

ARKHTEPOV, K.I.; VARKIN, M. V.

analysis of and prospects for the development of devices for
of compound pulley systems. *Usp. khim.* 43 no.8:12-19 1974
(MARI 17:10)

VERTKINA, V. N.

"On the Reaction Between the Aromatic Diamines and Dicarboxylic Acids. II. Reaction of Benzidine with Phthalic Anhydride." Poray-Koshitz, B. A. and Vertkina, V. N. (p. 365)

SO: Journal of General Chemistry (Zhurnal Obshchei Khimii) 1944, Volume 14, no. 4-5.

VERTKINA, V. N.
USSR/Chemistry

Card 1/1

Authors : Foray-Koshits, B. A.; Efros, L. S.; Vertkina, V. N.; and Lutsenko, V. V.

Title : Quinaldine derivatives obtained from aromatic amines and simple vinyl ethers

Periodical : Zhur. Ob. Khim. 24, Ed. 5, 895 - 898, May 1954

Abstract : Quinaldine is a valuable intermediate product used in the synthesis of stable acid and cyanine dyes. The reaction of primary aromatic amines with simple vinyl ethers appears to be the general method of obtaining quinaldine derivatives. The success of the reaction depends on the nature of the substitute oriented in the nucleus. In case of a highly activated molecule of the reacting amine as well as in the case of de-activating, especially of the *o*-position relative to the amino group, no quinaldine derivatives can be obtained. Literature references are given since 1883.

Institution: The Lenseviet Technological Institute, Leningrad, The A. E. Foray-Koshits Technological Laboratory of Organic Dyes

Submitted : December 24, 1953

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Reaction between aromatic diamines and dicarboxylic acids II Reaction of benzidine with phthalic anhydride.
 B. A. Dvort Koshits and V. N. Vertkina. *J. Gen. Chem. (U.S.S.R.)* 14, 355 81(1943) (English summary); cf. C.A. 38, 1249. Phthalic anhydride (I) (14.8 g.) in 100 cc. hot EtOH was treated with 9.2 g. benzidine (II) in 100 cc. EtOH to yield 23.8 g. mixed monophthaloylbenzidine, m. 200°, and diphthaloylbenzidine, m. about 307°. When the above reaction was conducted in 200 cc. PhNMe₂ and the mixt. was refluxed for 1 hr. there was obtained 23.0 g. of product, m. 370°, which was identical with the above mixt. Molten II (100 g.) was treated gradually with 10 g. I; the melt was cooled, ground, and boiled with EtOH to yield a residue of 10 g. *monophthaloylbenzidine*, m. 302° (m. 309° from PhNO₂); the product could not be diazotized, although a free NH₂ group exists as shown by formation of a *benzylidene deriv.*, by refluxing with HCl, m. 321.2°, which rose to 370.30° after repeated crystn. from HCl

Molten I (100 g.) was treated with 10 g. II; the cooled mixt. was extd. with 10% Na₂CO₃ soln. to yield 14.5 g. diphthaloylbenzidine, m. 402° (m. 406° after sublimation). Five g. 4'-nitro-4-aminobiphenyl and 4 g. I were refluxed for 1 hr. in 100 cc. PhNMe₂ to yield 98% 4'-nitro-4-phthaloylbiphenyl, m. 321.2°; reduction with Fe-Zn dust in AcOH gave a non-diazotizable product identical with 4-phthalimidobiphenyl having a non-diazotizable amino group. I (26.6 g.) and 30.8 g. II were refluxed in 200 cc. water for 9 hrs. to yield 20 g. *N-(6'-amino-4-biphenyl)phthalamic acid*, m. 250-300°; *benzylidene deriv.*, m. 306-308° (after repeated crystn. from HCl, m. 307°). Molten II (50 g.) was treated with 5 g. diphthaloylbenzidine, cooled, and treated with hot EtOH to yield monophthaloylbenzidine. Similarly, monophthaloylbenzidine and molten I yield the diphthaloylbenzidine, 4,4'-diphthalimidobiphenyl
 G. M. Kosolapoff

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METALLURGICAL LITERATURE CLASSIFICATION

33000 330000

~~VERTKINA, Y.N.~~; DINABURG, M.S., kand. khim. nauk; MAZAL', R.F.;
MAR'YANOVSKAYA, K.Yu.; PORAY-KOSHITS, B.A., prof.; UL'MAN, K.M.;
EFROS, L.S., prof.

Developments in the synthesis of direct dyes. Khim. nauka i prom.
3 no.2:191-212 '58. (MIRA 11:6)
(Azo dyes)

VERTINA V N.

"APPROVED FOR RELEASE: 09/01/2001

CIA-RDP86-00513R001859530002-8

APPROVED FOR RELEASE: 09/01/2001

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APPROVED FOR RELEASE: 09/01/2001

CIA-RDP86-00513R001859530002-8"

VERTKINA, V.N.

PORAY-KOSHITS, B.A.; EFROS, L.S.; VERTKINA, V.N.; LUTSENKO, V.V.

Preparation of quinaldine derivatives from aromatic amines and vinyl ethers. Zhur.ob.khim. 24 no.5:895-898 My '54. (MLRA 7:8)

1. Laboratoriya tekhnologii organicheskikh krasiteley im. A.Ye.Poray-Koshitsa Leningradskogo tekhnologicheskogo instituta im. Lensoveta.

(Quinaldine) (Amines) (Ethers)

CARPINISAN, Olimpia, ing.; TAFLAN, Mircea, chim.; DAN, V., ing.;
BESLIU, L., ing.; KABA, E., ing.; VERTLEN, P., ing.; DAVID, V., ing.

