"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

MONTSKO, Tibor, (Pecs, Rakoczi ut 80, Hungary.); TIGYI, Andras, (Pecs, Rakoczi ut 80, Hungary.); ARNOLD, Istvan, (Pecs, Rakoczi ut 80, Hungary.); TARJAN, Jeno, (Pecs, Rakoczi ut 80, Hungary.)

The effect of the parathyroid on the changes of serum proteins. Acta biol Hung 12 no.3:191-197 '61.

1. Institute of Physiology and Biology, Medical University of Pecs, (Head: K. Lissak).

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

ARNOL'D, I.V.

Ideale in kommutativen Halbgruppen. Matem. SB., 36 (1929), 401-408.
Kratkiy istoriko-biograficheskiy spravochnik. V kn Teoriya chisel. M., Uchpedgiz (1939), 248-253.

SO: Mathematics in the USSR, 1917-1947
edited by Kurosh, A. G.,
Markushevich, A. K.,
Rashevskiy, P.K.
Moscow-Leningrad, 1948

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

L 30190-66

ACC NR: AT6020301 SOURCE CODE: HU/2504/65/052/01-/0121/0129

AUTHOR: Arnold, K.—Arnol'd, K.

ORG: Institute for Geodesy, Potsdam (Geodatisches Institut)

TITLE: New developments in the theory of the geoid

SOURCE: Academiae scientiarum hungaricae. Acta technica, v. 52, no. 1-2, 1965, 121-129

TOPIC TAGS: Earth gravity, geodesy

ABSTRACT: This article is the text of the author's lecture delivered in Oct 1963. In recent years the geoid theory utilizes non-reduced gravity values taken at the surface of the Earth. These values are introduced into the potential equation. By also introducing the effects of certain free-air anomalies, a mathematical treatment becomes possible. Some recent developments, based mainly on papers published by the author, were discussed. Orig. art. has: 4 figures. [Orig. art. in German.] [JPRS]

SUB CODE: 08 / SUBM DATE: none / ORIG REF: 005 / OTH REF: 001

Card 1/1

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

ARNOLD, K.

Consideration concerning the determination of the effect of defection of sounding line on astronomical position determination; also, remarks by W. Hristow, and A. Tarczy-Hornoch. In German. p. 291.

ACTA TECHNICA. (Magyar Tudomanyos Akademia) Budapest, Hungary. Vol. 23, no. 1/3, 1959.

Monthly list of East European Accessions (EEAI) LC, vol. 9, no. 1, Jan. 1960,

Uncl.

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

L 39623-66 FSS-2 TT/GD-2

ACC NR: AT6020300 SOURCE CODE: HU/2504/65/052/01-/0101/0120

AUTHOR: Arnold, K.--Arnol'd, K.

ORG: Institute for Geodesy, Potsdam (Geodatisches Institut)

TITLE: Geodetic point determination with the aid of artificial satellite observation

SOURCE: Academiae scientiarum hungaricae. Acta technica, v. 52, no. 1-2, 1965,101-120

TOPIC TAGS: photography, geodesy, artificial satellite observation

ABSTRACT: This article is the text of the author's lecture delivered in Oct 1963. The title subject was discussed in general. It was pointed out that more detailed knowledge of the Earth's characteristics would also improve the usefulness of such observations; that observations involving one satellite only have several potential sources of error; and that an improvement in photographic techniques, especially in the area of taking pictures from an angle, would contribute to the accuracy and usefulness of geodetic point determination using satellite observation techniques. Orig. art. has: 6 figures and 11 formulas. [Orig. art. in German.] [JPRS]

SUB CODE: 08 / SUBM DATE: none

Card 1/1

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

L 43638-66

ACC NR: AT6032333 SOURCE CODE: HU/2504/65/052/03-/0244/0249

AUTHOR: Arnold, K. (Potsdam)

ORG: none

NONE

24
B+1

TITLE: Accuracy of the equation for the gravimetric correction term

SOURCE: Academia scientiarum hungaricae. Acta technika, v. 52, no. 3-4, 1965, 244-249

TOPIC TAGS: geomagnetic disturbance, Wavier Stokes equation

ABSTRACT: The accuracy of the gravimetrical correction term in the equation used in the Stokes equation for calculating the geoid undulations or the disturbance potential at the earth's surface from free-air anomalies, or the deviations on the earth's surface in the Venig-Meinesz equation, was investigated. It was shown that the 'next iteration' has only a negligible influence on the gravimetric correction term. Orig. art. has: 4 figures and 5 formulas. [JPRS: 34,672]

SUB CODE: 08, 12 / SUBM DATE: 16Mar65 / ORIG REF: 007 / OTH REF: 002

Card 1/1 LS

0919 2385

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

ARNOLD, Karoly

Some questions relating to the water and gas conduits of Hotel Szabadsag. Epuletgepeszet 11 no.4:148-149 S '62.

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

[illegible]

[illegible]

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

ARNOL'D, K.V.; GILYAROV, M.S., OBRATSOV, B.V.

Forest Ecology

Animal world in steppe forestry, Nauch. vop. polezashch. les. No. 1, 1951

Monthly List of Russian Accessions, Library of Congress, July 1952. Unclassified.

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

ARNOLDI, K. V.

Forest Insects

Forest-steppe origins and the character of the infiltration of forest insects to steppe during afforestation of the steppe. Zool. zhur. 32 No. 2, 1953.

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

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

AFANAS'YEVA, Ye.A.; BAZILEVICH, N.I.; NOSOVA, I.M.; GOLUBEV, V.N.; DOKHMAN, G.I.; ARNOL'DI, K.V.; OBRAZTSOV, B.V.; NIKIFOROV, L.P.; GIBET, L.A.; VORONOV, A.G.; SKOKOVA, N.N.

Brief news. Biul. MOIP. Otd. biol. 69 no.4:150-160 Jl-Ag '64. (MIRA 17:11)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

ARNOL'D, L. V.

Thermal power equipment for hoisting-transporting machines Moskva, Izd-vo Narkomerchlofla SSSR, 1945. (mic 53-337*

Microfilm T-9

1. Hoisting machinery. 2. Conveying machinery. I. Akimov, Pavel Petrovich

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

ARNOL'D, L.V.

25676

Metodika opredeleniya Velichinb isparitel'noy Poverkhnosti V Dvukhkonturnykh Kotlakh, Trudy Leningr: in-ta. Inzhenerov Vod transporta, VYP. 15, 1949. s. 186-91

SO: LETOPIS' No. 34

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

KHANDOV, Z.A.; GENIN, A.B.; ARNOL'D, L.V., redaktor; VOLCHOK, K.M., tekhnicheskiy redaktor

[Gas powered marine engines] Sudovye gazosilovye ustanovki. Moskva, Izd-vo Ministerstva rechnogo flota SSSR, 1951. 370 p. [Microfilm] (Marine engines) (MLRA 10:2)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

ALEKSANDROV, A.S.; ARNOL'D, L.V., redaktor, professor; SHLENNIKOVA, Z.V. redaktor; VOLKOVA, Ye.D., tekhnicheskiy redaktor

[Marine boilers] Sudovye kotel'nye ustanovki. Pod red. L.V. Arnol'da Moskva, Gos.izd-vo vodnogo transporta, 1954. 462 p. (MLRA 8:10)
(Boilers, Marine)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

ARNOL'D, Leonid Vladimirovich, professor; ZHROZHEK, V.V., redaktor; [redacted] tekhnicheskiy redaktor.

[Steam boilers and boiler equipment of river boats. Parovye kotly i kotel'nye ustanovki rechnykh sudov. Leningrad, Izd-vo "Rechnoi transport," 1954. 480 p. (MIRA 8:4)
(Steam boilers, Marine)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

ARNOLD, L.V.

ALEKSANDROV, Andrey Svyateslavovich; KOMOGORTSEV, P.Ya., redaktor; ARNOL'D, L.V., retsenzent; PRISYAGIN, V.V., retsenzent; SHLENNIKOVA, Z.V., redaktor; KRASNAYA, A.K., tekhnicheskiy redaktor.

[Thermal calculations for water-tube boilers of ships] Teplovoi raschet sudovykh vodotrubnykh kotlov. Moskva, Izd-vo "Rechnoi transport", 1956. 111p. (MLRA 9:6)
(Boilers, Marine)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

ALEKSANDROV, Andrey Svyatoslavovich; ARNOL'D, L.V., professor, redaktor; SHLEMNIKOVA, Z.V., redaktor izdatel'stva; KRUSHAYA, A.K., tekhnicheskiy redaktor

[Marine steam-boilers] Sudovye kotel'nye ustanovki. Izd. 2-oe, perer. Pod red. L.V.Aronl'da. Moskva, Izd-vo "Rechnoi transport," 1956. 455 p. (MLRA 10:2)

(Boilers, Marine)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

SHELUCHENKO, V.M.; ARNOL'D, L.V., otv.red.; SANDLER, N.V., red.izd-va; PETERSON, M.M., tekhn.red.

