnetic resonance in a single crystal of the garnet $Bi_{0.5}Ca_{2.5}Fe_{3.75}V_{1.25}O_{12}$

SOURCE: Fizika tverdogo tela, v. 8, no. 5, 1966, 1533-1535

TOPIC TAGS: ferromagnetic resonance, single crystal structure, temperature dependence, garnet

ABSTRACT: The aim of the present work is to investigate the temperature dependence of the line width of ferromagnetic resonance ΔH on the single crystal $Bi_{0.5}Ca_{2.5}Fe_{3.75}V_{1.25}O_{12}$. The single crystals were obtained by the method of crystallization from the melt with the composition

$$28CaCO_3 \cdot 40Fe_2O_3 \cdot 6V_2O_5 \cdot 4Bi_2O_3 \text{ mol\%}$$

at a cooling rate of 2C/hr. The temperature dependence was measured on a polished spherical specimen of the single crystal in the temperature range of 4.2—630K at five fixed frequencies in the range of 495—9250Mc. It is established that the minimal width of the line $\Delta H = 0.5$ e at the frequency of 9250Mc is observed at 4.2K for the [111] direction. For direction [100] at the

Card 1/2

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L 02257-67

ACC NR: AP6015475

2

same temperature, $\Delta H = 1.3$ e. With a decrease in frequency, the anisotropy of ΔH decreases and the minimal width of the line is observed at higher temperatures. In conclusion, the authors express their gratitude to A. G. Gurevich and A. P. Erastova for interest in the work. Orig. art. has: 1 formula and 2 figures.

SUB CODE: 20/ SUBM DATE: 21Oct65/ ORIG REF: 002/ OTH REF: 003

Card 2/2 pb

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3

MUKHA, S.S., inzh.-mayor

Flow lines in the equipment operation section. Vest.Vozd.Fl. no.10:76-77 O '60. (MIRA 13:11)
(Airplanes--Maintenance and repair)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3

CHUMACHENKO, A., inzh.-polkovnik; MUKHA, S., inzh.-mayor

Detachment has received new airplanes. Av. i kosm. 45 no.11:58-62 '62. (MIRA 15:11)
(Airplanes, Military)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3

MUKHA, T.I., kandidat tekhnicheskikh nauk.

[redacted]

Productivity and endurance threshold of the crushing slabs in jaw rock crushers. Sbor. LIIZHT no.150:108-119 '56. (MLRA 9:11)
(Crushing machinery)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3

KHOTIN, B.M., dotsent, kand.tekhn.nauk; MUKHA, T.I., dotsent, kand.tekhn. nauk

All-purpose track maintenance machine for narrow-gauge tracks. Sbor. LIIZHT no.168:325-336 '60. (MIRA 13:10)
(Railroads, Narrow gauge)
(Railroads--Equipment and supplies)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3

MUKHA, T.I., dotsent, kand.tekhn.nauk

Wear of the crushing plates of jaw crushers. Sbor. LIIZHT no.168: 337-346 '60. (MIRA 13:10)

(Crushing machinery)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3

MUKHA, T.I., kand.tekhn.nauk, dotsent

Ways of increasing the operational capacity of loading tractors.
Trudy LIIZHT no.180:59-70 '61. (MIRA 15:7)
(Loading and unloading--Equipment and supplies)
(Tractors)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3

MUKHA, T.I., kand. tekhn. nauk, dotsent.

Organization of the haulage of assembled track skeletons to the laying sites. Sbor. trud. LIIZHT no.201:65-80 '63. (MIRA 17:12)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3

VEKSLER, V.M.; IGNATOVICH, A.M., prof.; MUKHA, T.I.; KUROVA, A.V., red.

[Loading and unloading, hoisting and conveying machinery] Pogruzochno-razgruzochnye i pod"emno-transportnye mashiny. Moskva, VZIIT. Pt.2. 1964. 137 p. (MIRA 18:5)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3

MIRONOV, S., doktor tekhn. nauk; KRYLOV, B., kand. tekhn. nauk; MUKHA, V., kand. tekhn. nauk; ABAKUMOV, Yu., inzh.

Improved method of sealing joints of large-panel buildings in winter. Zhil. stroi. no.9:23-25 '65. (MIRA 18:11)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3

MUKHA, V.G. (L'vov, pl. 300-letiya Vossoyedineniya, d. 2, kv. 5)

A large lipoma of the parotid salivary gland. Nov. khir. arkh. 5:120-121 S-O '58. (MIRA 2:1)

1. Kafedra obshchey khirurgii (zav. - prof. G.P. Kovtunovich) L'vovskogo meditsinskogo instituta.
(PAROTID GLANDS--TUMORS)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3

MUKHA, V.G. (L'vov, pl. 300-letiya vossoyedineniya, d. 2, kv. 5)

Clinical picture and surgical treatment of angioma of the maxillofacial region with involvement of the parotid gland [with summary in English]. Vest.khir. 81 no.12:12-13 D '58. (MIRA 12:2)

1. Iz kliniki obshchey khirurgii (zav. - prof. G.P. Kovtunovich) L'vovskogo meditsinskogo instituta.

(ANGIOMA
maxillofacial region with parotid gland metastasis, clin. picture & surg. (Rus))
(FACE, neoplasms
angioma of maxillofacial region with parotid gland metastasis, clin. picture & surg. (Rus))
(MAXILLA, neoplasms
same)
(PAROTID GLAND, neoplasms
angioma metastatic from maxillofacial area, clin. picture & surg.

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3

MUKHA, V.G., kand. med. nauk (L'vov, ul. Studentok, 6, kv.18)

Treatment of tumors of the parotid gland. Vest. khir. 92 no.6: 40-46 Je '64. (MIRA 18:5)

1. Iz 1-go khirurgicheskogo otdeleniya (nauchnyy rukovoditel' - prof. A.I. Gnatyshak) L'vovskoy oblastnoy klinicheskoy bol'nitsy.

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3

GORDIYENKO, N.A., insh.; MUKHA, V.I., insh.

Using hot water in warming up concrete aggregates in winter.
Prom.stroi. 37 no.10:43-46 O '59. (MIRA 13:2)

1. Nauchno-issledovatel'skiy institut organizatsii mekhanizatsii i tekhnicheskoy pomoshchi stroitel' stvu Akademii stroitel'stva i arkhitektury SSSR.
(Concrete--Cold weather conditions)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3

UTENKOV, V.F., kand.tekhn.nauk; BOGATYREV, I.I.; GORDIYENKO, N.A., nauchnyy sotr., inzh.; VLASOVA, M.A., nauchnyy sotr., inzh.; KOVALEVSKIY, P.I., nauchnyy sotr., inzh.; MUKHA, V.I., nauchnyy sotr., inzh.; BEREZOVSKIY, B.I., nauchnyy sotr., inzh.; Prinimal uchastiye POLOZOVAYA, N.K., tekhnik; UDOD, V.Ya., red. izd-va; SHERSTNEVA, N.V., tekhn. red.

[Handbook on winter construction work] Spravochnoe posobie po stroitel'nym rabotam v zimnee vremia. Moskva, Gosstroiizdat, 1961. 213 p. (MIRA 15:7)

1. Akademiya stroitel'stva i arkhitektury SSSR. Institut organizatsii, mekhanizatsii i tekhnicheskoy pomoshchi stroitel'stvu.

(Building--Cold weather conditions)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3

MUKHA, V.I., insh.

Thermotechnical calculation of thawing and heating of aggregates by water. Izv.ASiA 4 no.1:118-125 '62. (MIRA 15:11)
(Aggregates (Building materials))

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3

UTENKOV, V.F., kand.tekhn.nauk [deceased]; BOGATYREV, I.I., kand.tekhn. nauk; DODIN, V.Z., inzh.; GORDIYENKO, N.A., inzh.; MUKHA, V.M., inzh.; BEREZOVSKIY, B.I., inzh.; KOVALEVSKIY, P.I., inzh.; ROGOVSKIY, L.V., inzh.; SHABALINA, V.I.; PETROVA, V.V., red.izd-va; ABRAMOVA, V.M., tekhn.red.