Experiments for utilizing the hydrocyanic acid from the
coke gas. Metalurgia Rum 15 no.5:348-352 My '63.

VERTLEYB, L.K.

KOVASHENKOV, A.V., kandidat tekhnicheskikh nauk; PUGO, A.M., gornyy inzhener; DOKS, M.Ye., gornyy inzhener; VERTLEYB, L.K., gornyy inzhener.

Results obtained in converting a quartzite mine to short-delay blasting. Gor. zhur. no.4:54-60 Ap '57. (MLRA 10:5)

1. Institut gornogo dela Akademii nauk SSSR (for Kovashenkov, Pugo)
2. Kombinat KMaruda (for Doks, Vertleyb).
(Blasting)

VENTILEYB, L.K.

PASSEK, M.A.; VERTLEYB, L.K.

Combined method for blasting holes. Biul. TSHIICHM no.2:40-41 '58.
(Blasting) (Mining engineering) (MIRA 11:5)

VERTLIB, B. S.

Storage Batteries.

Use of iron-nickel storage batteries in electric power stations and substations;
Energ. biul. no. 12, 1951.

9. Monthly List of Russian Accessions, Library of Congress, May 1951, 2 Uncl.

VERTLIB, B. S.

Electric Power Stations.

Use of iron-nickel storage batteries in electric power stations and substations,
Energ. biul, no. 12, 1951.

9. Monthly List of Russian Accessions, Library of Congress, May 195~~1~~² Uncl.

VERTLIB, Ya.M.

Chronic suppurative otitis media and tumor simulating contralateral
abcess of the brain. Vest. otorin. 22 no.4:88-89 Je-Ag '60,
(MIRA 13:12)

(BRAIN--ABSCESS)

(EAR--DISEASES)

VERTLIB, Ya.M.

Otogenic liquorrhea. Zhur. ush., nos. 1 gorl.bol. 22 no.1:83-84
Ja-F '62. (MIRA 15:5)

1. Iz otdeleniya bolezney ukha, gorla i nosa (zav. - A.V.Tenyayev)
Ul'yanovskoy oblastnoy bol'nitsy.
(EAR—DISEASES) (CEREBROSPINAL FLUID)

YEVDOKIMOV, P.P.; VERTLIB, Ya.M. (Ul'yanovsk)

Otitis and allergy. Out-of-town conference of the Moscow Institute
for Diseases of the Ear, Throat, and Nose. Kaz. med. zhur.
no. 2:103-104 Mr-Apr '61. (MIRA 14:4)
(EAR--DISEASES) (ALLERGY)

L 00740-66 ENT(m)/EPT(c)/T BM/DJ

ACCESSION NR: AP5021990

UR/0286/65/000/014/0065/0065
665.4/.5

AUTHOR: Garzanov, G. Ye.; Vinner, G. G.; Maloletkov, Ye. K.; Bogdanov, Sh. K.;
Sergiyenko, V. G.; Petyakina, Ye. I.; Selivanichik, Ya. V.; Vertlib, Ya. V.;
Gusman, M. Ye.; Shams, F. Ye.; Smirnov, M. I.; Granat, A. N.; Bulantseva, I. P.;
Krylova, T. A.

TITLE: A method for producing hydraulic fluid: Class 23, No. 172947

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 14, 1965, 65

TOPIC TAGS: hydraulic fluid, petroleum product

ABSTRACT: This Author's Certificate introduces a method for producing hydraulic fluid based on petroleum products. The efficiency of the fluid at low temperatures is improved by using a velocity distillate with a flash point of 115-120°C and a viscosity of less than 2200 centistokes at -40°C.

ASSOCIATION: Nauchno-issledovatel'skiy institut organizatsii, mekhanizatsii i tekhnicheskoy pomoshchi (Scientific Research Institute for Organization, Mechanization and Technical Assistance)

Card 1/2

L 00740-66

ACCESSION NR: AP5021990

SUBMITTED: 14Aug64

ENCL: 00

SUB CODE: FP

NO REF SOV: 000

OTHER: 000

DP
Card 2/2

VERTLIB, Ya.Ye.; GRUSHEVENKO, V.I.; PAVLOVA, I.P.

Experimental industrial alkylation of phenol in the presence of the KU-2 cation exchange resin. Khim.i tekhn. topl.i masel 5 no.5:12-16 My '60. (MIRA 13:7)

1. Yaroslavskiy neftepererabatyvayushchiy zavod im. D.I. Mendeleeva.

(Phenol) (Alkylation)

S/180/62/000/006/001/022
E193/E383

AUTHORS: Vertman, A.A., Samarin, A.M. and Filippov, Ye.S.
(Moscow)

TITLE: Viscosity and electrical conductivity of liquid
nickel-carbon alloys

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye
tekhnicheskikh nauk. Metallurgiya i toplivo,
no. 6, 1962, 37 - 42

TEXT: In continuation of an earlier work (Izv. AN SSSR, OTN,
Metallurgiya i toplivo, 1960, no. 6, 162-167) the authors have
determined the concentration-dependence of viscosity and elec-
trical conductivity of liquid nickel-carbon alloys in the 0-2.3%
carbon range. The results are reproduced in Fig. 4, where the
viscosity (η , centistokes) and electrical resistivity (ρ , $\mu\Omega\text{cm}$)
of the alloys at temperatures indicated by each curve are plotted
against the carbon content (C, wt.%) of the alloy. Since it had
been shown earlier (V.M. Glazov, A.A. Vertman - Sb. Stroyeniye i
svoystv zhidkikh metallov (Symposium. Structure and properties
of liquid metals), Izd-vo AN SSSR, 1960, 124-137) that the vis-
cosity isotherms of eutectiferous systems passed through a
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Viscosity and