[Atlas of designs of marine steam boilers; supplement to the book]. Atlas konstruktsii sudovykh parovykh kotlov; prilozhenie k knige. Leningrad, Izd-vo "Morskoi transport," 1957. 92 p. (Boilers, Marine--Design) (MIRA 12:3)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

ARNOLD, L. V.

SHELUCHENKO, Valentin Mikhaylovich; SBROZHEK, V.V., retsenzent; ARNOLD, [redacted] otvetstvennyy redaktor; SANDLER, N.V., redaktor izdatel'stva; DROZHZHINA, L.P., tekhnicheskiy redaktor; PETERSON, M.M., tekhnicheskiy redaktor

[Design of marine boilers] Konstruktsii sudovykh parovykh kotlov. Leningrad, Izd-vo "Morskoi transport," 1957. 155 p.---[Collections of drawings of structural marine boiler elements] Atlas konstruktsiy sudovykh parovykh kotlov. 92 p. of iagrams. (MLRA 10:10)
(Boilers, Marine)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

PHASE I BOOK EXPLOITATION 1054

Arnol'd, Leonid Vladimirovich, Professor

Termodinamika i teploperedacha. ch. I: Termodinamika (Thermodynamics and Transmission of Heat. v. 1: Thermodynamics) Leningrad, Izd-vo "Rechnoy Transport", 1958. 367 p. 6,000 copies printed.

Ed.: Akimov, P. P.; Tech. Ed.: Volchok, K. M.

PURPOSE: This is a textbook approved by the Ministry of the River Fleet of the Russian Soviet Federative Republic for students of water transportation engineering institutes.

COVERAGE: This book covers the first part of a course in thermodynamics and heat transfer, and deals with the fundamentals of engineering thermodynamics. The author gives due attention to physical aspects of the phenomena studied, with consideration of the kinetic theory of matter. In the first chapter, the author gives a historic outline of the development of thermodynamics and mentions names of the most prominent scientists of this field. There are 8 Soviet references.

Card 1/11

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

TABLE OF CONTENTS:

Ch. I. Law of the Conservation and Transformation of Energy
1. The subject of thermodynamics 3
2. Law of the conservation and transformation of energy 4
3. Thermal equivalent of mechanical work 7

Ch. II. First Law of Thermodynamics
1. Preliminary information and definitions 10
2. First law of thermodynamics 12
3. Equilibrium and reversible processes 16
4. Parameter of state and egnation of state 21
5. Parameter of state - absolute pressure 22
6. Parameter of state - specific volume 24
7. Parameter of state - temperature 25
8. Mechanical work of a charge of volume 28
9. The pv diagram. Graphical representation of work 29
10. Internal energy 31
11. Heat 34
12. First law of thermodynamics applied to the flow of a liquid 35

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

13. Potential energy of pressure 39
14. Bernoulli's equation 40
15. Enthalpy 41
16. Heat capacity 43

Ch. III. Perfect Gas
1. Division of gases into real and ideal 45
2. Equation of state of an ideal gas 48
3. Avogadro's law 49
4. Dalton's law 52
5. Mixtures of gases 54
6. Internal energy of an ideal gas 56
7. Throttling of an ideal gas 59
8. Enthalpy of an ideal gas. Mayer's formula 61

Ch. IV. Heat Capacity of Ideal Gases
1. Heat capacity of an ideal gas 63
2. Heat capacity as a function of temperature 65
3. True and average heat capacity 68
4. Experimental data on heat capacity 71

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

Thermodynamics and Transmission of Heat (Cont.) 1054

5. Heat capacity of a mixture of gases 75
6. Graphs of u-t and i-t for gases 76

Ch. V. Thermodynamic Processes With Ideal Gases
1. Preliminary information 79
2. Constant volume process (isochoric process) 80
3. Constant pressure process (isobaric process) 81
4. Constant temperature process (isothermal process) 83
5. Adiabatic process 85
6. Polytropic process 91
7. Investigation of polytropic processes 96
8. Application of the equation of polytropy to the investigation of real processes 99

Ch. VI. Gas Mixtures
1. Gas mixtures at constant volume 103
2. Gas mixtures at constant pressure 105

Card 4/11

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

Ch. VII. Second Law of Thermodynamics
1. Cycles 107
2. Second law of thermodynamics 108
3. Efficiency of a cycle 111
4. Carnot cycle and its efficiency 113
5. Theorem of the thermal independence of the efficiency of the Carnot cycle from the physical properties of the working medium (Carnot theorem) 117
6. Mathematical expression of the second law of thermodynamics for reversible cycles 120
7. Entropy 124

Ch. VIII. Heat Diagram
1. Heat diagram 129
2. Entropy as a function of parameters 130
3. Basic thermodynamic processes and gases in a heat diagram 131
4. T-s diagram for air 138
5. Carnot cycle in a heat diagram. Generalized Carnot cycle 139
6. Absolute thermodynamic temperature 142

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

Ch. IX. Second Law of Thermodynamics for Irreversible Processes
1. Change of entropy in an irreversible compression of a perfect gas 146
2. Values of the integral $\oint \frac{dQ}{T}$ for irreversible processes 147
3. Law of the increase of entropy 150
4. Physical meaning of entropy 151
5. Losses of the working capacity of the system in consequence of the irreversibility of processes 154
6. Entropy as a static conception 157
7. Natural science and the second law of thermodynamics 162

Ch. X. Differential Equations of Thermodynamics
1. Relationship between specific heat capacities C_p and C_v and the characteristic equations of state 165
2. Application of the differential equations of thermodynamics to ideal gases 169
3. Differential equations for u, i, and s.

Card 6/ 11

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

Thermodynamics and Transmission of Heat (Cont.) 1054

Ch. XI. Brief Information on Real Gases
1. Van der Waals equation 172
2. Investigation of van der Waals' equation 173
3. Equation of state of a real gas of M.P. Vukalovich and I.I. Novikov 178
4. Reduced equation of state of van der Waals 179
5. Experimental data on real gases 183
6. Joule-Thomson effect 187

Ch. XII. Saturated Steam
1. Evaporation and boiling of a liquid 191
2. Pressure curve of a saturated steam vapor (curve of the equilibrium of phases) triple points 193
3. Process of vapor formation in the p,v system of coordinates 196
4. The heat and enthalpy of a liquid 200
5. Enthalpy of a vapor 204
6. Enthalpy of a liquid and a vapor 206
7. Ts diagram for saturated vapor 208
8. Upper boundary curve 210
9. Clapeyron-clausius equations 213

Card 7/11

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

Ch. XIII. Superheated Steam 215
1. Equation of state of a superheated vapor 217
2. Heat capacity of a superheated vapor 219
3. Process of superheating. Enthalpy and entropy of superheated vapor 221
4. Representation of the enthalpy of a vapor in a T-s diagram 222
5. i-s diagram

Ch. XIV. Thermodynamic Processes With Vapor 225
1. Study methods of vapor processes 226
2. Isochoric process with vapor 228
3. Isobaric process with vapor 231
4. Isothermic process with vapor 233
5. Adiabatic process with vapor 236
6. Process of vapor throttling

Ch. XV. Flow of an Elastic Liquid 238
1. Basic equations of the flow of an elastic liquid 239
2. Character of cross-sectional changes of the flow depending on velocity

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

3. Change of the potential energy of the flow into kinetic energy 243
4. Critical pressure relations 245

Ch. XVI. Outflow from Nozzles 247
1. Outflow from narrowing nozzles at sub-critical velocities 251
2. Outflow from narrowing nozzles at $\beta < \beta_{cr}$ $\left(\beta = \frac{p}{p_0}\right)$ 253
3. The work of the outflow 255
4. Laval nozzle 258
5. Influence of friction on the process of the outflow 260
6. Representation of work for an outflow with friction in pv and Ts coordinates

Ch. XVII. Performance of a Compressor 264
1. Ideal piston gas compressor 268
2. Multistage compression 271
3. Performance of an ideal compressor in a Ts diagram 273
4. Performance of a compressor taking friction into account

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

Ch. XX. Cycles of Gas Turbine Power Plants
1. Principle of work of gas turbine power plants 317
2. Cycle of a gas turbine power plant with an isobaric heat supply 319
3. Cycle of a gas turbine power plant with an isobaric heat supply and with regeneration 321
4. Cycle of a gas turbine power plant with an isobaric heat supply 324

Ch. XXI. Cycles of Refrigerating Plants
1. Refrigerating capacity and refrigeration coefficient 327
2. Cycle of the steam compression refrigerating plant 330
3. Cycle of a steam compression plant with dry compressor operation and with precooling of the condensate 334
4. Requirements of a cooling agent 337

Appendixes 339

Bibliography 362

Insert: i-s and T-s diagrams

AVAILABLE: Library of Congress

Card 11/11

IS/mas
1-30-59

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

24(8) PHASE I BOOK EXPLOITATION SOV/2940

Arnol'd, Leonid Vladimirovich, Professor

Termodinamika i teploperedacha, Ch. 2: Teploperedacha (Thermodynamics and Heat Transfer, Pt. 2: Heat Transfer) Leningrad, Izd-vo "Rechnoy transport," Leningr. otd-niye, 1959. 188 p. 6.000 copies printed.