[Temporary instructions for carrying out building and assembly operations in the Far North and in permafrost regions] Vremennye ukazaniia po proizvodstvu stroitel'no-montazhnykh rabot v usloviiakh Krainego Severa i raionov rasprostraneniia mnogoletnei merzloty. VU 2-60. Moskva, Gos.izd-vo lit-ry po stroit., arkhit. i stroit. materialam, 1960. 59 p. (MIRA 14:6)

1. Akademiya stroitel'stva i arkhitektury SSSR. Institut organizatsii, mekhanizatsii i tekhnicheskoy pomoshchi stroitel'stvu.
(Russia, Northern—Building—Cold weather conditions)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3

MUKHA, Yu.A., aspirant

Variable speed of the breaking up of trains on classification humps. Trudy DIIT no.43:118-135 '63.

(MIRA 17:11)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3

KRUGLOV, Aleksandr Ivanovich, prof.; MUKHACHEV, Aleksandr Semenovich; NECHIPORUK, L.P., red.; MAKHOVA, N.N., tekhn. red.; OKOLELOVA, Z.P., tekhn.red.

[Yaroslav cattle] IAroslavskii skot. Moskva, Sel'khozizdat, 1963. 342 p. (MIRA 16:12)

(Dairy cattle)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3

LAVRINENKO, S.; AKUTIN, V., bul'dozerist; MUKHACHEV, A., ekskavatorshchik

Advantages of preheaters for diesel engines. Stroi. truboprov. 10 no.1:35-36 Ja '65. (MIRA 18:4)

1. Stroitel'no-montazhnoye upravleniye No.8 tresta Nefteprovodmontazh, Yakutsk. 2. Glavnyy mekhanik Stroitel'no-montazhnogo upravleniya No.8 tresta Nefteprovodmontazh, Yakutsk (for Lavrinenko).

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3

VIKHREV, A.A.; MUKHACHEV, A.I.

Gondola-car for the transportation of scrap. Stal' 16 no.5:471 My '56. (MLRA 9:8)

1. Kuznetskiy metallurgicheskiy kombinat.
(Stalinsk--Railroads, Industrial)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3

ACC NR: AP6018010 (N) SOURCE CODE: UR/0413/66/000/010/0126/0126

INVENTORS: Zaytsev, M. P.; Kholopov, Yu. V.; Mukhachev, A. M.

ORG: none

TITLE: An instrument for ultrasound welding of metals. Class 49, No. 181966 [announced by All-Union Scientific Research Institute of Electric Welding Equipment (Vsesoyuznyy nauchno-issledovatel'skiy institut elektrosvarochnogo oborudovaniya)]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 10, 1966, 126

TOPIC TAGS: metal cutting, metal blade, metal cladding, welding, ultrasound welding

ABSTRACT: This Author Certificate presents an instrument for ultrasound welding of metals. The instrument contains a working tip (see Fig. 1). To increase the productivity in the process of cladding one metal with another, the working tip is provided with a cutting edge. This permits a detail to be simultaneously clad and cut out.

Card 1/2

UDC: 621.791.16.03

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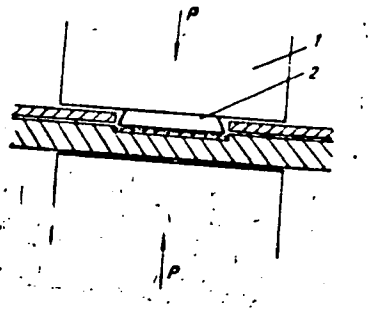
"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3

ACC NR: AP6018010

Fig. 1. 1 - working tip; 2 - cutting edge



Orig. art. has: 1 figure.

SUB CODE: 11/13 SUBM DATE: 05Oct64

Card 2/2

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3

38226. MUKHACHEV, A. S. and KOCHETKOVA, A. S.

Mezhkolkhoznyy nagul krupnogo rogatogo skota yaroslavskoy porody. Trudy Vsesoyuz. opyt. stantsii zhivotnovodstva, vyp. 1, 1949, s. 5-26

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3

188T90

MUKHACHEV, A. V.

USSR/Medicine (Vet) - Infectious Diseases Aug 51

"Prophylaxis and Treatment of Equine Infectious Anemia According to Prof G. M. Bosh'yan," A. V. Mukhachev, Sr Vet Phys, N. N. Yakimov, Chief Vet Phys of Rayon Agr Div

"Veterinariya" Vol XXVIII, No 8, pp 36, 37

By using the officially approved procedure (quarantine and disinfection), elimination of the disease could not be brought about. On the other hand, Bosh'yan's procedure, which involves use of VIEV (All-Union Inst of Vet Med) anemin for diagnosis and of VIEV vaccine, proved successful. Lasting immunity (1 yr) is conferred by VIEV vaccine.

188T90

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APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3

GLUKHOV, P.P., nauchn. sotr.; MUKHACHEV, B.I., nauchn. sotr.; TSYBYKTAROVA, D.S., nauchn. sotr.; SHARAPOV, V.S., kand. ist. nauk, glav. red.; GOVORKOV, A.A., kand. ist. nauk, red.; TUTOLMINA, O.N., kand. ist. nauk, red.; CHERNYSHEVA, V.I., red.; SHARAPOV, V.A., nauchn. sotr.; red.; SIMKHO, Kh.S., red.

[The working class' effort for the reconstruction and development of Far Eastern industry, 1922-1925; collection of documents and materials] Bor'ba rabochego klassa za vosstanovlenie i razvitie promyshlennosti Dal'nevostochnoi oblasti(1922-1925 gg.); sbornik dokumentov i materialov. Khabarovsk, Khabarovskoe knizhnoe izd-vo, 1962. 412 p. (MIRA 17:9)

1. Zaveduyushchaya arkhivnym otdelom Khabarovskogo Krayevogo ispolnitel'nogo komiteta (for Cherrysheva). 2. TSentral'nyy gosudarstvennyy arkhiv RSFSR Dal'nego Vostoka (for Sharapov).

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3

MUKHACHEV, B.N.

15

Apparatus for treating seeds with dry fungicides. B. N. MUKHACHEV. Russ. 25,231, April 30, 1932. Mechanical features.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3

MUKHACHEV, B.N.

Spring phenology of the malaria mosquito Anopheles maculipennis messeae in the vicinity of Karaganda. Izv. AN Kazakh.SSR. Serf. fiziol. i med. no.7:126-133 '56. (MLRA 9:10)
(KARAGANDA--MOSQUITOES)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3

MUKHACHEV, G. A.

MUKHACHEV, G. A.: "Investigation of a rotor-gear pneumatic engine". Kazan', 1955. Min Higher Education USSR. Kazan' Aviation Inst. (Dissertations for the Degree of Candidate of Technical Sciences)

SO: Knizhnaya letopis', No. 52, 24 December, 1955. Moscow.

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3

SOV/147-58-3-11/18

AUTHOR: Mukhachev, G.A.

TITLE: The Entropy of a Vapour-Gas Mixture with Constant Moisture Content (Entropiya parogazovoy smesi pri postoyannom vlagosoderzhanii)

PERIODICAL: Izvestiya Vysshikh Uchebnikh Zavedeniy, Aviatsionnaya Tekhnika, 1958, Nr 3, pp 89-94 (USSR)

ABSTRACT: In this paper mainly the mixture of air and water vapour is considered but similar conditions apply to such mixtures as air and fuel vapours. Changes in properties of these mixtures have important effects on performances of supersonic wind tunnels, icing of aircraft wings, vaporization of fuels in engines etc.. The equilibrium of a mixture of a gas and vapour is restricted to a relatively narrow range of temperatures and pressures. Assuming it to be an ideal gas and a simple system in accordance with Eq.1, where d - is moisture content in kg/kg; $d_п$ - is vapour content in kg/kg; $d_ж$ - is amount of liquid in the mixture per 1 kg of dry air; then in such a homogeneous system the entropy of the mixture is the sum of the entropy of the dry gas and that of the vapour as given by Eq.2. S_r and $S_п$ are

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3

The Entropy of a Vapour-Gas Mixture with Constant Moisture Content

respectively the entropy of the dry gas and the vapour, in KgCal/kg°K. The entropy of 1 kg of dry gas is given by Eq.3 and the entropy of 1 kg of dry vapour by Eq.4, while the entropy of the saturated vapour by Eq.5. The symbols used have their usual meaning and r being the latent heat of evaporation in KgCal/kg. Hence for the overheated vapour the entropy is as given by Eq.6. If the vapour is dry and saturated, its entropy is given by Eq.7. For the mixtures with liquid being present Eq.8 gives the entropy of the system, while Eq.9 gives the entropy of the liquid. Since in the presence of a liquid in the system the vapour is in a dry saturated state, the entropy of the system is given by Eq.10. The initial pressures and the temperatures of the gas and vapour may be taken as equal to each other, i.e. $p_{or} = p_{on} = p_o$; $T_{or} = T_{on} = T_o$. In addition, in the state of equilibrium, the temperature of all the components may be taken as being the same. Hence follows Eq.11, 12 and 13. Thermal processes of gas-vapour