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E193/E383

minimum at the eutectic composition (i.e. in the alloy in which the relatively weaker forces binding dissimilar atoms predominated), the curves reproduced in Fig. 4 indicated that the Ni-C eutectic was formed at 1.35% against the published value of 2.0-2.5% C. The constitution diagram of the Ni-C system was therefore reinvestigated by thermal and metallographic analysis; the results showed that the eutectic was, in fact, formed at approximately 1.3-1.4% C. It was concluded, consequently, that the minima on the viscosity and electrical-resistivity isotherms were associated with the fact that the short-range order, inherent in solid eutectic alloys was retained on melting; increasing the concentration of either Ni or C in the alloy brought about an increase in the proportion of the relatively stronger forces between similar atoms which, in turn, increased the viscosity of the alloy. The existence of viscosity hysteresis was also established. This effect was attributed to the existence of microscopic arrays of C atoms in the alloy; these dissolved partially on melting, as a result of which their size during subsequent cooling was smaller than during heating, this difference being reflected in the viscosity of the alloy. The presence of a sharp minimum in the concentration-

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Viscosity and

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E193/E383

dependence of the activation energy for the viscous flow of Ni-C alloys was also attributed to the effect of microscopic arrays of C atoms. The concentration-dependence of the $\rho_{\text{L}}/\rho_{\text{TB}}$ ratio (where ρ_{L} and ρ_{TB} denote, respectively, resistivity of the alloy in the liquid and solid states at the eutectic temperature) was also determined. The value of $\rho_{\text{L}}/\rho_{\text{TB}}$, practically constant in the hypo-eutectic alloys, increased sharply in the hyper-eutectic range. This effect was attributed to partial dissolution of the carbon micro-arrays on melting. The general conclusion was that the formation of carbon micro-arrays was a property common to all three systems of the Ni-C system which represent a limiting case of microheterogeneous eutectic alloys with properties approaching those of a colloidal solution. There are 7 figures. ↓

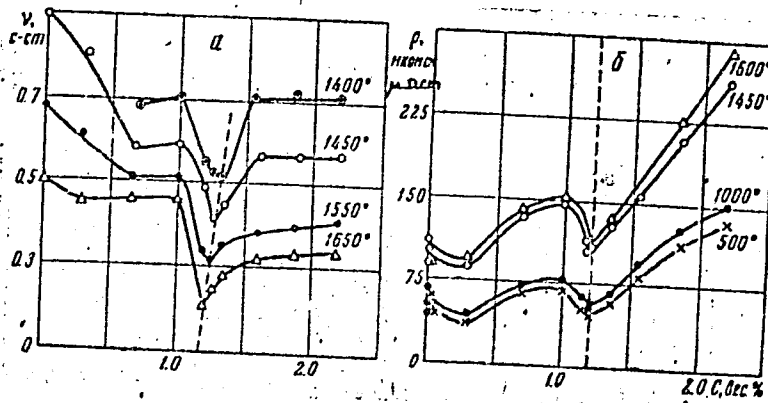
SUBMITTED: May 8, 1962

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Viscosity and

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E193/E383

Fig. 4:



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L 19686-63 EWP(q)/EWT(m)/BDS/EPF(n)-2/EWP(B)/ES(v)/EPR AFFTC/ASD
SSD Pu-4/Pe-4/Ps-4 WW/JD/JW/JG/JT

ACCESSION NR: AP3005832

S/0279/63/000/004/0175/0176

AUTHOR: Vertman, A.

Handwritten initials and 'B' mark

TITLE: Seminar on the problems of research on thermophysical
properties of substances at high temperatures [Held at Novosibirsk,
9-10 April 1963]

Handwritten '16'

SOURCE: AN SSSR. Izvestiya. Metallurgiya i gornoye delo, no. 4,
1963, 175-176

TOPIC TAGS: metal, alkali metal, refractory metal, high tempera-
ture specific heat, high temperature heat conductivity, high tem-
perature electric conductivity, liquid state theory, liquid state
physics, investigative method, metal thermophysical property,
alkali metal thermophysical property, refractory metal thermophys-
ical property, heat mass exchange seminar

Handwritten '18'

ABSTRACT: The fourth Siberian seminar on heat-mass exchange was
held at the Institut teplofiziki SO AN SSSR (Institute of Thermo-
physics, SO AN SSSR) in Novosibirsk, 9-10 April 1963. About 100

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ACCESSION NR: AP3005832

representatives of scientific research organizations from Moscow, Leningrad, Kiev, and other cities participated in the seminar. The keynote speaker, I. I. Novikov, Corresponding member, Academy of Sciences SSSR, stated that the main problems were the accumulation of data on properties of substances at temperatures ranging from near absolute zero to that of plasma, development of essentially new methods of measuring properties of condensed phases at temperatures up to 3000—5000C, and development of liquid state theory. A. N. Solov'yev (Novosibirsk) reported on the results of measuring the electric conductivity of alkali metals at temperatures up to 900C. A. N. Solov'yev and A. B. Kaplun (Novosibirsk) described the dependence of liquid metal viscosity on volume and suggested an improved formula for viscosity determination. Yu. S. Trelin (Moscow) presented data on the velocity of sound in molten alkali metals. Heat conductivity of tungsten, molybdenum, and niobium at temperatures above 2000C was discussed by O. A. Krayev and A. A. Strel'makh (Novosibirsk). A. A. Vertman (Moscow) described methods of investigation of viscosity, electric conductivity, surface tension, density, magnetic susceptibility, specific heat, and mixing