Ed.: P.P. Fedorko; Tech. Ed.: K.M. Volchok.

PURPOSE: This is a textbook for students of the ship building and machine department of water-transportation institutes. It may be also useful to students of machine-building schools of higher technical education.

COVERAGE: This book is the second part of a textbook "Thermodynamics and Heat Transfer". It considers the three basic aspects of heat transfer, i.e., conduction, convection and radiation, basic theories of similitude, and heat transfer problems in recuperative heat exchangers. The author mentions the following Russian scientists who have made recent contributions to this field: Academicians M.V. Kirpichev (deceased) and M.A. Mikheyev and also S.S. Kutateladze, A.M. Gurvich, G.M. Kondrat'yev, N.B. Vargaftik, D.L. Timrot and G.L. Polyak.

Card 1/6

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

There are 7 references, all Soviet.

TABLE OF CONTENTS:

Preface 3

Introduction 5

Ch. I. Heat Transfer by Conduction 6
1. Temperature field and temperature gradient 6
2. Fourier law 9
3. Heat conduction coefficient 10
4. Differential equations of heat transfer 13
5. Boundary conditions 17

Ch. II. Heat Transfer by Conduction in Bodies of Simple Form for Steady-state Conditions and Boundary Conditions of the First Order 21
1. Heat conduction through uniform flat surfaces 21
2. Heat conduction through multilayer flat surfaces 23
3. Heat conduction through uniform cylindrical walls 25

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

4. Heat conduction through multilayer cylindrical walls 28
5. Simplified method of determining heat transfer through cylindrical walls 30

Ch. III. Heat Transfer by Conduction in Bodies of Simple Form for Steady-state Conditions and Boundary Conditions of the Third Order. Heat Transfer Coefficient 32
1. Heat transfer through flat surfaces 32
2. Heat transfer through cylindrical walls 34
3. Thermic resistance 36
4. Critical thickness of the insulation of cylindrical pipes 38
5. Heat transfer through ribbed surfaces 40
6. Heat conduction through bars (ribs) having a uniform cross section 42
7. Heat transfer through ribs 46

Ch. IV. Convective Heat transfer 50
1. Differential equations of convective heat exchange 50
2. Equation of a viscous liquid flow 55

Ch. V. Theory of Similitude 59

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

1. Concept of similitude of physical phenomena 59
2. First theorem of the similitude theory 62
3. Second theorem of the similitude theory 65
4. Third theorem of the similitude theory 67
5. Hydrodynamic similitude 69
6. Thermal similitude 72
7. Criteria of similitude 74
8. Criterial equations of convective heat exchange 77

Ch. VI. Heat Transfer in Forced Flow of Liquid 79
1. Flow of liquids in pipes 79
2. Determining mean temperatures and velocities of liquids. 81
Determining temperature factor 84
3. Equivalent diameter
4. Heat transfer in a liquid flow in layer form through pipes and channels 85
5. Heat transfer in a turbulent flow of liquids in pipes and channels 90
6. Heat transfer in transversal flows over smooth pipes 93
7. Heat transfer in transversal flows over banks of ribbed pipes 98

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

8. Heat transfer in flows of liquids along flat surfaces 101
9. Hydrodynamic heat transfer theory 103

Ch. VII. Heat transfer in Free Flows of Liquids 108
1. Free flow in nonrestricted volumes 108
2. Heat transfer in free flows 109
3. Heat transfer through air layers 113

Ch. VIII. Heat Transfer When Aggragate State Changes 114
1. Boiling of liquids 114
2. Heat Transfer during boiling of liquids 117
3. Heat transfer in condensing steam 121
4. Influence of various factors on heat transfer in condensing steam 126

Ch. IX. Basic Laws of Heat Rádiation 129
1. General information on heat radiation 129
2. Law of absorbtion 131
3. Stephan-Boltaman's law of radiation 133
4. Kirkhof's law 136

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

5. Lambert's law 140
6. Radiation of gases 144

Ch. X. Heat Exchange by Radiation Between Solid Bodies 150
1. Effective and resultant radiation 150
2. Heat exchange by radiation between two bodies with plane--parallel surfaces 152
3. Heat exchange by radiation between two bodies, one enclosed inside the other 153
4. Protection from heat radiation; screens 155
5. Heat exchange by radiation between two bodies arbitrarily located in space 156

Ch. XI. Heat Exchange Apparatus 162
1. Types of heat exchangers 162
2. Water equivalent of the heat carrier 164
3. Thermal tension 165
4. Determination of final temperatures of heat carriers 171
Bibliography 174
Appendixes 175

AVAILABLE: Library of Congress

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

KONAKOV, Petr Kuz'mich, prof., doktor tekhn.nauk; FILIMONOV, Sergey Sergeyevich, kand.tekhn.nauk; KHRUSTALEV, Boris Aleksandrovich, kand.tekhn.nauk; ARNOL'D, L.V., prof., retsenzent; LAKHANIN, V.V., prof., doktor tekhn.nauk, nauchnyy red.; SHLENNIKOVA, Z.V., red.izd-va; BOIROVA, V.A., tekhn.red.

[Heat exchange in the combustion chambers of steam boilers] Teploobmen v kamerakh sgoraniia parovykh kotlov. Moskva, Izd-vo "Rechnoi transport," 1960. 269 p. (MIRA 13:5)
(Boilers) (Furnaces)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

PHASE I BOOK EXPLOITATION SOV/4310

Arnol'd, Leonid Vladimirovich, Viktor Sergeyevich Markov, Vladimir Mikhaylovich Seliverstov, and Petr Petrovich Fedorko

Sbornik zadach po tekhnicheskoy termodinamike i teploperedache (Collection of Problems on Applied Thermodynamics and Heat Transfer) Leningrad, Izd-vo "Rechnoy transport," Leningradskoye otd-niye, 1960. 292 p. Errata slip inserted. 3,000 copies printed.

General Ed.: L.V. Arnol'd, Professor; Reviewer: P.P. Akimov, Docent; Ed.: N.V. Golovanov; Tech. Ed.: K.M. Volchok.

PURPOSE: This book is intended for students in water transportation institutions taking courses in thermodynamics and heat transfer. It conforms with the program of the Leningrad Institute of Water Transportation.

COVERAGE: The book consists of 501 problems on thermodynamics and heat transfer. It is subdivided into 16 sections. Each section gives a theoretical introduction, formulas, and one or more example of calculations. Twenty-three appendixes

Card 1/6

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

provide tables and graphs of thermodynamic values. Chs. 1, 4, 11, 14, and 15 were written by V.S. Markov; Chs. 3, 5, 10, 12, and 13 were written by V.M. Seliverstov, and Chs. 2, 6,8, 9, and 16 were written by P.P. Fedorko; Ch. 7 jointly by V.S. Markov and V.M. Seliverstov. Chs. 4, 7, 11, 12, 13, 14, and 15 were written with the cooperation of L.V. Arnol'd. No personalities are mentioned. There are no references.

TABLE OF CONTENTS:

PART I. APPLIED THERMODYNAMICS

Sec. 1. Parameters of the Thermodynamic State of a Substance 3

Sec. 2. Fundamental Laws for Ideal Gases 7

Sec. 3. Mixtures of Ideal Gases 14

Sec. 4. Specific Heat of Ideal Gases 22

Sec. 5. First Law of Thermodynamics 29

Sec. 6. Thermodynamic Processes in Ideal Gases 35

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

SELIVERSTOV, V.M.; ARNOL'D, L.V., red.; VOLCHOK, K.M., tekhn. red.

[Marine steam-power plants; methodological manual on the section "Marine boilers" (heat calculations of auxiliary and waste heat boilers)]Sudovye parosilovye ustanovki; metodicheskoe posobie po razdelu "Sudovye kotly" (teplovoi raschet vspomogatel'nogo i utilizatsionnogo kotla). Leningrad, Izd-vo "Rechnoi transport," 1962. 18 p. (MIRA 15:9)
(Boilers, Marine) (Waste heat engines)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

MIKHAYLOVSKIY, Georgiy Andreyevich; ZYSIN, V.A., kand. tekhn. nauk, retsenzent; ARNOL'D, L.V., prof., red.; MITARCHUK, G.A., red. izd-va; POL'SKAYA, R., tekhn. red.

[Thermodynamic analysis of processes in steam-gas mixtures] Termodinamicheskie raschety protsessov parogazovykh smesei. Moskva, Mashgiz, 1962. 183 p. (MIRA 15:6)
(Thermodynamics)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

ARNOL'D, Leonid Vladimirovich; IOSIFOV, Mikhail Nikanorovich; AKIMOV, P.P., prof., retsenzent; SMIRNOV, S.A., red.; VOLCHOK, K.M., tekhn. red.