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3

The Entropy of a Vapour-Gas Mixture with Constant Moisture Content

mixtures may be divided as follows: 1) processes without phase changes when relative moisture content $\varphi < 1$, the vapour is overheated and only in the limit becomes saturated; 2) process with phase changes, saturated vapour during the process condenses and the relative moisture content remains equal to unity.
For the closed systems the change in entropy during processes of the type (1) is given by Eq.14 which in the case of a constant concentration of the vapour reduces to Eq.15. Indices 1 and 2 in these equations denote the initial and the final states. Introducing now C_p and R for the mixture in terms of their constituents we get Eq.16. For the processes of the type (2) Eq.17 gives the change in entropy. In the reversible processes without phase changes the relevant expressions for the entropy changes are as follows: 1) v = const, Eq.18; 2) p = const, Eq.19; 3) T = const, Eq.20; 4) adiabatic processes $S_2 = S_1 \therefore \Delta S = 0$; 5) polytropic process, Eq.21. In processes with phase changes $\varphi = 1$, d = const, the weight of the gas remains constant and the amount of the vapour will diminish, consequently there will be changes

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3

The Entropy of a Vapour-Gas Mixture with Constant Moisture Content

in volume and in weight composition of the mixture. According to A.V.Bolgarsky, the change in the vapour content is given by Eq.22, where γ_r and γ_H - are the specific weights of the dry and dry saturated gas in kg/m^3 respectively. At the same time Eq.23 is satisfied. These equations allow to determine the direction of the processes. If there is no liquid present in the initial state, then the process leads towards condensation with $d_{\eta 1} = d$. If however, there is no liquid in the final state, then the process leads to evaporation and $d_{\eta 2} = d$. The corresponding expressions for the entropy

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SOV/147-58-3-11/18

The Entropy of a Vapour-Gas Mixture with Constant Moisture Content

changes in the processes with condensation and evaporation are given by Eq.24 to 34.
The paper is entirely theoretical.
There is 1 Soviet reference.

ASSOCIATION: Kazanskiy Aviatsionnyy Institut, Kafedra Teplovykh Dvigateley (Kazan Institute of Aeronautics, Chair of Heat Engines)

SUBMITTED: 27th February 1958.

Card 5/5

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3

S/124/61/000/012/012/038
D237/D304

AUTHOR: Mukhachev, G. A.

TITLE: Velocity of sound in a two-phase stream consisting of a gas, a liquid and its vapor

PERIODICAL: Referativnyy zhurnal, Mekhanika, no. 12, 1961, 27, abstract 12B139 (Tr. Kazansk. aviats. in-ta, 1959, 44, 39-44)

TEXT: The velocity of sound is calculated in a mixture composed of a gas with admixture of a volatile liquid by differentiating the adiabatic of such a mixture, obtained in the author's previous work (Izv. vyssh. uchebn. zavedeniy. Aviats. tekhn., 1958, no. 3, 89-94-RZhMekh, 1959, no. 7, 7881). An approximate numerical formula is given for the velocity of sound of such a mixture in the case when the amount of added liquid and its vapor is small. [Abstracter's note: Complete translation.]

Card 1/1

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3

17.1202
26.5500

S/147/61/000/004/015/021
E194/E135

AUTHORS: Fedorov, I.G., Shchukin, V.K., Mukhachev, G.A., and Idiatullin, N.S.

TITLE: Heat transfer and hydraulic resistance of channels with pressed spherical projections

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Aviatsionnaya tekhnika, no.4, 1961, 120-127

TEXT: Plate type heat exchangers are particularly suitable for aviation because of their small size and weight. Sheets with pressed projections are particularly useful because the projections increase the strength and improve the cooling. V.G. Fastovskiy and Yu.F. Petrovskiy (Ref.4: Teploenergetika, no.1, 1959) made an experimental study of a heat exchanger in which the rectangular ducts had spherical projections on the air side and hollows on the steam side. The work showed that the heat transfer coefficient of such surfaces was greater by a factor of 2.5-2.8 than for smooth surfaces. The improvement is attributed to increased turbulence of the flow. The work described here was

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carried out on rectangular ducts consisting of two plates with spherical projections. The projections were of various transverse pitch and were located both in honeycomb and straight line order. The main characteristics of the ducts are given in the table. The relationship Nu = f(Re) was investigated in the range of Reynolds numbers 1000 to 16500, and ξ = f(Re) in the range Re = 500 to 18000. The experimental rig is described. The water sides of the heat exchangers were filled to one third of their height with distilled water and electric heaters were installed to evaporate the water. The water vapour condensing on cooling surfaces gives up its latent heat of vapourisation to a flow of air passing through the ducts of the heat exchanger. The usual measurement arrangements were made. Each of the four bundles described in the table was investigated under about twenty conditions with different rates of air flow covering the Reynolds number range from 500 to 18000; in each case the measurements were repeated after 15-20 minutes. A procedure was worked out and the operation of the equipment was checked by using a smooth-walled plate-type heat exchanger. Further tests

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showed that the heat balance error calculated from the input to the internal heater and from the change in enthalpy of the cooling air is about 6-10%. The r.m.s. error of the determination of air flow, and of the Re and Nu numbers and of the resistance coefficient are, respectively, 2.2, 2.5, 4.5 and 5%. Heat transfer results are well represented by the following equations.

With honeycomb arrangement:

$$Nu_f = 0.54 \times 10^{-4} Re_f^{1.55} \quad (Re = 1000\text{-}2300), \qquad (3)$$

$$Nu_f = 0.95 \times 10^{-3} Re_f^{1.17} \quad (Re = 2300\text{-}10000), \qquad (4)$$

$$Nu_f = 0.0276 Re_f^{0.8} \quad (Re = 10000\text{-}16500). \qquad (5)$$

With the In-Line arrangement:

$$Nu_f = 0.44 \times 10^{-4} Re_f^{1.55} \quad (Re = 1000\text{-}2300), \qquad (6)$$

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$$Nu_f = 0.8 \times 10^{-3}\ Re_f^{1.17} \quad (Re = 2300\text{-}10000), \qquad (7)$$

$$Nu_f = 0.0248\ Re_f^{0.8} \quad (Re = 10000\text{-}16500). \qquad (8)$$

The results show that for given values of the Reynolds number the Nu criterion is 15-20% higher in bundles with honeycomb arrangement of projections than those with the in-line arrangement. The Nu criterion of the bundles is greater by a factor of 2.1-1.65 than the Nu criteria for a bundle of flat sheets in the Re number range 2500-16500. These results are not entirely in line with those given in Ref.4, and the reasons for this are discussed. The following expressions adequately represent the results of resistance tests:

$$\xi = \frac{A}{(Re_f^{0.30})} \quad (Re = 500\text{-}2300), \qquad (9)$$

$$\xi = \frac{B}{Re_f^{0.089}} \quad (Re = 2300\text{-}18000). \qquad (10)$$

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The values of the coefficients A and B in Eqs (9) and (10) are given in the table. The results show that ducts with spherical projection have higher resistance than do smooth ducts, the actual amount depending upon the pitch and arrangement of the projections. There are 3 figures and 1 table.

ASSOCIATION: Kafedra teplovykh dvigateley, Kazanskiy aviatsionnyy institut (Department of Heat Engines, Kazan' Aviation Institute)

SUBMITTED: March 10, 1961

Key to Table Headings: (1) Number of bundle; (2) Arrangement of projections; (3) Shape of duct; (4) Length of bundle, mm; (5) Height of bundle, mm; (6) Equivalent diameter $d_{эк}$ mm; (7) Transverse pitch S_1, mm; (8) Longitudinal pitch S_2, mm; (9) Coefficient A; (10) Coefficient B.