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ACCESSION NR: AP3005832

heat for molten iron alloys in the 1500—2000C range. A number of reports, among them a report of Ye. S. Plotunov (Leningrad), dealt with experimental methods of measuring specific heat and heat conductivity of metals and nonmetallic materials and described the considerable advantages of pulse methods and also of the photographic method of temperature measurement. Ya. A. Kraftmakher (Novosibirsk) measured the specific heat of tungsten at temperatures up to 3000C, molybdenum, up to 2200C, and niobium, up to 2400C. A sharp increase in the rate of specific heat rise with temperature was ascribed to an increasing number of vacancies. L. P. Filippov, Yurchak, and Dy*gayskaya spoke on the fundamentals of measuring specific heat by the method of surface temperature waves. The method, in principle, can be applied to solid as well as to liquid metals in a wide temperature range. E. V. Matizen (Novosibirsk) described a precision adiabatic high-temperature calorimeter for determination of the specific heat of substances at temperatures up to 2600C. V. V. Fesenko (Kiev) investigated the heat conductivity of tantalum and molybdenum carbides in the 2500—3500C range. Professor S. S. Kutateladze, who directed the work of the seminar, praised the high experimental level of

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ACCESSION NR: AP3005832

works in the field of high temperature measurements, but noted a lack of theoretical and summarizing works dealing with the physics of condensed systems and, particularly, of the liquid state.

ASSOCIATION: none

SUBMITTED: 00

DATE ACQ: 11Sep63

ENCL: 00

SUB CODE: MA, ML

NO REF SOV: 000

OTHER: 000

Card 4/4

VERTES, Marietta; KOVACS, S.

Mechanism of the hypothalamic control of TSH secretion: experiments
in vitro. Acta physiol. acad. sci. Hung. 26 no.4:329-335 '65

1. Institute of Physiology, University Medical School, Pecs.

KOVACS, S.; VERTES, Marietta

The effect of hypothalamic lesion on the biosynthesis of thyroid hormones. Acta physiol. acad. sci. hung. 23 no.1:21-25 '63.

1. Institute of Physiology, Medical University, Pecs.
(ELECTROCOAGULATION) (HYPOTHALAMUS) (TYROSINE)
(IODINE ISOTOPES, DIAGNOSTIC) (THYROID GLAND)

KOVACS, S.; VERTES, M.; KOVESI, Gy.

Effect of hypothalamic lesions on the activity of the pituitary-thyroid system. Experiments with ^{131}I on the rat. Acta physiol. hung. 17 no.3:295-300 '60.

1. Institute of Physiology, Medical University, Pecs.
(HYPOTHALAMUS physiol)
(IODINE metab)
(THYROID GLAND physiol)
(PITUITARY GLAND ANTERIOR physiol)

KOVACS, S.; VERTES, M.

The effect of posterior pituitary hormones on the function of the anterior pituitary-thyroid system in vitro. Acta physiol. akad. sci. hung. 21 no.1:69-72 '62.

1. Institute of Physiology, Medical University, Pecs.

(PITUITARY GLAND, POSTERIOR hormones)
(PITUITARY GLAND, ANTERIOR physiology)
(THYROID GLAND physiology)

VERTES, O. Andras (Budapest, B., Szalay u.10)

An 18th-century Hungarian paper in psychology; an essay by Mihaly Fronius on the wild man of Brasso. Magy pszichol szemle 17 no.1:50-59 '60.

1. Magyar Tudomanyos Akademia Nyelvtudomanyi Intezete (igazgato: dr. Nemeth Gyula egyetemi tanar, alademikus).

L 29143-66 EHI(d) IJP(c) SOURCE CODE: UR/0199/65/006/003/0686/0691
ACC NR: AP6018672

AUTHOR: Vertoyan, B. A.

ORG: none

TITLE: Some ways of linearization and approximate solution of nonlinear functional equations

SOURCE: Sibirskiy matematicheskiy zhurnal, v. 6, no. 3, 1965, 686-691

TOPIC TAGS: nonlinear equation, functional equation

ABSTRACT: In this article some methods are proposed and investigated for linearization and solution of nonlinear equations which are close to the tangent and secant methods, including mixed methods. The results obtained offer a basis for convergence of the two-dimensional analog of the secant method, which goes back to Gauss. The discussion is presented in the form of a lemma, theorem, and proof. Orig. art. has: 22 formulas. [JPRS]

SUB CODE: 12 / SUBM DATE: 12Jun64 / ORIG REF: 007 / OTH REF: 002

UDC: 517.948

Card: 1/1 *cc*

VERTOEYM, D.A.

Some methods of linearization and approximate solution of nonlinear
functional equations. Sib. mat. zhur. 6 no.3 1966-67. No. 5. 15.
(MIRA 18:8)

Source: U.S. Army Intelligence Information Systems, 1971-1974, 1976-1978

Card 1/2



32480

S/044/61/000/010/046/051
C111/C222

16.4600

16.6500

AUTHOR: Vertgeym, B.A.