[Thermodynamics, heat transfer, and power equipment of hoisting and conveying machinery]Termodinamika, teploperedacha i teplosilovoe oborudovanie pod"emno-transportnykh mashin. Pod red. L.V.Arnol'da. Leningrad, Izd-vo "Rechnoi transport," 1962. 440 p. (MIRA 15:11)

(Gas and oil engines) (Hoisting machinery)
(Thermodynamics)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

SIZYKH, Vasiliy Afanas'yevich; ARNOL'D, L.V., retsenzeng; SMANTSER, A.I., retsenzent; MARKOV, V.S., red.; KAN, P.M., red. izd-va; RIDNAYA, I.V., tekhn. red.

[Automatically controlled auxiliary marine boiler units] Avtomatizirovannye sudovye vspomogatel'nye kotloagregaty. Moskva, Izd-vo "Rechnoi transport," 1963. 133 p. (MIRA 16:5)

(Boilers, Marine) (Automatic control)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

ARNOL D., L.V.; KRYZHANOVSKIY, O.L.

A new species of ground beetles from the genus Limnastis Motsch. (Coleoptera, Carabidae) living in soil clefts of the steppe zone. Trudy Zool. inst. 34:131-134 '64. (MIRA 18:2)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

ARNOL'DI, L.V.

New species of weevils (Coleoptera, Curculionidae) from central Kazakhstan. Trudy Zool. Inst. 34:164-171 '64. (MIRA 28:2)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

ARNOL'DI, L.V.

New species of Otiorrhynchus Germ.(Coleoptera, Curculionidae) from Transcaucasia and northern Iran. Dokl. AN Arm. SSR 38 no.4: 251-256 '64. (MIRA 17:6)

1. Zoologicheskiy institut AN SSSR. Predstavleno akademikom AN Armyanskoy SSR V.O.Gulkanyanom.

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

ARNOLD, M.

C
4

1727. Stainless steel absorption tubes for semi-micro carbon-hydrogen combustion. J. A. Kuck and M. Arnold (*Mikrochem. mikrochim. Acta*, 1951, 39, 531—531).—Methods of fabrication are described for two stainless steel absorption tubes of empty and filled wt. (i) 16 g., 21 g. and (ii) 8 g., 9 g., respectively. Statistical analysis of the results of combustion analysis of phenanthraquinone, tetraethyl ethanetetracarboxylate, and urea, show no significant differences between glass and steel H_2O- and CO_2-absorption tubes.

O. D. SALTMARSH.

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

ARNOLD, M.

Problems concerning accelerated building of electric power plants, p. 64, ZA SOCIALISTICKOU VEDU A TECHNIKU (Pripravny vybor vedeckych technickch spolecnosti pri eskoslovnske akademii ved) Praha, Vol. 5, No. 2, Feb. 1955

SOURCE: East European Accessions List (EEAL) Library of Congress, Vol. 4, No. 12, December 1955

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

MENZEL, Donald H., red.; KAZARNOVSKIY, M.V. [translator]; TIKHOMIROV, F.A. [translator]; ARNOL'D, N.A. [translator]; PETRUKHIN, V.I. [translator]; MATSONASHVILI, B.N. [translator]; AKSENOV, S.I. [translator]; BAKANOV, S.P. [translator]; SHAPIRO, I.S., red.; ADIROVICH, E.I., red.; MEDVEDEV, Yu.T., red.; MAKHIMSON, I.G., red.; TELESNIN, N.L., red.; BELEVA, M.A., tekhn.red.

[Fundamental formulas of physics. Translated from the English] Osnovnye formuly fiziki. Moskva, Izd-vo inostr. lit-ry, 1957. 657 p. (MIRA 11:5)

(Mathematical physics)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

ARNOL'D, N.M., inzhener; KUNAKOV, Ye.G., inzhener.

Hydromechanization on the projects of the Ministry of Construction of the U.S.S.R. Nov.tekh. i pered. op.v stroi. 18 no.7:7-10 Jl '56. (Hydraulic engineering) (Dredging) (MIRA 9:9)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

ARNOL'D, N P.

AID P - 5078

Subject : USSR/Engineering

Card 1/2 Pub. 128 - 7/26

Authors : Prikhod'ko, N. A., and N. P. Arnol'd, Engineers

Title : Automatic machine lines for the processing of stepped shafts.

Periodical : Vest. mash., 5, 16-26, My 1956

Abstract : In accordance with the designs of ENIMS (Experimental Scientific Research Institute for Metal-Cutting Lathes), the experimental "Stankokonstruktsiya" Plant manufactured in 1949-1952, four automatic machine lines for processing shafts of electric machines. Three of these automatic machine lines were put in operation at the "Vol'ta", Mednogorsk and Tomsk plants manufacturing the electric machinery. The fourth automatic line is tested at present by the Khar'kov Electric-Machine-Building Plant. The design and operation of these automatic machine

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

Vest. mash., 5, 16-26, My 1956

AID P - 5078

Card 2/2 Pub. 128 - 7/26

lines are described and discussed in detail. On the basis of the satisfactory results of their operation, the Ministry of the Electric Power Equipment Industry entrusted ENIMS in 1955 with the designs of three new automatic machine lines for processing shafts. 3 tables, 19 illustrations and diagrams.

Institution : None

Submitted : No date

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

ARNOL'D, N.V.; VYGON, G.Ye.

Motion pictures on subjects in the field of technology.
Politekh.obuch. no.9:70-71 S '59. (MIRA 12:12)
(Technical education) (Motion pictures in education)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

ARNOL'D, F.V. (Moskva); VYGON, G.Ye. (Moskva)

Training films in biology. Biol.v shkole no.2:95-96 Mr-Ap '60. (MIRA 13:8)

(Motion pictures in education)
(Biology--Study and teaching)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

ARNOL'D, N.V.; DYMAN, Z.I., starshiy inzh.

What is the right place for repairs of the mercury-arc rectifiers of electric locomotives. Elek.i tepl.tiaga 5 no.11:18 N '61. (MIRA 14:11)

1. Nachal'nik otdela proyektno-konstruktorskogo tekhnicheskogo byuro Glavnogo upravleniya po remontu podvizhnogo sostava i izgotovleniyu zapasnykh chastey.
(Mercury-arc rectifiers--Maintenance and repair)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

ARNOL'D, O.A., arkhitektor

Architectural decoration of accomodations on the atomic icebreaker "Lenin." Sudostroenie 27 no.8:14-18 Ag '61. (MIRA 14:9)
(Lenin (Atomic ship)) (Naval architecture)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

ARNOLD, R.

The blast-furnace dust. Arh. hig. rada 5 no.2:213-220 1954.

1. Klinika za profesionalne bolesti, Hamm; radnja primljena 5,VI.1954.

(SILICOSIS
in foundry workers)
(OCCUPATIONAL DISEASES
dilicosis in foundry workers)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

38073. ARNOL'D, R. R.

Issledovanie magnitnykh sistem fromkogovoriteley. Soobshch. 130. Trudy nikfi (Nauch. - Issled. Kinofoto in-t), vyp. 10, 1949, s. 166-81

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

ARNOL'D, R. R.

38075. ARNOL'D, R. R. AND BOLOTNIKOV, I. M.

Gromkogovoritel' dlya kinoperedvizhki. Soobshch. 132. Trudy nikfi (Nauch.-issled kinofoto in-t), vyp. 10, 1949, s. 223-34

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

9(2) SOV/112-59-4-8195

Translation from: Referativnyy zhurnal. Elektrotekhnika, 1959, Nr 4, p 258 (USSR)

AUTHOR: Arnol'd, R. R.

TITLE: Some Characteristics and Parameters of Magnetic Heads

PERIODICAL: Tr. Vses. n.-i. in-ta zvukozapisi, 1957, Nr 1, pp 47-69

ABSTRACT: Parameters of playback, recording, and erasing heads are considered without their matching with the amplifier or oscillator. High-frequency characteristics of playback heads with various slits (narrow, wide and trapezoidal) are analyzed. The parameters determining the efficiency of a playback head are considered.

M.V.Ts.

Card 1/1

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

ARNOL'D, R.R.; APOLLONOVA, L.P., red.; VAYNBOYM, V.S., red.; VASILEVSKIY, D.P., red.; VROBLEVSKIY, A.A., red.; GRIBKOVA, G.L., red.; GRIGORASH, G.L., red.; KAZNACHEY, B.Ye., red.; PARKHOMENKO, V.I., red.; PUSSET, L.A., red.; PETIRER, Ye.I., red.; ROZENPLAT, M.A., red.; MALKIYEL', B.A., red.

[Magnetic heads for sound recording apparatus] Magnitnye golovki dlia apparatury zvukozapisi. Moskva, 1958. 153 p. (Moskva. Vsesoiuznyi nauchno-issledovatel'skii institut zvukozapisi. Trudy, no.3). (MIRA 12:4)

(Magnetic recorders and recording--Equipment and supplies)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

24(1) SOV/112-59-2-4063

Translation from: Referativnyy zhurnal. Elektrotekhnika, 1959, Nr 2, pp 267-268 (USSR)

AUTHOR: Arnol'd, R. R.