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3

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E194/E454

constant wall temperature of 110°C with an inlet air temperature of 22 to 23.5°C and a discharge air temperature ranging from 91 to 106°C, the mean air pressure in the duct was 1.01 to 1.23 kg/cm^2, the air flow 2 to 92 kg/hour and the specific thermal loading (0.18 to 11.6) x 10^3 kcal/m^2 hour. The difference between the heat input to the heaters and the heat gained by the air was 6 to 10%. The methods used to check the equipment are described. For all the investigated ducts the experimental points lie within ± 6% of three straight lines of various slopes. The following equation applies for Reynolds numbers Re = 750 to 2500

$$Nu_f = 0.155 \times 10^{-3}\ Re_f^{1.41} \quad (1)$$

for Re = 2500 to 10000

$$Nu_f = 1.017 \times 10^{-3}\ Re_f^{1.17} \quad (2)$$

and for Re = 10000 to 18000

$$Nu_f = 0.0315\ Re_f^{0.8} \quad (3)$$

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3

For Reynolds numbers of 2000, 4000 and in the range from 10000 to 18000 the Nusselt criterion for ducts with conical indentations is greater than for a smooth duct by 2.0, 1.62 and 1.75 times respectively. The surface increase caused by the indentations ranges from 5 to 10% so the main cause of greater heat exchange with indentations is increased turbulence of flow. The resistance of the ducts was measured under both isothermal and nonisothermal conditions and the results are given in the form of empirical formulae with constants tabulated for ducts of different shape and pitch. There are 3 figures and 1 table.

ASSOCIATION: Kazanskiy aviatsionnyy institut
(Kazan' Aviation Institute)

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3

L 16496-65 EWT(1)/EWT(m) AEDC(b)/ASD(p)-3/AFTC(a) JW/JD
ACCESSION NR: AR4049368 S/0285/64/000/009/0019/0019

SOURCE: Ref. zh. Turbostroyeniye. Otdel'ny*y vy*pusk, Abs. 9.49.95

AUTHOR: Mukhachev, G.A.

TITLE: Work of a gas-vapor mixture in a two-phase system

CITED SOURCE: Tr. Kazansk. aviats. in-ta, vy*p. 76, 1963, 36-42

TOPIC TAGS: gas turbine, gas-vapor system, external work calculation, balanced evaporation process, balanced condensation process

TRANSLATION: An expression is evolved for the operation of a two-phase system consisting of a dry gas, a saturated vapor and a fluid. The evolved expression is applied to calculations of external work in isobaric, isothermic, adiabatic and polytropic processes. It is noted that the work performed by a gas in processes involving phase conversions consists of work performed by the dry gas and by the vapor. This is true even in processes where the magnitudes characterizing a change in vapor content do not enter into consideration, since a temperature variation in balanced condensation or evaporation processes is related to changes in the volume of the entire mixture. A. Dobry*nin

Card 1/2

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3

L 16496-65

ACCESSION NR: AR4049368

SUB CODE: ME, PR ENCL: 00

Card 2/2

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3

L 20709-66 EWT(1)/EWT(m)/ETC(f)/EWG(m)/EWP(j)/T/ETC(m)-6 JD/WW/JW/RM

ACC NR: AT6007555 UR/2529/63/000/076/0036/0042

AUTHOR: Mukhachev, G.A.

ORG: Kazan Aviation Institute, Kazan (Kazanskiy aviatsionnyy institut)

TITLE: The work of a vapor-gas mixture in a two-phase system

SOURCE: Kazan. Aviatsionnyy institut. Trudy, no. 76, 1963. Aviatsionnyye dvigateli (Aircraft engines), 36-42

TOPIC TAGS: thermodynamic process

ABSTRACT: The energy delivered by a unit mass of a gas-vapor mixture of a two-phase system in a thermodynamic process involving phase transformations was investigated. Starting with the general relation for the work, L, delivered between states 1 and 2:

$$L = \int_1^2 P.dV \quad \text{[Joules per Kg of mixture]} \qquad (1),$$

expressions for the energy delivered by unit mass of mixture in isobaric, isothermal, adiabatic and polytropic processes were developed. It was concluded that this energy is always the sum of energies delivered by the dry gas and by the vapor. This is true even for processes containing no specific parameters describing relative content changes. Orig art. has: 25 formulas.

SUB CODE: 20, 10 SUBM DATE: 12Feb61 ORIG REF: 003 OTH REF: 000

Card 1/1 BK

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3

L 20710-66 EWT(1)/EWT(m)/EPF(n)-2/EWP(j)/T/ETC(m)-6 JD/WW/JW/RM

ACC NR: AT6007556 UR/2529/63/000/076/0043/0049

AUTHOR: Mukhachev, G.A.

ORG: Kazan Aeronautical Institute, Kazan (Kazanskiy aviatsionnyy institut)

45

B+1

TITLE: Internal energy, enthalpy and heat capacity of a vapor-gas mixture in the presence of phase transformations

SOURCE: Kazan. Aviatsionnyy institut. Trudy, no. 76, 1963. Aviatsionnyye dvigateli (Aircraft engines), 43-49

TOPIC TAGS: thermodynamic process

ABSTRACT: A two-phase system comprised of dry gas, vapor and liquid was considered with the aim of deriving expressions for the isochoric (constant volume), and isobaric specific heats of the mixture. The interaction energy of the components was neglected, and ideal gas laws and a negligible relative volume of the liquid under the pressure of its saturated vapor were assumed. Expressions for the differentials of enthalpy and internal energy of the system lead, by suitable differentiation, to the desired expressions for the specific heat capacities. It is also shown that under the assumed conditions $c_p - c_v = R$, i.e. the gas-vapor mixture obeys the Mayer law. The results can be used for the determination of heat quantities in processes accompanied by evaporation and condensation. Orig. art. has: 35 formulas.

SUB CODE: 20 SUBM DATE: 11Jan61 ORIG REF: 002 OTH REF: 000

Card 1/1 BK

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3

S/147/63/000/001/010/020
E031/E181

AUTHOR: Mukhachev, G.A.

TITLE: The polytropic process in a gas and steam mixture in the presence of phase changes

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Aviatsionnaya tekhnika, no.1, 1963, 89-95

TEXT: The equation expressing the first law of thermodynamics for a gas and steam mixture is considered for the following situation: when a mixture of dry gas and steam is heated or expanded, the steam becomes superheated; when the mixture is cooled or compressed the steam becomes saturated and eventually begins to condense. The mixture then consists of dry gas, saturated steam and liquid. In both cases the air and water vapor are assumed to be ideal gases and it is further assumed that the condensed phase is in heat and kinetic equilibrium with the steam. Relations are found between the parameters of the mixture. For the isothermal, the constant volume and the constant pressure processes, expressions are given for the quantity of heat supplied to the mixture and for the quantity of condensed liquid. For the

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The polytropic process in a gas ... S/147/63/000/001/010/020
E031/E181

adiabatic case, only the latter expression is given.

SUBMITTED: December 28, 1961

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APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3

MUKHACHEV, G.A., kand. tekhn. nauk; BORODIN, V.A., inzh.; POSKONIN, Yu.A., inzh.

I-s diagram for water vapor at low temperatures and pressures. Teploenergetika 10 no.10:89-92 O'63 (MIRA 17:7)

1. Kazanskiy aviatsionnyy institut.

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3

BOLGARSKIY, Andrey Vladimirovich, prof.; MUKHACHEV, Gennadiy Alekseyevich, dots.; SHCHUKIN, Viktor Konstantinovich, dots.; SAMSONOVA, M.T., red.

[Thermodynamics and heat transfer] Termodinamika i teploperedacha. Moskva, Vysshaia shkola, 1964. 457 p. (MIRA 17:7)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3

L 17607-65 EWT(1)/EWT(m)/EPF(c)/EPF(n)-2/EPR/EWP(j)/T/EPA(bb)-2/EWA(1) Pc-4/
Pr-4/Ps-4/Pi-4/Pu-4 RPL/ASD(f)-2/AS(mp)-2/AEDC(a)/AFWL/SSD/BSD/AFETR JD/WW/
JW/MLK/RM S/
ACCESSION NR AM4046716 BOOK EXPLOITATION

Bolgarskiy, Andrey Vladimirovich (Professor); Mukhachev, Gennadiy Alekseyevich (Docent); Shchukin, Viktor Konstantinovich (Docent)

Thermodynamics and heat transfer (Termodinamika i teploperedacha), Moscow, "Vysshaya shkola", 1964, 457 p. illus., biblio., tables. 9,500 copies printed.

TOPIC TAGS: thermodynamics, heat transfer

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APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3"

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L 17607-65

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SUB CODE:TD SUBMITTED: 05Jun64 NR REF SOV: 048

OTHER: 018

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APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3

L 33769-66 EWT(1)/EWT(m) JD

ACC NR: AR6014921 SOURCE CODE: UR/0124/65/000/011/B049/B049

AUTHOR: Mukhachev, G. A.