TITLE: Some theorems on the convergence of the method of Newton

PERIODICAL: Referativnyy zhurnal. Matematika, no. 10, 1961, 41,
abstract 10 V 244. ("Sb. nauchn. tr. Permsk. politekhn. in-t",
1960, no. 7, vyp. I, 3 - 28)

TEXT: According to the methods developed by L.V. Kantorovich the author investigates the conditions of convergence of the method of Newton for the functional equations $P(x) = 0$, where $y = P(x)$ is a nonlinear operation, x and y are elements of certain spaces X and Y of the type of Banach. The author considers classes of equations characterized by one of the following assumptions on the operation P : 1) there exists the Frechet derivative $P'(x)$ satisfying the Hölder condition

$\|P'(x_1) - P'(x_2)\| \leq K \|x_1 - x_2\|^\alpha$, where $\alpha (0 < \alpha \leq 1)$, and K are certain constants; 2) $P'(x)$ is continuous in the neighborhood of the initial approximation. Results relating to this question are published

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Some theorems on the convergence ...

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in other papers of the author (R Zh Mat, 1958, 3304 ; 1959, 6022). The method of Newton is applied to the system of differential equations

$$\Delta \Delta \psi = - \frac{\partial T}{\partial x} + Q \left(\frac{\partial \psi}{\partial x} \cdot \frac{\partial \Delta \psi}{\partial y} - \frac{\partial \psi}{\partial y} \cdot \frac{\partial \Delta \psi}{\partial x} \right),$$

$$\Delta T = \frac{\partial \psi}{\partial x} \cdot \frac{\partial T}{\partial y} - \frac{\partial \psi}{\partial y} \cdot \frac{\partial T}{\partial x}$$

which describes a plane stationary convective motion of a fluid which fills up a cylindric region ; the boundary conditions

$$T|_{\Gamma} = ht(s), \quad \psi|_{\Gamma} = \frac{\partial \psi}{\partial n}|_{\Gamma} = 0$$

are given on the boundary Γ of the plane region D (plane cylindric section) ; here : T -- temperature, ψ -- flow function ; s -- coordinate of a point on the boundary ; Q and h -- constants. Known results

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Some theorems on the convergence ...

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C111/C222

(Lineykin, P.S., Ob uravneniyakh teplovoy konveksii [On equations of heat convection] Prikl. matem. i mekhan. 1951, 15, 4) on the convergence of successive approximations for the equations of heat convection are improved.

[Abstracter's note : Complete translation.]

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32525

S/044/61/000/011/048/049
C111/C444

16.3500 245200

AUTHOR: Vertgeym, B. A.

TITLE: On the approximative solution of the equations of heat convection

PERIODICAL: Referativnyy zhurnal, Matematika, no. 11, 1961, 43-44 abstract 11V249. (Sb. nauchn. tr. Permsk. gorm. in-t, 1959, no. 4, 67-78)

TEXT: One describes the solution of the plane problem of stationary convection in a homogeneous liquid which fills an horizontal cylindrical domain, where the temperature is given on the boundary. In order to decide whether it is possible to apply the Newton method for the determination of the convergence domain of the approximative solution method the case is considered where the given domain is a circle and where the temperature on the boundary is linear distributed under missing convection. The problem leads to a system of non-linear integral equations which is understood as a functional equation in a space of Banach type. The calculation can be reduced to the solution of the harmonic and of the biharmonic equation in a circle, or one can use different kinds of the modified successive approximations of Newton.

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32525

On the approximative solution of . . . S/044/61/000/011/048/049
C111/C444

The convergence of the approximative solutions to the solution of the functional equation is proved. One estimates the norms of the integral operators connected with the Green functions.

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[Abstracter's note: Complete translation.]

Card 2/2

VERIGEYM, I. I.

"On the question of the central interest of the personality of pilots" - p. 57

Voyenno Meditsinskiy Zhurnal, No. 3, 1962

VERTICEY, B. A.

"JUNE 1 1964" stamp

Includes two separate problems based on the theory of... (mirrored text)

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VERTGEYM, B. A., Cand Phys-Math Sci -- (diss) "On Certain
Methods of the Approximate Solution of Nonlinear Functional
Equations." Molotov, 1957. 13 pp (Min of Higher Education
USSR, Molotov State Univ im A. M. Gor'kiy), 100 copies.
Bibliography at the end of the text (11 titles). (KL, 47-57, 85)

AUTHOR: Vertgeym, B.A. 20-119-1-2/52
 TITLE: On the Approximate Construction of Certain Conformal Mappings
 (O priblizhennom postroyenii nekotorykh konformnykh otobrazheniy)
 PERIODICAL: Doklady Akademii Nauk, 1958, Vol 119, Nr 1, pp 12-14 (USSR)
 ABSTRACT: The author considers the conformal mapping of the unit circle
 $|z| < 1$ onto a domain of the w -plane which contains the origin
 $w_0 = 0$ and which is bounded by a simple closed, not star-shaped
 contour L defined by the equation

$$w = \exp \{f_1(t) + if_2(t)\}.$$

Here let f_1 and f_2 be two times continuously differentiable,
 $f_1(t+2\pi) = f_1(t)$; $f_2(t+2\pi) = f_2(t) + 2\pi$, $(f_1')^2 + (f_2')^2 \geq d^2 > 0$,

$$|f_k''(t_1) - f_k''(t_2)| \leq l_k |t_1 - t_2| \quad k=1,2.$$

The problem is reduced to the nonlinear singular integral equation

$$(1) \quad f_2 [t(\varphi)] - \varphi - S f_1 [t(\varphi)] = 0,$$

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where S denotes the integral operator with a Hilbert kernel.