TITLE: Magnetic Heads for Sound-Recording Equipment (Magnitnyye golovki dlya apparatury zvukozapisi)

PERIODICAL: Tr. Vses. n.-i. in-ta zvukozapisi, 1958, Nr 3, pp 5-155

ABSTRACT: Magnetic heads are examined that were developed for recorders using a 6.35-mm tape and for playing back the tapes in cinema. These heads can be used in: (1) radio-broadcast tape recorders operating at 38.1 and 76.2 cm/sec; (2) reporters' and miniature portable tape recorders operating at 9.53 and 19.05 cm/sec; (3) general-purpose tape recorders operating at 4.76, 9.53 and 19.05 cm/sec; (4) dictaphones operating at 2.38, 4.76, and 9.53 cm/sec; (5) low-power-consuming tape recorders; (6) sound-recording and sound-reproducing equipment used in wide-screen and panorama-type cinema;

Card 1/3

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

SOV/112-59-2-4063

Magnetic Heads for Sound-Recording Equipment

(7) equipment for reproducing magnetic records in cinema films and for dubbing them; (8) equipment for simultaneous recording and reproducing two or three channels on a 6.35-mm tape. Thirty new types of magnetic heads and their characteristics are described in detail, among them: (1) type MPV heads with a low-reluctance rear gap; (2) type MG-11V heads with emphasized lower frequencies; (3) miniature economical MG-1S, MG-2S, and other erasing heads; (4) erasing and demagnetizing heads with a type SGPM permanent magnet for 1- and 2-track recording; (5) type MG-14V miniature heads (8 mm diameter, about 1.5 g weight) intended for cinema projectors; (6) miniature heads with narrow slits (3-5 microns) for reporters' portable MG-26 and MG-28 recorders: (7) four-channel magnetic-head units for SV and SZ wide-screen cinema; (8) nine-channel magnetic-head units for MG-22 and MG-25 panorama-type cinema; (9) economical and highly effective erasing heads with a number of slits, MG-17S, MG-20S, S-02-2, and others; (10) type MG-24

Card 2/3

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

SOV/112-59-2-4063

Magnetic Heads for Sound-Recording Equipment

combined heads (recording-erasing, universal-erasing). Pasting together the core sheets, joining the cores, and imbedding the heads in shields (if the latter is provided) are done with a specially developed EKS-1 epoxide glue and EPS-1 epoxide paste which ensure constant head parameters in time with temperature variations from -70° to $+60^{\circ}$F and at high humidity. Description of the heads is illustrated by sketches, drawings, and pictures.

R.R.A.

Card 3/3

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

ARNOL D. K. K.

11 июня
(с 18 до 22 часов)

Л. Н. Василевский,
Р. Р. Арнольд

Методика испытания магнитофонов и магнитных головок

А. А. Вроблевский,
Н. Н. Медникова

О направлении намагниченности ленты при записи тороидальными головками.

А. А. Вроблевский

Об измерении уровня при магнитной записи звука

В. А. Горанин

К теории магнитных сигнализаторов.

12 июня
(с 10 до 16 часов)

М. В. Лауфер,
О. В. Порецкий

Вопросы теории и применения модулированных магнитных головок.

62

М. Г. Арутюнов

Форрографическое устройство для визуального наблюдения за несколькими одновременно протекающими процессами

14. СЕКЦИЯ ЭЛЕКТРОННО-ВЫЧИСЛИТЕЛЬНОЙ ТЕХНИКИ

Руководитель Л. Н. Гутенмахер

10 июня
(с 10 до 16 часов)

Совместное заседание с секцией полупроводниковых приборов

В. Н. Говорин

Динамический трактор на полупроводниковом тракте

А. Ю. Гордонов,
Е. Б. Гольдштейн,
Е. Н. Зорин,
В. А. Калинин,
Г. В. Котельников

Специальные элементы цифровых вычислительных машин на полупроводниковых приборах.

Л. Н. Петрокин,
Т. М. Агаханян,
Н. С. Власов,

63

report submitted for the Centennial Meeting of the Scientific Technological Society of Radio Engineering and Electrical Communications im. A. S. Popov (VNORIE), Moscow, 8-12 June. 1959

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

ARNOL'D, R.R.

Effective width of working slits of recording and reproducing magnetic heads. Trudy VNAIZ no.5:10-18 '59. (MIRA 15:4)
(Magnetic recorders and recording)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

ARNOL'D, R.R.; KALANTAROVA, M.S.; SKOTNIKOV, V.Ya.

Study of different types of magnetic recording heads with cores made of new magnetic materials. Trudy VNAIZ no.7:18-34 '60. (MIRA 14:4)

(Magnetic recorders and recording) (Cores (Electricity))

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

27413

9,7910

S/187/60/000/012/002/005
D035/D113

AUTHORS: Arnol'd, R.R.; Kalantarova, M.S.; Skotnikov, V.Ya.

TITLE: The use of new soft magnetic materials in magnetic heads

PERIODICAL: Tekhnika kino i televideniya, 1960, no. 12, 13-20

TEXT: The authors discuss the possibility of using new soft magnetic materials in the magnetic head cores of sound recorders. Information is given on new alloys developed at the Institut pretsizionnykh splavov TsNIIChM (Institute of Precision Alloys of the TsNIIChM), and on their application which was investigated at the Institut zvukozapisi (Institute of Sound Recording). The main purpose of the investigations was to develop alloys with an increased wear resistance at a higher specific electric resistance and a higher initial permeability. Low-nickel (starting with 35-40% Ni) and high-nickel (starting with 79-80% Ni) alloys with various components, including some strengthening and carbide-forming elements together with an increased carbon content, were studied and technological methods for the production of new ferroaluminum alloys were investigated; these alloys known

Card 1/3

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

27413

The use of new... S/187/60/000/012/002/005
D035/D113

as "alfenol" (Ю16 [Yu16]) and "termenol" (Ю16М [Yu16M]) are superior to ferronickel alloys. The following two new alloys were developed: (a) the 79 НХО (79NKhO) alloy, based on a 78% ferronickel alloy with chrome and lead additions, which has initial permeability of up to 30,000 Gs/Oe at an electric resistance of 0.65 ohm•mm^2/m and high resistance to mechanical deformation; (b) the 38НС5 (38NS5) alloy, based on a 38% ferronickel alloy with a silicon addition, which has initial permeability of up to 5,000 Gs/Oe at an electric resistance of up to 1.08 ohm•mm^2/m. These alloys can be successfully substituted for the 80НХС (80NKhS), 79НМ (79NM), and 50 НХС (50NKhS) alloys. A new method of measuring the wear resistance of thin laminar materials, devised by the Institute of Sound Recording is described. The method consisted in subjecting a 7x25mm plate, 0.15-0.30 mm thick, to abrasive wear by a magnetic tape (100 m) in order to find out how much of the plate was rubbed off. A ПМТ-3 (PMT-3) instrument for measuring the microhardness (135-fold magnification) and a "type 1" tape which had a speed of 76 cm/sec and a tension of 250 g, were used. In order to find out if the 80NKhS alloys can be replaced by the 79NKhO and 38NS5 alloys, etc., the Institute of Sound Recording also tested the alloys directly in the magnetic heads. For this purpose the В-01 (V-01), З-01 (Z-01), and МГ-28 (MG-28) magnetic heads were used. The results of these tests are indicated in terms

Card 2/3

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

27413

The use of new...

S/187/60/000/012/002/005
D035/D113

of the quality factor, the shunt coefficient (ratio between the useful magnetic flux through the head and the magnetic flux of the tape), and the parallel loss resistance. The dependence of the initial electroacoustic parameters of the heads on mechanical effects occurring during the pressing-out and gluing of the tempered plates into packets was measured on a ballistic device. The results of these magnetic measurements (change in magnetic properties) are given. There are 3 figures, 5 tables, 3 Soviet-bloc and 3 non-Soviet-bloc references. The three references to the English-language publications read as follows: Rettinger, M., Magnetic head wear investigation, JSMPTE, 1955, 64, no. 4, 179-183; Lufcy, E.W., Heath, W.T., Alloy improves magnetic recording, Electronics, 1955, 28, no. 6, 137-139; Nachman, J.F., Buehler, W.J., 16 percent aluminum-iron alloy cold rolled in the order-disorder temperature range, J. Appl. Phys., 1954, 25, no. 3, 307-313.

Card 3/3

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

ARNOLD, SHORM

CZECHOSLOVAKIA / Organic Chemistry. Synthetic Organic Chemistry. G

Abs Jour: Ref Zhur-Khimiya, No 12, 1958, 39539.

Author : Arnol'd, Shorm.
Inst : Not given.
Title : Synthetic Reactions of Dimethylformamide. I. General Method for Synthesis of Beta-Aldehydes.

Orig Pub: Chem. listy, 1957, 51, No 6, 1082-1090.

Abstract: A general method is described for the preparation of dialdehydes $RCH(CHO)_2$ (I), by the formylation of vinyl ethers $RCH{=}CHOR'$ (II), acetals $RCH_2CH(OC_2H_5)_2$ (III), and alpha-chloroethers $RCH_2CHClOR'$ by means of $(CH_3)_2NCHO$ (IV) and $COCl_2$.