TITLE: Changes in the state of vapor-gas mixture during mixing and humidifying

SOURCE: Ref. zh. Mekhanika, Abs. 11B324

REF SOURCE: Tr. Kazansk, aviats. in-ta, vyp. 86, 1964, 15-27

TOPIC TAGS: gas, perfect gas, gas analysis, moisture measurement, stoichiometric mixture

ABSTRACT: Assuming that the vapor-gas mixture consists of a single dry gas and vapor thus complying with the law of a perfect gas, the following cases of mixing and humidifying were studied: 1) mixing gas-vapor mixtures at a constant volume; 2) mixing gas-vapor mixtures in a flow; 3) mixing during filling; 4) humidifying gas-vapor mixture under constant pressure; 5) humidifying at constant volume. The relationships found permit calculating analytically the mixing and humidifying processes occuring most often in practice. I. S. Simonov

SUB CODE: 20 SUBM DATE: none

Card 1/1

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3

MUKHACHEV, G.A., kand. tekhn. nauk; POSKONIN, Yu.A., inzh.

The i-s diagram of a vapor and air mixture in the region of low temperatures and pressures. Teploenergetika 11 no.6:93-95 Je '64. (MIRA 18:7)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3

L 50508-65 EWT(1)/EWP(m)/EPR/FCS(k) Pd-1/Pl-4 WW

UR/0147/65/000/002/0110/0114

ACCESSION NR: AP5012092

26

B

AUTHOR: Mukhachev, G.A.

TITLE: The problem of the transition of matter through the boundary state

SOURCE: IVUZ. Aviatsionnaya tekhnika, no. 2, 1965, 110-114

TOPIC TAGS: gas dynamics, thermodynamic balance, kinetic theory, boundary state, phase transition

ABSTRACT: The author considers the problem of the change in state of a gas when a condensed phase is present, as well as the character of the changes in its parameters during phase transitions. The initial part of the paper is a concise review and symmary of the views of twelve different authors (including a number of eminent Soviet scientists of the stature of L. Landau and Ye. Lifshits) on such matters as the transition of a single-component medium through the boundary curves of its thermal capacitance, isochor heat capacitance discontinuity, first-order phase transitions and other related problems of gas dynamics. The hypothesis of a stable equilibrium between liquid and vapor with a flat interface between phases is examined. The dispersion theory and the hypothesis of super cooled and super heated phases are also discussed. The first

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ACCESSION NR: AP5012092

law of thermodynamics is written for a system in which surface tension forces are operative, and equations are derived for a closed system in thermodynamic balance. An inequality is obtained which leads to a heat capacitance discontinuity which may exist only in the case of a curvilinear phase interface (formation of a new surface). It is demonstrated in the article that the transition through boundary curves is in fact a phase transition of the first order, in which the heat required for the formation of an interface is brought forward and there is a change in volume corresponding to a definite stage in the super cooling or super heating of the gaseous or liquid phases. Orig. art. has: 18 formulas.

ASSOCIATION: none

SUBMITTED: 23Nov63 ENCL: 00 SUB CODE: ME, GP

NO REF SOV: 012 OTHER: 001

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APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3

DRESVYANNIKOV, F.N. (Kazan'); MUKHACHEV, G.A. (Kazan')

Some methods for processing the heat conductivity coefficients of dissociating gases. PMTF no.2:116-118 Mr-Ap '65. (MIRA 18:7)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3

MUKHACHEV, G.A.; BORODIN, V.A.; [illegible]KONIN, Yu.A.

Temperature dependence of the thermal and caloric parameters of mercury. Zhur. fiz. khim. 39 no.8:2033-2036 Ag '65. (MIRA [illegible])

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3

ACC NR: AR7004034 SOURCE CODE: UR/0081/66/000/022/B061/B061

AUTHOR: Dresvyannikov, F. N.; Mukhachev, G. A.

TITLE: Experimental measurement of the thermal conductivity of dissociating nitrogen tetroxide

SOURCE: Ref. zh. Khimiya, Part I. Abs. 22B444

REF SOURCE: Sb. Materialy 2-y Konferentsii molodykh nauchn. rabotn. Kazani. Sekts. fiz.-tekhnol. i mekhan.-matem. Kazan', 1965, 234-242

TOPIC TAGS: nitrogen tetroxide, heat conductivity

ABSTRACT:

The thermal conductivity of the dissociating system $N_2O_4 \rightleftarrows 2NO_2 \rightleftarrows 2NO + O_2$ has been measured at 30—60C and 200—760 mm Hg by a method involving a heated platinum wire. It was found that in the 200—760 mm Hg range, the thermal conductivity of N_2O_4 is independent of pressure. The experimental results were in good agreement with theoretical calculations carried out on the assumption that the mixture is in a state of "frozen" equilibrium.

SUB CODE: 20, 07/ SUBM DATE: none

Card 1/1

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3

MUKHACHEV, P.A.

25667

Printsip Barsho i Vozmozhnosti ego ispol'zovanir v Klimaticheskikh usloviyakh SSSR, Izvestiya tomskogo politekhn. in-ta im. Kipova, T. LXVI, VYP. 2, 1948, S. 57-67

SO: LETOPIS' No. 34

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3

BERSENEV, V.S.; Prinimali uchastiye: ZINEVICH, V.D.; MOROZOV, V.I.; MUKHACHEV, V.S.; KAPRALOV, Ye.P.; KOLCHANOV, V.D.; BOGDANOV, A.V.; OBUKHOVICH, I.I.; OSTROZHINSKIY, A.I.; KHROMOV, M.I.; SIVOCHUB, A.A.

Breaking a solid body with a high-pressure water jet. Zap. LGI 41 no.1:44-51 '59. (MIRA 16:5)

(Jets--Fluid dynamics)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3

MUKHACHEV, YE. F.

GUZEVICH, Yu.D.; MUKHACHEV, Ye.F.

Device for registering displacements. Zav.lab. 22 no.10:1258-1259 '56. (MLRA 10:5)

1.Nauchno-issledovatel'skiy institut mostov.
(Oscillograph)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3

MUKHACHEV, Yu.A., inzh.

Renovating tracklaying rollers and rolls by wear-resistant build-up welding. Transp. stroi. 15 no.7:29-30 Jl '65. (MIRA 18:7)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3

FILATOVA, T.N.; MUKHACHEVA, I.A.

Studies of currents in inland bodies of water based on the example of the Tsimlyansk Reservoir. Trudy GGI no.113:82-118 '64. (MIRA 17:11)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3

MUKHACHEVA, O.A.

Chemical Abst.
Vol. 48 No. 8
Apr. 25, 1954
Organic Chemistry

5

(3)

Some esters of alkanethiophosphonic, alkanesetonophosphonic, dialkylphosphinic, and alkanophosphonous acids and the mechanism of addition reactions to these esters. A. I. Razumov, O. A. Mukhacheva, and Sien-Do-Khen. *Bull. acad. sci. U.S.S.R., Classe sci. chim.* 1952, 797-802 (Engl. translation). See *C.A.* 47, 10466c. H. L. H.

9-28-54

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3

MUKHACHEVA, O. A.