On the Approximate Construction of Certain Conformal Mappings 20-119-1-2/52

For the solution of (1) the author applies the Newton's method developed by Kantorovich [Ref 2,3]. Here the successive approximations are obtained from linear singular integral equations. Under the assumption

$$|t_0(\varphi) - t^*(\varphi)| \leq \frac{\pi}{2 \max |\omega'(t)|} \quad \text{the author shows that the}$$

sequence of approximations ($t_0(\varphi)$ - zero approximation) converges to a limit function $t^*(\varphi)$ and that this is a solution of (1). The $\omega'(t)$ is defined by the relation $f_2^1(t) - if_1^1(t) = g(t)e^{i\omega(t)}$.

There are 5 references, 4 of which are Soviet.

ASSOCIATION: Permskiy gornyy institut (Perm Institute for Mining)
 PRESENTED: October 15, 1957, by M.A. Lavrent'ev, Academician
 SUBMITTED: September 6, 1957

Card 2/2

20-119-2-2/60

AUTHOR: Vertgeym, B.A.

TITLE: ~~ON the Approximate Construction of Some Quasiconformal~~
 Mappings (O priblizhennom postroyenii nekotorykh kvazikonformnykh
 otobrazheniy) SSSR

PERIODICAL: Doklady Akademii Nauk, 1958, Vol 119, Nr 2, pp 203-206 (USSR)

ABSTRACT: The author considers the construction of a quasiconformal
 mapping of the circle T , $|z| < 1$ onto a domain G of the w -plane
 with the aid of the function $w = w(z) = u(x,y) + iv(x,y)$ which
 satisfies the linear elliptic system

$$\begin{aligned} au_x + bu_y &= v_y & a(x,y) > 0 \\ -bu_x + au_y &= -v_x \end{aligned}$$

with the normalization $w(0) = w_0 = 0$, $w(t_1) = w_1 = u_1 + iv_1$,
 $w_0 \in G$, $w_1 \in \Gamma$, $|t_1| = 1$, where the boundary Γ of G is des-
 cribed by an equation $F(z,v) = 0$. The a, b, F are assumed to be
 two times continuously differentiable, besides the second
 derivatives of F have to satisfy a Lipschitz condition in the
 neighborhood of Γ .

Card 1/2

On the boundary let $w(t) = u(t) + iv(t)$, $t = e^{i\psi}$. In the space

On the Approximate Construction of Some Quasiconformal
Mappings

20-119-2-2/60

H^{μ} of functions continuous in the sense of Hölder, the author introduces the linear functionals k and l

$$k[u(t)] = u(0,0) \quad l[v(t)] = v(0,0)$$

and the operator S (transition to the conjugate function)

$$v(t) = Su(t), \quad l[Su(t)] \equiv 0.$$

The considered problem is reduced to the determination of the functions $\{u(t), v(t)\}$, $t = e^{i\varphi}$ from a certain system of equations. According to Kantorovich [Ref 3,4], this problem is solved with the aid of the method of Newton. The author gives sufficient conditions for the solvability and for the convergence of the method. The paper of Vekua [Ref 2] is used essentially. There are 6 Soviet references.

ASSOCIATION: Permskiy gornyy institut (Perm Mining Institute)
PRESENTED: October 15, 1957, by M.A. Lavrent'yev, Academician
SUBMITTED: September 9, 1957

Card 2/2

VERTGEYM, B.A.

Approximate construction of some conformal mappings. Dokl. AN
SSSR 119 no.1:12-14 Mr '58. (MIRA 11:4)

1. Permskiy gornyy institut. Predstavleno akademikom M.A.
Lavrent'yevym. (Conformal mapping)

VERTGEYM, B.A.

Approximate construction of some quasiconformal mappings. Dokl.
AN SSSR 119 no.2:203-206 Mr '58. (MIRA 11:5)

1. Permskiy gornyy institut. Predstavleno akademikom M.A.
Lavrent'yevym.
(Conformal mapping)

S/044/62/000/006/093/127
B166/B112

AUTHOR: Vertgeym, B. A.
TITLE: Approximate construction of certain quasiconformal mappings
PERIODICAL: Referativnyy zhurnal. Matematika; no. 6, 1962, 41, abstract
6V196 (Issled. po sovrem. probl. teorii funktsiy kompleksn.
peremennogo, M., Fizmatgiz, 1960, 519-525)
TEXT: The problem of constructing a quasiconformal map in which
infinitely small circles are transformed to given ellipses is examined.
Sufficient conditions for the convergence of a method of successive
approximations for the approximate mapping of a given region on a pole-
type region are established. [Abstracter's note: Complete translation.]

Card 1/1

VERTGEYM, I.A., kapitan meditsinskoy sluzhby

Experience in the treatment of neuroses in military sectors. Voen.-
med. zhur. no. 4: 51-54 Ap '60. (MIRA 14:1)
(NEUROSES) (PSYCHIATRY, MILITARY)

BARANOV, L.A., inzh.; SKRYLEVA, G.I., inzh.; STANKEVICH, P.M.; VERTIKOVA, T.A.

Using alcohol-containing waste products from chemical industries as
a type of reagent in the flotation of coal slurry. Nauch.trudy Kuz-
NIIUgleobog. no.2:93-116 '64. (MIRA 17:10)

SOV/44 - 58 - 4 - 3304

Translation from: Referativnyy zhurnal, Matematika, 1958, Nr 4,
p 146 (USSR)

AUTHOR: Vertingeym, B. A.