Card 1/8

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

CZECHOSLOVAKIA / Organic Chemistry. Synthetic Organic Chemistry. G

Abs Jour: Ref Zhur-Khimiya, No 12, 1958, 39539.

Abstract: 0.1, 16.5(fr. ether -70°); C_6H_5, 87, 130/0.35, 45-46; $C_6H_5CH_2$, 70, 135/0.15, 108.5-109. To separate (VI) the alkaline mixture is extracted with alcohol-benzene (1:1), the excess of (IV) is removed by vacuum from a dried extract and (VI) is precipitated with dioxane. By the addition of picric acid to the aqueous solution of (VI) the picrates were obtained ($(CH_3)_2NCH{=}CRCH{=}N(CH_3)_2$) . $OC_6H_2(NO_2)_3$. Are cited R, yield of (VI) in %, M.P. of (VI) in °C, M.P. of picrate in °C: H, 35, 188-190, 141.5-142.5; CH_3, 20, 178-180, 127-128; C_2H_5, 30, 169.5-171.5, 68-69; C_5H_{11}, —, —, (hydroscopic), 113.5-114.5; C_6H_5, 26.5, 236, 114.5-115.5.

Card 4/8

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

CZECHOSLOVAKIA / Organic Chemistry. Synthetic Organic Chemistry. G

Abs Jour: Ref Zhur-Khimiya, No 12, 1958, 39539

Abstract: H, 73-73; CH_3, 88-89.5; C_2H_5, 69-70; C_3H_7, 58.5; iso-C_3H_7, 62-63; C_4H_9, 54-55; C_5H_{11}, 55; C_6H_5, 92-93; $C_6H_5CH_2$, 136-137.

By the action of aniline, it is possible to separate (V) in the form of anils, and (I) in the form of dianils.

To the mixture of 0.05 moles of (IV) and 0.03 moles of $COCl_2$ is added with cooling 0.025 moles of (III), R=H, heated for 15 minutes (60°C.), and after 12 hours ice is added, and 0.1 moles of sodium acetate and 12.5 ml of a 4N solution of HCl salt of aniline and 5 ml of a 85% $HClO_4$ • A $HClO_4$

Card 6/8

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

CZECHOSLOVAKIA / Organic Chemistry. Synthetic Organic Chemistry. G

Abs Jour: Ref Zhur-Khimiya, No 12, 1958, 39539.

Abstract: 1.4753 and 1.3 g of (V), R = C_2H_5 (originally alpha-ethyl-beta-dimethyl-acrolein), M.P. 135-140°/12mm (bath temperature), (VII) was synthesized also by boiling of 0.015 moles of sodium salt of (I), R = C_2H_5, with 3 ml of C_2H_5BR in alcohol for 9 hours; yield 1.3 grams. With a 30% $(CH_3)_2NH$, (VII) gives (V), R = C_2H_5.

Card 8/8

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

1ST AND 2ND INDEXES

PROCESSES AND PROPERTIES INDEX

ARNOLD, T. I.

BC

B-1-6

Rapid analysis of aluminium alloys. I. J. Klinov and T. I. Arnold (Zavod. Lab., 1934, 3, 894—896).—1 g. of alloy is boiled with 20% KOH, when Al, Zn, and Si pass into solution, and Fe and Cu remain undissolved. The solution is filtered, the residue washed with 2% KOH and then with H_2O, and dissolved in warm 75% HNO_3. The filtrate + washings are made up to a known vol., ⅓ of which is taken for electrolytic Zn determination (2 amp./3·5 volts for 35 min.). 5 c.c. of 50% H_2SO_4, 20 c.c. of 10% aq. $(NH_4)_2MoO_4$, and H_2O are added to the remaining ⅔ of the filtrate, and the yellow coloration is compared with that given by a standard solution (0·02% Si). The HNO_3 solution of Fe and Cu is made neutral with aq. NH_3, a 20% excess of which is then added to ppt. $Fe(OH)_3$, which is collected, washed with 12·5% aq. NH_3, the filtrate + washings are made up to 250 c.c., and the blue coloration is compared with that given by a standard solution (0·66% Cu). The $Fe(OH)_3$ is dissolved in the least vol. of 50% HCl, 1·5 c.c. of 30% aq. sulphosalicylic acid are added, with aq. NH_3 to change of colour from violet to yellow, when H_2O is added to 1 litre and the coloration compared with that given by a standard solution (0·175% Fe). The complete analysis occupies 1·5—2 hr.

R. T.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

ARNOL' D.T.I.

m

PROCESSES AND PROPERTIES INDEX

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

•A More Rapid Method for Determining Copper and Zinc in Brass. M. J. Klinov and T. I. Arnold (*Zavodskaia Laboratoria* (*Works' Lab.*), 1935, 4, (1), 109–111).—[In Russian.] The brass (0·5 grm.) is dissolved in 10 c.c. of 3 : 1 HNO_3, the Fe oxidized with Br, the solution diluted to 30 c.c., neutralized with NH_4OH, treated with 3–4 drops of 25% KHF_2 solution, and 2 grm. of KI, and titrated with 0·1N-$Na_2S_2O_3$ for Cu. The solution is then boiled, the Cu_2I_2 precipitate removed and the excess of $Na_2S_2O_3$ accurately titrated; 5 grm. of $(NH_4)_2SO_4$ and 1–1·5 c.c. of 5% $K_3Fe(CN)_6$ are added, and the liberated I_2 titrated, more $K_3Fe(CN)_6$ being added, and titration continued until the yellow solution no longer becomes blue after 2 minutes.—D. N. S.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

ARNOL'D, T. I.

BC

PROCESSES AND PROPERTIES INDEX

R-1

Determination of small amounts of aluminium in presence of aluminium oxide. I. J. KLINOV and T. I. ARNOLD (J. Appl. Chem. Russ., 1936, 9, 2075—2078).—The Al_2O_3, containing 2—10% of Al, is treated with standard $FeCl_3$, and the $FeCl_2$ formed is determined titrimetrically. Gravimetric methods, based on oxidation of Al to Al_2O_3, extraction of Al by dil. HCl, or ppta. of Cu from aq. $CuSO_4$ by Al, gave high results. R. T.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

ARNOL'D, T.I.

C1

18

Production of NaCl of high purity. N. I. Nikolaev and T. I. Arnol'd. *Bull. acad. sci. U.R.S.S., Classe sci. chim.* 1942, 231-2.—Tech. NaCl (1 kg.) is dissolved in 0.8-0.9 kg. H_2O, stirred and cooled to 3-4°; the pptd. $NaCl.2H_2O$ is sepd., dissolved in distd. H_2O and concd. to a ratio of 1:0.7-0.8 NaCl:H_2O, and again cooled to 3-4°; the sepd. $NaCl.2H_2O$ is dried at 120-60°. The product averages 99.99% NaCl. A 3rd crystn. yields almost absolutely pure NaCl. O. M. Kosolapoff

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

ARNOLD, E.I.

PROCESSES AND PROPERTIES INDEX

BC

B-1-8

[illegible] of [illegible] by a mixture of sodium and potassium [illegible] J. Appl. Chem. Russ., [illegible] at 75° with NaCl, [illegible] and [illegible] is prepared by mixing NaCl [illegible] KCl [illegible] Na_2SO_4, $10H_2O$ [illegible] are mixed at 75° [illegible] 48 [illegible] of Na_2SO_4 are ppt[illegible] of NaCl + KCl [illegible] NaCl, only so [illegible] mixtion mirabilite: [illegible] The Na_2SO_4 ppt. is washed with saturated aq. Na_2SO_4 at 80°. J. J. B.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

ARNOL'D, T. I.

C 4

PROCESSES AND PROPERTIES INDEX

16

Na_2SO_3 from oxidation of Na_2S with $Fe(OH)_3$. V. I. Nikolaev and T. I. Arnol'd. *J. Applied Chem.* (U. S. S. R.) 16, 270-3(1943).—At 10-15° Na_2S reacts with $Fe(OH)_3$ to yield Na_2SO_3. The O to oxidize the S is derived from the hydroxide. The following process was worked out for oxidizing Na_2S to Na_2SO_3. Make a 5% soln. of Na_2S in H_2O at 10-20°. Add to this soln. 2.6 equiv. of $Fe(OH)_3$ for each equiv. of Na_2S. While mixing the reaction mixt., pass in H_2S to satn. After 5-10 hrs., filter in a filter-press. Conc. the filtrate by evapn. and cool it. $Na_2SO_3.7H_2O$ separates out. If desired, dry at 100-20°. 1000 kg. of Na_2S yields 1161 kg. Na_2SO_3. $Na_2S_2O_3$ can be obtained in the same way by adding S to the filtrate and boiling it.

M. Hosch

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

ARNOL'D, T. I.