6

3

Esters of alkylphosphonous acids and some of their properties. A. I. Razumov, O. A. Mukhacheva, and Sim-Do-Khen. *Trudy Kazan. Khim.-Tekhnol. Inst. im. S. M. Kirova* 1952, No. 17, 151-62.—Cadmium-org. synthesis (cf. Fox, *C.A.* 45, 2854a) with 18.22 g. Mg, 110 g. CdI_2, 113 g. iso-BuBr, and 130 g. PCl_3 gave 26% *iso-BuPCl₂*, b_{12} 48.5-9.0°, d_0^{20} 1.172, n_D^{20} 1.4719. This (30 g.) added slowly to 28 g. iso-BuOH and 30 g. pyridine in dry Et_2O gave 85% *iso-BuP(OCH₂CHMe₂)₂* (I), $b_{12.5}$ 105.5-7.5°, d_0^{20} 0.8677, n_D^{20} 1.4290, which readily added Br in the cold, treatment of the ester with Cu_2Br_2 gave a sirupy adduct with evolution of heat. The ester treated with S in C_6H_6 gave a vigorous reaction and yielded 100% *iso-BuP(S)(OCH₂CHMe₂)₂*, b_{12} 135-6.5°, d_0^{20} 0.9865, d_0^{20} 0.9036, n_D^{20} 1.4480, which hydrolyzed with hot concd. HCl to a waxy solid. I reacted readily with Se, and after 1 hr. on a steam bath yielded over 80% *iso-BuP(Se)(OCH₂CHMe₂)₂*, b_{14} 144-6°, d_0^{20} 1.084, n_D^{20} 1.4571. Heating 12 g. I and 9 g. iso-BuI in sealed tube 3 hrs. at 100° gave 80% *(iso-Bu)₂P(O)(OCH₂CHMe₂)*, b_3 99-102°, d_0^{21} 0.9151, n_D^{21} 1.4311, which hydrolyzed with concd. HCl in 3 hrs. at 150-60° to a waxy acid. Reaction of PCl_3 with Et_4Pb gave *EtPCl₂*, b. 112-13°, d_0^{20} 1.2503, n_D^{20} 1.4938. This with EtOH and pyridine in Et_2O gave 60% *EtP(OEt)₂* (II), b. 137-9°, d_0^{20} 0.9064, n_D^{20} 1.4222, which readily oxidized in air and added Br; with Cu_2Br_2 it yielded a cryst. adduct. Treatment of the ester with S in CO_2 atm. in dry C_6H_6 below 60° gave 80% *EtP(S)(OEt)₂*, b_{12} 86.5-7°, d_0^{20} 1.0349, n_D^{20} 1.4617, which hydrolyzed with HCl to a waxy acid. The reaction of 15 g. II with 15.5 g. EtI in sealed tube at 70° gave in 2 hrs. 64.5% *Et₂P(O)OEt*, b_{14} 91-2°, d_0^{20} 0.9964, n_D^{20} 1.4301.

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RAZUMOV, A.I.; MUKHACHEVA, O.A.

Addn. of 5.5 g. S at once to 22 g. $BtPCl_2$ under CO_2 or N, followed by heating to 112°, and brief cooling and further addn. of 0.6 g. $AlCl_3$ and 0.2 g. S, caused a vigorous reaction (temp. rise to 150° and after heating 2 hrs., finally to 172°) and gave 80% $BtPSCl_2$, b_{10} 83.5°, d_4^{20} 1.3550, n_D^{20} 1.5413, which did not react with water at room temp., while with EtOH and pyridine in xylene or, better, with EtONa in EtOH it gave $BtP(S)(OEt)_2$ identical with the above specimen. Reaction of 15 g. II with 7.0 g. Se was spontaneous and yielded 76% $BtP(Se)(OEt)_2$, b_{10} 97.5°, d_4^{20} 1.2743, n_D^{20} 1.4872. Cd-org. synthesis gave, similarly, 40% Bu_2PCl, b. 150-7°, d_4^{20} 1.1053, n_D^{20} 1.4858. G. M. K.

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3

MUKHACHEVA, O.A.

7 7

Alkyl esters of diethylphosphinic acid. II. A. I. Razumov and O. A. Mukhacheva. *Trudy Kazan. Khim.-Tekhnol. Instituta* [illegible] 1953, No. 18, 42-7; cf. *C.A.* 47, 10466c.—Addn. of 20 g. Et_2POCl to an ice-cooled mixt. of 4.5 g. MeOH, 11.2 g. pyridine, and 6 vols. Et_2O followed by stirring 1 hr. at room temp. and 1 hr. at reflux gave after removal of amine salts 65% $Et_2PO(OMe)$, b_{12} 86-6.2°, d_4^{20} 1.0261, n_D^{20} 1.4393. Similarly were prepd. [illegible] and n_D^{20} given). 50% $Et_2PO(OPr)$, b_{12} 103-4°, 0.9918, [illegible] $Et_2PO(OCH_2CHMe_2)$, b_{12} 112°, 0.9530, 1.4355, [illegible] $Et_2PO(OC_6H_{11})$, b_{12} 141-2.5°, 0.9431, 1.4420, 68% $Et_2PO(OC_6H_{11})$, b_{12} 129-30°, 0.9364, 1.4440, [illegible] [illegible] 0.9398, 1.4460. All the above esters [illegible] in org. solvents and in H_2O. Isomerization of Et_2POEt gave 65% $Et_2PO(OEt)$, b_{12} 91-2°, 0.9964, 1.4337.

G. M. Kosolapoff

Evaluation B-3,075,646

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3

Mukhacheva, O.A.

Simplest esters of diethylphosphinic acid. A. I. Razumov and O. A. Mukhacheva (S. M. Kirov Chem. Technol. Inst., Kazan). Doklady Akad. Nauk S.S.S.R. 91, 271-2(1953). C.A. 40, 3411[4]; 47, 10400c.—Isomerization of $EtP(OEt)_2$ gave 65% $Et_2P(O)OEt$, b_{12} 91-2°, d_0^{20} 0.9964, n_D^{20} 1.4337, converted to $Et_2P(O)Cl$ which with RONa or ROH gave the following esters, $Et_2P(O)OR$ (R, % yield, b.p./mm., d_0^{20}, and n_D^{20} shown): Me, 35, 86°/12, 1.0261, 1.4302; Pr, 50, 103-4°/13, 0.9916, 1.4350; iso-Pr, 50, 93.5°/14, 0.9[illegible], 1.4337; Bu, 63/115°, 12, 0.9590, 1.4375; iso-Bu, 79, 11[illegible], 0.9530, 1.4355; C_6H_{13}, 49, 141-2.5°/13, 0.9431, [illegible]; C_7H_{15}, 68, 120-30°/4, 0.9364, 1.4440; and C_8H_{17}, 78, 125-6°/1.25, 0.9306, 1.445. The esters are sol. in H_2O, EtOH, and Et_2O. It is stated that these are the 1st examples of esters of dialkylphosphinic acids; however, cf. Watson and Kosolapoff, C.A. 46, 1962ah. G. M. Kosolapoff

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3

Mukhachova, O. A.

Distr: 4E4j

Ethyl p-nitrophenyl ester of ethylphosphinic acid (Armine), its homologs and analogs. A. I. Razumov, B. A. Markovich, and O. A. Mukhachova. U.S.S.R. 103,034, June 26, 1956. The title compds. are obtained by isomerization of phosphites in the presence of a small quantity of already isomerized phosphite followed by chlorination of the resulting product with PCl_5. The last step is carried out in a greatly dild. soln. in an inert solvent, such as CCl_4. Finally, the halide is exchanged for a p-nitrophenyl or other similar group. M. Hoseh

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3

MUKHACHEVA, O. A.

MUKHACHEVA, O. A. --"The Synthesis and Study of the Properties and Derivatives of Alkylphosphinic and Dialkylphosphinic Acids." Min Higher Education USSR. Kazan', 1956. (Dissertation for the Degree of Candidate in Chemical Sciences).

So: Knizhnaya letopis', No 8, 1956, pp 97-103

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3

MUKHACHOVA, O.

E-2

USSR/ Organic Chemistry - Synthetic organic chemistry

Abs Jour : Referat Zhur - Khimiya, No 4, 1957, 11793

Author : Razumov A., Mukhachova O.

Title : Investigations of Derivatives of Alkyl Phosphinous and Dialkyl Phosphinic Acids. III. On Atomic Refraction of Phosphorus in Esters of Alkyl Phosphinous Acids.

Orig Pub : Zh. obshch. khimii, 1956, 26, No 5, 1436-1440

Abstract : Determined was a regularity in changes of atomic refraction of phosphorus on transition from alkyl esters if trivalent phosphorus to phophines. Each replacement of OR group by R causes an increase in atomic refraction of phosphorus by 0.7. Values of AR_D are given for the following types of compounds: $(RO)_3PO$ 3.75, $(RO)_2P(O)R$ 4.27, $ROP(O)R_2$ 4.79, $(RO)_3P$ 7.04, $(RO_2)PR'$ 7.74 (I), $ROPR_2$ 8.44, PR_3 9.14. Synthesized were the following I, from $R'PCl_2$ and alcohols in the presence of pyridine (listing the values of R', R, yield in %, BP in °C/mm, $n^{20}D$, d_4^{20}): n-C_3H_7, C_2H_5, 64, 52-53/12, 1.4275, 0.9029; n-C_3H_7, 74, 81-82/11,

Card 1/2

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MUKHACHEVA, O.A., RAZUMOV, A.I., MARKOVICH, YE.A. (Kazan Chem. Tech. Inst. im. S.M. Kirov)

"Biologically Active Alkylated Amido-Esters and Compound Esters of Alkylphosphinic Acids" (Biologicheski aktivnyye alkilirovannyye amidoOefiry i smeshannyye efery alkilfosfinovykh kislot) (Work carried out 1945-1950)

Chemistry and Uses of Organophosphorous Compounds (Khimiya i primeneniye fosfororganicheskikh soyedneniy), Trudy of First Conference, 8-10 December 1955, Kazan, pp. Published by Kazan Affil. AS USSR, 1957 194-204.