TITLE: On Certain Conditions of the Convergence of Newton's
Method and on the Application of the Method to the Solu-
tion of Systems of Equations (O nekotorykh usloviyakh
skhodimosti metoda Nyutona i o primenenii metoda k
resheniyu sistem uravneniy)

PERIODICAL: Nauchn. tr. Molotovsk. gorn. in-ta, 1956, sb. 1,
pp 142 - 153

ABSTRACT: The author examines Newton's method for the solution of
nonlinear functional equations

$$P(x) = 0 \quad (1)$$

where $P(x)$ is a continuous operation, the first derivative of

Card 1/4

SOV/44-58-4-3304

which in the sense of Fréchet satisfies the Hölder condition

$$\|P'(x_1) - P'(x_2)\| \leq K \|x_1 - x_2\|^\alpha \quad (2)$$

(K and α are constants, $0 < \alpha \leq 1$) in a certain region. The lemma is proven: If P(x) is a differentiable (in the Fréchet sense) operation of X to Y (X and Y are Banach spaces) and the Hölder condition (2) is satisfied for P'(x) with fixed elements $x_2 \equiv x_0$, then

$$\|P(x_0 + \Delta x) - P(x_0) - P'(x_0)\Delta x\| \leq \frac{K}{1+\alpha} \|\Delta x\|^{1+\alpha}$$

Furthermore, the fulfillment of condition (2) on the interval $x_t \equiv x_0 + t\Delta t$, $0 \leq t \leq 1$ is sufficient. Theorem 1 is also valid: For equation (1) let there be satisfied the conditions: a) at the initial point x_0 the linear operation P'(x₀) has the inverse $\Gamma_0 = [P'(x_0)]^{-1}$ and the values of $\|\Gamma_0\| \leq B_0$, $\|P'(x_0)\| \leq \eta_0$ are known; b) for P'(x) the weakened Hölder condition (2) with fixed point $x_2 \equiv x_0$ is satisfied and at any x_1 from the region x_0

$$\|x - x_0\| \leq N \eta_0, \text{ where } 1 < N \leq \frac{1+\alpha}{\alpha} \quad (4)$$

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SOV/44 - 58 - 4 - 3304

c) the constants B_0 , n_0 , K , α , and N in conditions a) and b) are such that

$$B_0 K / L_0^\alpha \equiv h_0 \leq (1+\alpha) \frac{N-1}{N^{1+\alpha}} \equiv \varphi(N) \quad (5)$$

Then in the sphere (4) equation (1) has the singular solution x^* , to which converge the successive approximations

$$X_{n+1} = x_n - [P'(x_n)]^{-1} P(x_n) \quad (6)$$

of the modified method, whereupon

$$\|x^* - x_n\| \leq \frac{q^n}{1-q}, \quad q = h_0 N^\alpha < 1 \quad (7)$$

If the solution of equation (1) is found by means of the basic Newton method

$$X_{n+1} = X_n - [P'(X_n)]^{-1} P(X_n), \quad (8)$$

then theorem 2 is valid: Let there be satisfied the condition a) of theorem 1; let there be satisfied for $P'(x)$ the Hölder condition (2) at any x_1 and x_2 of the sphere $\|x - x_0\| \leq \frac{1}{1-s} r_0$

$$s = \left(\frac{q}{1+\alpha}\right)^{\frac{1}{1+\alpha}};$$

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SOV/44 - 58 - 4 - 3304

let $h_0 = B_0 K \eta_0^\alpha = Q(\alpha)$ where $Q = Q(\alpha)$ is a root of the equation
 $(\frac{Q}{1+\alpha})^{\frac{1}{1+\alpha}} = 1 - Q$. Then equation (1) has the solution x^* in
 the sphere under study and the approximations (8) of the basic
 method converge to x^* , whereupon $\|x_n - x^*\| \leq \frac{1}{1-\delta} \eta_0$; the
 uniqueness of the solution holds in a sphere more extended than
 $\|x - x_0\| \leq L \eta_0$, $L = (\frac{1}{1+\alpha})^{\frac{1}{1+\alpha}}$; $L \geq S^{-1} \geq 2$ under the condition
 that (2) also be satisfied in the latter sphere. The conditions
 for applying Newton's method for the approximate solution of
 systems of algebraic equations is also studied. A concrete
 example of the solution of a system is cited.

M. A. Mertvetsova

Card 4/4

VERKINSU, A. I.

1(1) PRAISE I BOOK EXPLANATION SOV/MSI
SOV/IL-109

Moscow. Aviatzionny Institut imeni Serge Oshobornikova
Aviatzionny prikladnyy i avtomaticheskii upravleniye (Instrument Making
and Automatic Systems in Aviation; Collection of Articles) Moscow, Obozreniye,
1959. 147 p. (Series: Its study, 779. 109) Irregularly inserted.
3,500 copies printed.

Sponsoring Agency: USSR, Ministerstvo vysshogo obratovozhisheniya.

Ed.: E. A. Rykov, Doctor of Technical Sciences, Professor; Ed. of Publishing
House: S. A. Gortseva; Tech. Ed.: L. A. Gurevich; Managing Ed.: A. S. Zaymov-
shaya, Engineer.

REMARKS: This book is intended for scientific and technical personnel in the field
of instrument making and automation, and for students of technical schools of
higher education.

CONTENTS: The book is a collection of 10 articles describing certain aspects of
aircraft automatic control and regulation and aviation instrument making. The
articles consist of parts of the authors' dissertations or describe results
of scientific research work of the Department of Aircraft Instruments and
Automatic Systems of the Moscow Aviation Institute. References are given at
the end of some articles.

Verchuk, S. B., and P. Tushchikh. Candidates of Technical Sciences. 70
Analysis of Aircraft Air Temperature Compensation
The authors present a method of compensating for temperature errors
in mechanical instruments with linear and nonlinear characteristics
of substance deflections.