ARNOL'D, T. I.--"Investigation of the Process of Interaction of the Oxides of Nitrogen with Ozonized Oxygen and Attempts to Synthesize the Higher Oxides of Nitrogen." Acad Sci USSR. Inst of General and Inorganic Chemistry imeni N. S. Kurnakov. Moscow, 1955. (Dissertation for the Degree of Candidate in Chemical Science).

SO. Knizhnaya letopis'
No 2, 1956

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

ARNOLD, T. I.

"Investigation of the Ineraction of Nitrogen Oxides With Ozonized Oxygen and Research on the Synthesis of Higher Nitrogen Oxides," dissertation for the degree of Candidate of Chemical Sciences by T. I. Arnol'd, Institute of General and Inorganic Chemistry imeni N. S. Kurnakov, Academy of Sciences USSR, Zhurnal Neorganicheskoy Khimii, Vol 1, No 10, Oct 56, p 2429

The purpose of the work was the investigation of the complex processes which take place during the formation of the higher oxides of nitrogen. It is pointed out that data on the substances in question are of interest, because these substances are of importance as strong oxidants. Efficient procedures for the synthesis of N_2O_4, N_2O_5, N_2O_6, and 100% HNO_3 under laboratory conditions were found. It was established that N_2O_5 exerts a stabilizing effect on 100% HNO_3. In the investigation of the interaction of nitrogen [oxides] with H_2O_2, formation of peracids was observed.

[Comment: Nitric acid and nitrogen tetroxide are of importance as components of propellant mixtures.]

Sum 1274

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

5(2)

SOV/62-58-12-2/22

AUTHORS: Makarov, S. Z., Arnol'd, T. I.

TITLE: Investigation of Systems With Concentrated Hydrogen Peroxide (Izucheniye sistem s kontsentrirovannoy perekis'yu vodoroda) Communication 16: Solubility Isothermal Lines of the Ternary System $Sr(OH)_2$-H_2O_2-H_2O (Soobshcheniye 16. Izotermy rastvorimosti troynoy sistemy $Sr(OH)_2$-H_2O_2-H_2O)

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1958, Nr 12, pp 1407-1412 (USSR)

ABSTRACT: In the present paper the solutions of chemically pure and catalyst-free H_2O_2 at concentrations of from 0.5 to 97%, as well as the chemically pure $Sr(OH)_2$ were used as initial products in investigations of the system $Sr(OH)_2$-H_2O_2-H_2O. The latter, which contained no carbonic acid, was twice recrystallized in the nitrogen current. The investigations of the interaction between $Sr(OH)_2$ and H_2O_2 of different concentrations were carried out by means of the solubility method at -10, 0,

Card 1/3

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

Investigation of Systems With Concentrated Hydrogen Peroxide. SOV/62-58-12-2/22
Communication 16: Solubility Isothermal Lines of the Ternary System $Sr(OH)_2$-H_2O_2-H_2O

20, 30 and 50°. The following compounds were found according to the method of radicals: Strontium peroxide octohydrate $SrO_2 \cdot 8H_2O$ and strontium peroxide diperhydrate $SrO_2 \cdot 2H_2O_2$. The presence of an earlier unknown compound, the strontium peroxide monoperhydrate $SrO_2 \cdot H_2O_2$, was detected. It is stable at a concentration of from 2.9 to 9.0% H_2O_2 in the liquid phase at 50°. The data given in publications concerning the presence of semi- and hexahydrate forms were not confirmed. The only hydrate form is the octohydrate of strontium peroxide $SrO_2 \cdot 8H_2O$. There are 10 figures, 5 tables, and 8 references, 1 of which is Soviet.

ASSOCIATION: Institut Obshchey i neorganicheskoy khimii imeni N.S. Kurnakova AN SSSR (Institute of General and Inorganic Chemistry imeni N. S. Kurnakov AS USSR)

Card 2/3

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

5(2)

AUTHORS: Makarov, S. Z., Arnol'd, T. I. SOV/62-59-5-3/40

TITLE: Investigation of Systems With Concentrated Hydrogen Peroxide (Izucheniye sistem s kontsentrirovannoy perekis'yu vodoroda). Communication 18. Physico-chemical Properties of the Solid Phases of the System $Sr(OH)_2$-H_2O_2-H_2O (Soobshcheniye 18. Fiziko-khimicheskaya kharakteristika tverdykh faz sistemy $Sr(OH)_2$-H_2O_2-H_2O)

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1959, Nr 5, pp 774 - 780 (USSR)

ABSTRACT: It was found in a previous work that in the temperature range from -10 to +50° the octahydrate of strontium peroxide $SrO_2 \cdot 8H_2O$ and the mono- and diperhydrate of strontium peroxide $SrO_2 \cdot 2H_2O_2$ and $SrO_2 \cdot H_2O_2$ are solid phases in the system mentioned in the subtitle. In this work the compounds mentioned, which are hardly known or not known at all, were investigated. A thermal analysis, an investigation of heat resistivity of the compounds, and an X-ray investigation were carried out (Figs 11, 12, Tab-

Card 1/3

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

Investigation of Systems With Concentrated Hydrogen Peroxide. Communication 18. Physico-chemical Properties of the Solid Phases of the System $Sr(OH)_2$-H_2O_2-H_2O SOV/62-59-5-3/40

les 5-7) and microphotos taken (Figs 13,14). With thermal treatment the compounds decompose. The heating curves and decomposition diagrams of the individual compounds are shown in figures 1-8 and tables 1 and 2. Moreover, the strontium peroxide compounds were dehydrogenated. Dehydrogenation was carried out in various ways: by drying in the exsiccator at 20°, in the drying chamber under atmospheric pressure at 100°, and in vacuum at 50° (Analyses in Table 3). The following compounds could be found individually by these methods: SrO_2, $SrO_2 \cdot 8H_2O$, $SrO_2 \cdot H_2O_2$, and $SrO_2 \cdot 2H_2O_2$. Active oxygen was separated from the perhydrates with an exothermal effect up to 75° and from strontium peroxide with an endothermal effect at 450°. The water originating with dehydrogenation was gradually removed at 80 and 100°. The hydrates and perhydrates investigated of strontium dioxide change into it by dehydrogenation. The stron-

Card 2/3

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

Investigation of Systems With Concentrated Hydrogen Peroxide. Communication 18. Physico-chemical Properties of the Solid Phases of the System $Sr(OH)_2-H_2O_2-H_2O$ SOV/62-59-5-3/40

tium peroxide compounds investigated, except for the diperhydrate, are stable at room temperature. The compound $SrO_2 \cdot 2H_2O_2$ decomposes already at -5° (Diagram Fig 9). The X-ray and crystallo-optical investigations (Diagram Fig 10, Table 4) confirm the determination of the individual compounds of strontium peroxide found in the investigation of the system $Sr(OH)_2-H_2O_2-H_2O$. There are 14 figures, 7 tables, and 9 references, 2 of which are Soviet.

ASSOCIATION: Institut obshchey i neorganicheskoy khimii im. N. S. Kurnakova Akademii nauk SSSR (Institute of General and Inorganic Chemistry imeni N.S. Kurnakov of the Academy of Sciences, USSR)

SUBMITTED: July 24, 1957

Card 3/3

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

S/062/60/000/011/001/016
B013/B078

AUTHORS: Makarov, S. Z., Arnol'd, T. I., Stasevich, N. N., Shorina, Ye. V.

TITLE: Study of Systems With Concentrated Hydrogen Peroxide. Report 21: The Ternary System $Cu(OH)_2$-H_2O_2-H_2O

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1960, No. 11, pp. 1913 - 1920

TEXT: The formation of copper-peroxide compounds has been studied in relation to the effect of hydrogen peroxide upon the active (e.g., "blue") copper hydroxide. H_2O_2 of different concentrations which had been carefully purified by vacuum distillation and chemically pure copper hydroxide freshly prepared from $CuSO_4 \cdot 5H_2O$ were used as starting materials. The investigation was done by the conventional solubility method at -30°, -20°, 0°, and 20°C. Results of the chemical analysis of liquid phases and of the residue were entered into the Gibbs triangle - CuO - H_2O - $0.5O_2$ act: for -30°C Fig.1, Table 1; for -20°C

Card 1/3

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

Study of Systems With Concentrated Hydrogen Peroxide. Report 21. The Ternary System $Cu(OH)_2$-H_2O_2-H_2O

S/062/60/000/011/001/016
B013/B078

Fig.2, Table 2; for 0°C Fig.3, Table 3; for 20°C Fig.4, Table 4. A new compound with a high active oxygen content ($CuO_2 \cdot H_2O_2 \cdot H_2O$) was found besides the familiar copper oxide compound $CuO_2 \cdot H_2O$. The new compound is formed in the liquid phase at an increased H_2O_2 concentration. The boundaries of the solid phases - ice, $Cu(OH)_2$, $CuO_2 \cdot H_2O$, and $CuO_2 \cdot H_2O_2 \cdot H_2O$ are fairly easily determined by investigating the residue if one does not consider the solubility of $Cu(OH)_2$ in the liquid phase. To plot the complete isothermal lines of solubility, the variations of solubility of $Cu(OH)_2$ in the liquid phase at 0°C and -20°C were systematically investigated (Figs. 5 and 6, Tables 5 and 6). At 0°C the solubility of $Cu(OH)_2$ in water amounts to $0.23 \cdot 10^{-4}$%. At the points of coexistence of two solid phases a considerable increase of solubility is observable. With $Cu(OH)_2$ + $CuO_2 \cdot HO_2$ there are about $12.0 \cdot 10^{-4}$% CuO

Card 2/3

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

Study of Systems With Concentrated Hydrogen Peroxide. Report 21. The Ternary System $Cu(OH)_2$-H_2O_2-H_2O

S/062/60/000/011/001/016
B013/B078

and with $CuO_2 \cdot H_2O$ + $CuO_2 \cdot H_2O_2$ about $9.51 \cdot 10^{-4}$% CuO are dissolved. A similar process is seen in the solubility diagram at -20°C: $CuO_2 \cdot H_2O$ + $CuO_2 \cdot H_2O$ - $8.76 \cdot 10^{-4}$% CuO. There are 7 figures, 6 tables, and 6 references: 1 Soviet.