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3

MUKHACHEVA, O.

USSR/Organic Chemistry. Synthetic Organic Chemistry. E-2

Abs Jour: Ref Zhur - Khimiya, No. 8, 1957, 26894.

Author : Razumov, A.; Mukhacheva, O.
Inst :
Title : Research in Series of Derivatives of Alkylphosphinous and Dialkylphosphinous Acids. VI. Reactions of Addition and Isomerization of Esters of Alkylphosphinous Acids.

Orig Pub: Zh. obshch. khimii, 1956, 26, No. 9, 2463 - 2468.

Abstract: $RP(S)(OR')_2$ (II) or $RP(Se)(OR')_2$ (III) were prepared by addition of S or Se to $RP(OR')_2$ (I). They isomerize into $R_2P(O)OR$ at the action of RI on I (R = R'. R, R', yield in %, boiling point in °C/mm, $n^{20}D$ and d_4^{20} are enumerated:

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MUKHACHEVA, O. A., RAZUMOV, A. I., and ZAIKONNIKOVA, I.V. (S.M. Kirov Chemical Technological Institute, Kazan, and the Kazan Medical Institute)

"Esters of Alkylphosphonous and Dialkylphosphinic Acids and Their Biological Activity," Khimiya i Premenenie Fosfororganicheskikh Soedinenii (Chemistry and Applications of Organophosphonous Compounds) pp 205-217, 1957.

SO: A-3,091,280 full translation

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3

MUKHACHEVA, O.A.

RAZUMOV, A.I.; MUKHACHEVA, O.A.; ZAIKONNIKOVA, I.V.

Studies on alkylphosphinic and dialkylphosphinic acid series. Part 5. Dialkylphosphinic acid esters and amides and their biological activity. Zhur. ob. khim. 27 no.3:754-757 Mr '57. (MIRA 10:6)

1. Kazanskiy khimiko-tekhnologicheskiy institut i Kazanskiy gosudarstvennyy meditsinskiy institut.
(Phosphinic acid) (Anticholinesterase)

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MUKHACHEVA, O.A.

4E4j/4E2c(j)/
4E3d

Derivatives of alkylphosphonous and phosphonic acids. VI. Halides and alkylated amides of alkyl(alkoxy)phosphonic acids. A. I. Razumov, O. A. Mukhacheva, and S. A. Markovich (Chem. Technol. Inst., Kazan). *Zhur. Obshchei Khim.* 27, 2389-94(1957); cf. *C.A.* 51, 16332f; U.S.S.R. 102,461.—To 139 g. $EtP(O)(OEt)_2$ in 2 l. CCl_4 was added with stirring in small portions 176 g. PCl_5 over 14 hrs. at 26-9°; after stirring 1 hr. the mixt. was distd. *in vacuo* yielding the following: 80% $EtP(O)(OEt)Cl$, b_{10} 73-4°, d_{20} 1.1631, n_D^{20} 1.4338; 60% $EtP(O)(OPr)Cl$, b_{11-12} 85-7°, 1.1303, 1.4400; 45% $EtP(O)(Pr\text{-}iso)Cl$, b_{9-8} 76.5-8.5°, 1.1033, 1.4206; 70% $EtP(O)(OBu)Cl$, b_{14-15} 100-2°, 1.0993, 1.4395; 70% $EtP(O)(OBu\text{-}iso)Cl$, b_{12-8} 98-9.5°, 1.0398, 1.4355; 60% $MeP(O)(OPr\text{-}iso)Cl$, b_{9-8} 36-7°, 1.2924, 1.4340. In the prepn. of the iso-Pr ester of $EtPO_2H_2$ a difficulty was encountered in both usual methods of synthesis: the Arbuzov reaction gave a contamination of iso-$PrP(O)(OPr\text{-}iso)_2$ from iso-PrI reaction, while the Michaelis reaction gave only the salts, rather than the desired ester. The necessary $EtP(O)(OPr\text{-}iso)_2$, b_{12} 88-90°, 0.9764, 1.4120, was finally prepd. by oxidation of the $EtP(OPr\text{-}iso)_2$ by an unstated method. The chloroesters above are readily hydrolyzed by atm. moisture; with H_2O in the presence of a base they yield the corresponding pyrophosphonates on heating they decomp. to RCl and RPO. The ester chlorides (1 mole) treated with 2 moles of an amine in Et_2O at [illegible] gave after filtration and distn. the following amide esters, most of which are sol. in H_2O: 58% $EtP(O)(OMe)NEt_2$, b_4 87-7.5°, 1.0048, 1.4381; 50% $EtP(O)(OEt)NEt_2$, b_{9-8} 98-8.5°, 0.9806, 1.4355; 33% $EtP(O)(OPr)NEt_2$, b_7 98-9°, 0.9783, 1.4368; 46% $EtP(O)(OPr\text{-}iso)NEt_2$, b_{9-8} 87-8.5°, 0.9650, 1.4381; 76% $EtP(O)(OBu)NEt_2$, [illegible] 0.9[illegible], 1.4[illegible]; 12% $EtP(O)(OC_6H_{11})NEt_2$, b_{4-5} 116.5-8°.

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A. I. RALUMOV, D. A. MUKHACHEVA

0.9425, 1.4417; 16% $EtP(O)(OC_6H_{11})NEt_2$, $b_{0.5}$ 118–20.5°, 1.0066, 1.4630; 25% $EtP(O)(OCH_2Ph)NEt_2$, b_1 162–3°, 1.0554, 1.4975; 27% $EtP(O)(OEt)NHEt$, $b_{2.5}$ 111.5–12°, 1.0232, 1.4380; 73% $EtP(O)(OBu\text{-}iso)NHEt$, b_1 129–9.5°, 0.9749, 1.4358; 76% $EtP(O)(OEt)NMe_2$, $b_{0.5}$ 63–4°, 1.0100, 1.4305; 60% $EtP(O)(OEt)N(CH_2)_2$, $b_{1.4}$ 89–92°, 1.0752, 1.4488 (a 2:1 mole mixt. of reactants); 52% $EtP(O)(OEt)NHCH_2CH_2Cl$, $b_{0.5}$ 144–6°, [illegible] an equimolar mixt.); [illegible] 153–4°, 0.9594, 1.4530; [illegible] $b_{0.5}$ 172.5°, 1.1861, 1.5309; 52% $EtP(O)(SEt)NEt_2$, b_1 108–8°, 1.0297, 1.4602. Also were prepd.: 50% $MeP(O)(OMe)NEt_2$, $b_{0.5}$ 71–4°, 1.0214, 1.4355; [illegible] $MeP(O)(OEt)NEt_2$, $b_{1.4}$ 77–9°, 0.9944, 1.4350; 41% $MeP(O)(OPr\text{-}iso)NEt_2$, $b_{0.1}$ 80–1.5°, 1.0763, 1.4395; 57% $iso\text{-}PrP(O)(OEt)NEt_2$, $b_{0.4}$ 74.5–5°, 0.9709, 1.4360. The amides are readily hydrolyzed, especially in acid solns., and treatment with dil. HCl yields the appropriate pyrophosphonate. The ester amides are biologically active and *inhibit cholinesterase* to the extent of 50% at concns. of 1.5×10^{-8}; with this property, however, their toxicity is low and LD_{50} intravenously for mice ranges from 2.5 to 1308 mg./kg. Most of the ester amides produce myosis which may last up to 50 days in cats and humans. Most of the amides are sol. in H_2O and their solns. are stable for not over 15 days. To 47 g. $EtP(O)(OBu)Cl$ in C_6H_6 and 26.1 g. $NaHCO_3$ for an equivalent pyridine was added [illegible]