ASSOCIATION: Institut obshchey i neorganicheskoy khimii im. N. S. Kurnakova Akademii nauk SSSR (Institute of General and Inorganic Chemistry imeni N. S. Kurnakov of the Academy of Sciences USSR)

SUBMITTED: June 15, 1959

Card 3/3

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

8716 4

5.4110 2209, 1087, 1043

S/062/60/000/012/001/020
B013/B055

AUTHORS: Makarov, S. Z., ~~Arnolid, T. I.,~~ Stasevich, N. N., and Shorina, Ye. V.

TITLE: Investigation of Systems With Concentrated Hydrogen Peroxide. Communication XXII. Thermal Analysis of Copper-peroxide Compounds

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1960, No. 12, pp. 2090-2095

TEXT: The present paper is a study of solid phases of the peroxide type found during the investigation of the ternary system $Cu(OH)_2 - H_2O_2 - H_2O$. Thermal analysis and dehydration over phosphorus pentoxide showed that the heating process is accompanied by the decomposition of these compounds. The H_2O_2 absorbed in the liquid phase acts as initiator of this decomposition. The heating curves of Cu_2O_2 (Fig. 1), $Cu(OH)_2$ (Fig. 2), $CuO \cdot H_2O$ (Fig. 3), and $CuO_2 \cdot H_2O_2 \cdot H_2O$ (Fig. 4) were taken with the aid of a Kurnakov recording pyrometer with differential recording at a heating rate of ~6 deg/min. Of

Card 1/3

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

87164

Investigation of Systems With Concentrated Hydrogen Peroxide. Communication XXII. Thermal Analysis of Copper-peroxide Compounds

S/062/60/000/012/001/020
B013/B055

the copper-peroxide compounds studied, anhydrous CuO_2 which decomposes at 110 - 120°C with formation of CuO and O_2 was found to be the most stable. From its behavior at thermal decomposition, $CuO_2 \cdot H_2O$, which is less stable, may be considered not a hydrate of CuO_2, but a compound of Cu(OOH)(OH). $CuO_2 \cdot H_2O_2 \cdot H_2O$, a perhydrate of the former copper peroxide, $Cu(OOH)(OH) \cdot H_2O_2$ is the least stable. It was obtained for the first time. This compound is valuable inasmuch as the presence of bound H_2O_2, under certain dehydration conditions, enables the preparation of higher-quality copper on a wide basis. The compound might also be used as active oxygen-containing catalyst. The changes in the chemical compositions during dehydration of $CuO_2 \cdot H_2O$ and $CuO_2 \cdot H_2O_2 \cdot H_2O$ are illustrated in Figs. 5 and 6 respectively. By careful drying at low temperatures and using small weighed portions of ~5 g it was possible to obtain products of stable composition: 81.6% CuO, 11.90% active O_2, and 6.5% H_2O, which contain free CuO_2 (CuO_2 contains 83.26% CuO and

Card 2/3

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

87164

Investigation of Systems With Concentrated Hydrogen Peroxide. Communication XXII. Thermal Analysis of Copper-peroxide Compounds S/062/60/000/012/001/020 B013/B055

16.74% active O_2). It was thus found that anhydrous CuO_2 of satisfactory quality can be prepared by rapid drying in vacuo of $CuO_2 \cdot H_2O_2 \cdot H_2O$. The structure of the copper compound CuO_2 obtained by dehydrating $CuO_2 \cdot H_2O_2 \cdot H_2O$ was confirmed by Debye-Scherrer radiograms (Fig. 7). The X-ray data of Cu_2O_3 and CuO_2 are shown in Tables 1 and 2 respectively. A. A. Kanishcheva and A. N. Zimina took the X-ray spectra on the УРС-70 (URS-70) apparatus. There are 7 figures, 1 table, and 7 references: 2 Soviet, 1 French, and 4 German.

ASSOCIATION: Institut obshchey i neorganicheskoy khimii im. N. S. Kurnakova Akademii nauk SSSR (Institute of General and Inorganic Chemistry imeni N. S. Kurnakov of the Academy of Sciences USSR)

SUBMITTED: June 15, 1959

Card 3/3

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

ARNOL'D, T.I.; STASEVICH, N.N.

Preparation and properties of sodium perborate monohydrate.
Izv.AN SSSR. Otd.khim.nauk no.11:1921-1924 N '62.

(MIRA 15:12)

1. Institut obshchey i neorganicheskoy khimii im. N.S. Kurnakova AN SSSR.

(Sodium perborate)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

ARNOL'D, TS. S.

Cand Chem Sci

Dissertation: "Comparative Investigation of the Kinetics of Changes in Fog and Light Sensitivity During the Developing Process of Photographic Emulsion." 19/10/50

All-Union Sci-Res Inst of Cinematography--NIKFI.

SO Vecheryaya Moskva
Sum 71

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

ARNOL'D, Ts. S.
CA

Temperature dependence of the processes of ripening of the photographic emulsion and of photographic development. Ts. S. Arnol'd and A. A. Titov. *Doklady Akad. Nauk S.S.S.R.* 79, 1213–16(1950).—The point of view, according to which the centers of photosensitivity, which take part in the production of the centers of the latent image, and the fog centers produced in the course of the 2nd ripening of the photographic emulsion, have the same metallic-Ag nature and are formed autocatalytically at that ripening stage, full development being merely a matter of the Ag microcrystal attaining the size of a visible "development center," is borne out by the similarity of the shapes of the curves of the (1) fog d., D_0, (without action of light) as a function of the length, t_1, of the 2nd ripening, under const. conditions of development, (2) D_0 as a function of the length, t_d, of development, at const. t_1, and (3) the optical d., D, of the image as a function of the length, t_e, of exposure at const. t_d and t_1. The 3 curves are all similar in shape to the curve of growth of the size of a development center as a function of t_d. The common mechanism of the processes of 2nd ripening, of exposure, and of development is reduction of Ag^+ ions by the constituents of the gelatin or the developer. Inasmuch as the reducing agents are always in great excess, these processes are kinetically of the 1st order, and, consequently, the time τ necessary for the attainment of a definite size of the metallic Ag grain, i.e. of a definite optical d., must be related to the abs. temp. by dlnτ/d(1/T) = E/R. Linear plots of lnτ against 1/T for different values of D_0 or D give for the activation energy E values ranging from 18.9 to 41.8 kcal./mole. Generally, E decreases with increasing size of the center (increasing optical d.) particularly at the stage of 2nd ripening, much less in the development process. With highly ripened emulsions, and high D, the activation energy shows a tendency to increase with the size of the developed grain. The autocatalytically accelerated growth of a center is linked not only with the increase of the frequency factor, i.e. the increase of the no. of the reactive Ag^+ ions, but also with an increase of the catalytic activity of the center with its increasing size. The fall of the catalytic activity of a center past a certain crit. size is related to the phenomena of solarization and fog inversion. N. Thon

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

Arnol'd, Ts. S.

USSR

The relation between separate stages of the photographic process [illegible] Doklady Akad. Nauk SSSR [illegible]

[illegible] change in light [illegible] the latent image [illegible] sible image by development [illegible] in their initial stages [illegible] latent and visible [illegible]

[illegible]

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8

S/081/61/000/020/080/089
B148/B110

AUTHOR: Arnol'd, Ts. S.

TITLE: A study of the process of negative color film treatment

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 20, 1961, 389, abstract 20L428 (Tr. Vses. n.-i. kinofotoin -ta, no. 29, 1959, 43-58)

TEXT: A mode of treatment of a negative color film using an after-developer solution instead of washing after the development was worked out. In examining the after-development process in salt solutions of inorganic acids and their mixtures in their quality as an optimal after-developer solution, a 0.2% solution of sodium metabisulfite was chosen. The studied process of negative color film treatment is characterized by a high constancy of the treatment conditions, which ensures a satisfactory reproducibility of results. [Abstracter's note: Complete translation.]

Card 1/1

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120007-8"