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A. I. RAZUMOV, O. A. MUKHACHEVA

appeared; after blowing with N 36% $EtP(O)(OEt)Cl$ was obtained. This (204.5 g.) added to 1[illegible] g. p-$O_2NC_6H_4OH$ and 1.5 l. dry Et_2O and stirred 45 min. then slowly treated with 132 g. Et_3N in Et_2O, and refluxed 40 min. gave after filtration and distn. (not over 0.2 mm. pressure to avoid decompn.) 61% $EtP(O)(OEt)OC_6H_4NO_2$-p, $b_{0.5}$ 163-5°, 1.2345, 1.5242. Similarly were prepd. [illegible] $EtP(O)(OMe)OC_6H_4NO_2$-[illegible] [illegible] $EtP(O)(OEt)OC_6H_4NO_2$-o, $b_{0.5}$ 140-2°, 1.2487, 1.5115; 60% $EtP(O)(OEt)OC_6H_4NO_2$-[illegible], $b_{0.5}$ 145-8°, 1.2482, 1.5110. 50% $EtP(O)(OEt)OC_6H_4NO_2$-p, $b_{0.5}$ 158-8.5°, 1.2231, 1.5210; 16% $EtP(O)(OPr\text{-}iso)OC_6H_4NO_2$-$p$, $b_{0.5}$ 161-4°, 1.2288, 1.5233; 67% $EtP(O)(OBu)OC_6H_4NO_2$-p, $b_{0.5}$ 181.5-2.5°, 1.1968, 1.5180; 22% $EtP(O)(OBu\text{-}iso)OC_6H_4NO_2$-$p$, $b_{0.5}$ 153.5-4°, 1.1971, 1.5174, 60% $EtP(O)(OEt)OC_6H_4Cl$-p, $b_{0.5}$ 117-18°, 1.2122, 1.5350; 32% $EtP(O)(OEt)OC_6H_4Cl$-o, $b_{0.5}$ 108-7°, 1.2065, 1.5345. The esters are slightly sol. in H_2O and are stable in aq. soln. for several years, but are hydrolyzed in alk. solns. All are strong myotics and inhibitors of cholinesterase. The Et p-nitrophenyl ester is more [illegible]

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3

G. M. Kosolapoff

Мухначева, О. А.

AUTHORS: Razumov, A. I., Mukhacheva, O. A., Markovich, Ye. A. 79-1-41/63

TITLE: Investigations in the Series of Alkylphosphinic and Phosphinic Acids (Issledovaniya v ryadu alkilfosfinistykh i fosfinovykh kislot) VIII. Synthesis and Properties of Some Alkylated Amides of Alkylchlorophosphinic Acids (VIII. Sintez i svoystva nekotorykh alkilirovannykh amidov alkilkhlorfosfinovykh kislot)

PERIODICAL: Zhurnal Obshchey Khimii, 1958, Vol.28, Nr 1, pp.194-197 (USSR)

ABSTRACT: In order to come to the alkylated amides of alkylchlorophosphinic acids, two methods were investigated. The first one consisted of the ammonium conversion of

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Investigations in the Series of Alkylphosphinic and Phosphinic Acids. VIII. Synthesis and Properties of Some Alkylated Amides of Alkylchlorophosphinic Acids

79-1-41/63

the triple amount of the theoretical yield of chloroanhydride which is for the most part lost. For this reason the authors preferred the method of the partial ammonium conversion of the full chlorine anhydrides of primary phosphinic acids

$$RP(O)\,Cl_2 + 2R'_2\,NH \longrightarrow \begin{matrix} R \\ O \end{matrix}\!\!>\!P\!<\!\begin{matrix} Cl \\ NR_2 \end{matrix} + R_2\,NH \cdot HCl$$

In this manner they synthesized some representatives of this series of compounds (table 1), whereas the ammonium conversion with primary amines in a vacuum yielded nondistillable and impure products. The alkylated amides of alkylfluorophosphinic acids are liquids with a high slight aromatic smell. They are fairly stable with regard to hydrolysis and are of a high toxic nature. Thus the authors synthesized some representatives of alkylphosphinic acids with mixed functions: alkylated amides of chloro- and fluorophosphinic acids as well as full fluorine anhydrides of alkylphosphinic acids. The authors determined an easy hydrolyzability of the alkylated amides of chlo-

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Investigations in the Series of Alkylphosphinic and Phosphinic Acids. VIII. Synthesis and Properties of Some Alkylated Amides of Alkylchlorophosphinic Acids

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lorphosphinic acids and an instability of the P-N bond in those of fluorophosphinic acids. The easy hydrolyzability of the former already at mere humidity easily leads to alkylated amides of alkylpyrophosphinic acids. Thanks to the instability of the P-N bond in the amides of fluorophosphinic acids on heating full fluorine anhydrides of these acids can be obtained. There are 3 tables, and 13 references, 5 of which are Slavic.

ASSOCIATION: **Kazan' Chemical-Technological Institute** (Kazanskiy khimio-tekhnologicheskiy institut)

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Card 3/3

1. Chemistry 2. Phospinic acid-Properties 3. Phosphinic acid-Synthesis

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MUKHACHEVA, O.A.; RAZUMOV, A.I.

Derivatives of phosphinic and phosphonic acids. Part 16: Synthesis of alkylated amides of dialkylphosphinic acids. Zhur.ob.khim. 32 no.8:2693-2696 Ag '62. (MIRA 15:9)

1. Kazanskiy khimiko-tekhnologicheskiy institut.
(Phosphinic amide)

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1. Kazanskiy khimiko-tekhnologicheskiy institut.
(Phosphinic amide)

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MUKHACHEVA, O.N. kand.med.nauk

Clinical aspects of nonoccupational poisoning with granosan.
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1. Iz kliniki gospital'noy terapii (zav. - prof. A.Ya.Gubergrits) Izhevskogo meditsinskogo instituta.
(GRANOSAN--TOXICOLOGY)

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3

MUKHACHEVA, V.A.

The most numerous deep-water fish of the Far Eastern seas is the Cyclothone microdon Günther (Pisces, Gonostomidae). Trudy Inst. okean. 11:206-220 '54. (MIRA 8:2)
(Pacific ocean--Fishes)

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Fish eggs and fry in Onega Bay of the White Sea. Mat. po kompl. izuch.Bel.mor. no.1:222-229 '57. (MLRA 10:8)

1.Institut okeanologii Akademii nauk SSSR.
(Onega Bay--Fishes)

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MUKHACHEVA, V.A.

Data on the development of the Far-Eastern navaga (Eleginus gracilis Tilesius). Trudy Inst. okean. 20:356-370 '57. (MIRA 10:12)
(Far East--Codfish)

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3

MUKHACHEVA, V.A.

Spawning of commercial fish in waters adjacent to the northern Kurile Islands and southern Kamchatka. Trudy Inst.okean. 36: 259-274 '59. (MIRA 15:4)
(Kurile Islands region--Fishes) (Kamchatka region--Fishes)

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MUKHACHEVA, V.A.; ZVYAGINA, O.A.

Development of the Pacific cod Gadus morhua macrocephalus Tilesius. Trudy Inst. okean. 31:145-165 '60. (MIRA 14:4)
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Some data on the reprofuction, development, and distribution of the saury Cololabis saira (Brevoort). Trudy Inst. okean. 41:163-174 '60. (MIRA 13:9)

(Pacific Ocean--Skipper (Fish))

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Species of the genus Cyclothone (Pisces, Gonostomidae) in the Pacific Ocean. Trudy Inst. okean. 73:93-138 '64. (MIRA 17:6)

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KORNIYENKO, N.A.; MUKHADOV, G.M.

Combatting the tick Hyalomma with hexachloran dust. Izv.AN Turk.SSR no.2: 63-68 '51. (MLRA 6:8)

1. Turkmenskiy sel'skokhozyaystvennyy institut im. M.I.Kalinina.
(Hyalomma) (Benzene hexachlorine)

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1080. On changes in the blood in anaplasmosis of large horned cattle. I. A. Kornienko and G. Mukhadov *Trud. Turkmen. vetin. Inst.*, 1955, 7, 81—83. *Referat. Zh. Biol.* 1956, Abstr. No. 50260 (Russian)

C. C. BARNARD

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R001135520010-3

MUKHADOV, G.M.

U.S.S.R. / General Problems of Pathology. Pathophysiology of the Infectious Process. T-4

Abs Jour : Ref. Zh.-Biol. No 2, 1958, No 7619

Author : Mukhadov, G.M.

Inst :

Title : A Contribution to the Participation of the Autonomic Nervous System in the Pathogenesis of Trypanosomiasis.

Orig Pub : Tr. Turkm. s.-kh. in-ta, 1956, 8, 95-108.

Abstract : The changes in reflex salivation in response to irritation of the autonomic nerves by pilocarpine and adrenalin was studied in 10 dogs who were infected with surra. The sympathetic nerves underwent significant change; their stimulation by adrenalin did not cause salivation. Parasympathetic nerves were in the excitatory state. In surra

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