Sumerzhich, A. P., Candidate of Technical Sciences I and Engineer Yu. F.
79
Analysis of Methods of Measuring Velocity in Aircraft
The authors review Soviet and foreign literature on variable
airflow measuring methods.

Verkhov, A. I., and S. E. Kuznetsov. Candidates of Technical Sciences. 94
Precision Regulation of Motor Speed
The authors have developed a method of controlling synchronous
rotation speeds of 4-6 motors which has a high stabilization accuracy.

Ramondis, V. M., Candidate of Technical Sciences. A Problem of Flighter 121
Aircraft Dynamics
The author establishes and solves the differential equation of
flighter aircraft motion, finds the law of the motion on the
trajectory, computes loads acting on the flighter aircraft, and
determines the method of its control.

Ramondis, V. M., Candidate of Technical Sciences. A Nonlinear Problem 138
in the Vibration Theory
The author considers a mechanical system with one degree of freedom.
He studies conservative systems with forces depending on coordinates
and velocities. Self-excited oscillating systems and non-conservative systems
with forces depending only on coordinates are not considered.

POTASHEVSHIY, N.D., aspirant; VERTINSKIY, K.I., prof., nauchnyy
rukovoditel'

Diagnosis of subclinical mastitis in cows. Veterinaria
42 no.9:74-77 S '65. (MIRA 18:11)

1. Moskovskaya veterinarnaya akademiya.

POLYAKOV, A.A., prof.; KOROPOV, V.M., prof.; VERTINSKIY, K.I., prof.

In memory of Professor Aleksandr Fedorovich Dorofsev, 1870- .
Veterinariia 42 no.8:124-125 Ag '65.

(MIRA 18:11)

VERTINSKIY, K.I., prof.; ALIKAYEV, V.A., dotsent; PODKOPAYEV, V.M., dotsent; SHISHKOV, V.P., dotsent; ANDREYEV, I.A., veterin. vrach (Moskovskaya obl.); VLASOV, V.P., veterin. vrach (Moskovskaya obl.); MAMAYEV, A.F., veterin.vrach (Moskovskaya obl.); SHUL'GOVSKIY, I.P., veterin. vrach (Moskovskaya obl.)

Diagnosis, therapy, and prophylaxis of toxic dyspepsia in calves.
Veterinariia 41 no.1:59-64 Ja '65. (MIRA 18:2)

1. Moskovskaya veterinarnaya akademiya (for Vertinskiy, Alikayev, Podkopayev, Shishkov).

VERTINSKIY K. I.

USSR / Farm Animals: Reindeer:

Q-3

Abs Jour: Ref Zhur-Biol., No 23, 1968, 105724.

Author : Vertinskiy, K. I., Nakhlyupin, N. G.
Inst : Scientific Research Institute of Agriculture
of the Extreme North.
Title : Seasonal Changes in the Cutaneous Cover of the
Extremities of the Reindeer.

Orig Pub: Tr. N.-1. in-ta s. kh. Kraynogo Soveta, 1956,
3, 119-129.

Abstract: Samples of the skin of interphalangeal sacculos
of the region of the fetlock of the crown with
the start of the horny coffin and of the skin
at the level of the fetlock joint of 28 rein-
deer were investigated histologically. It was
found that the texture of the skin and the al-
lied structures are most stable in winter (Nov-

USSR / Farm Animals. Reindeer.

Q-3

Abs Jour: Ref Zhur-Biol., No 23, 1958, 105724.

Abstract: (November - February). From March on, atrophic and degenerative processes appear in it. The number of histiocytes decreases, the connective tissue-base becomes sclerotic, and in the epithelium of the apocrine glands a slight degeneration occurs. The latter is more marked at the end of April and is still more distinct in May and June. In this period, the horny layer of the skin becomes porous and laminated, connective tissue of the corium swells, and the number of young cell forms increases. At this time also the sebaceous glands are atrophied. In July and August the manifestations described become still more marked, but at the end of August the regenerative processes in the epithelium

Card 2/3

USSR / Farm Animals. Roindon#1

Q-3

Abs Jour: Ref Zhur-Biol., No 23, 1958, 105724.

Abstract: of the apocrine glands begin to exceed the degenerative ones. At the end of September, the structure of the skin differs but little from what it had been in the wintertime. Thus, considerable seasonal changes in the skin structure were detected.

VERTINSKIY, K. I.

"Stachybotryotoxicosis of Horses," Veterinariya, 17, No.5, pp 61-68, 1940

Translation 672581, 5 Sep 51

VERTINSKIY, K.I., professor.

Toxic dyspepsia and dysentery in suckling pigs. Veterinariia 33
no.1:14-22 Ja '56. (MIRA 9:4)

1. Moskovskaya veterinarnaya akademiya.
(DYSPEPSIA) (DYSENTERY) (SWINE--DISEASES AND PESTS)

BOL', B.K., professor.; VERTINSKIY, K.I., professor.

Pathomorphological changes in cows in metabolic disorders. Veterinaria
34 no.4:57-67 Ap '57. (MIRA 10:4)

1. Moskovskaya veterinarnaya akademiya.
(Metabolism, Disorders of) (Cows--Diseases and pests)

VERTINSKIY, K. I. (Professor), SHISHKOV, V. P. (Candidate of Veterinary Sciences,
Moscow Veterinary Academy).

"Diagnosis and pathogenesis of serious forms of acetonemia..."
Veterinariya, vol. 39, no. 2, February 1962 pp. 43

VERTINSKIY, K.I., prof.; SHISHKOV, V.P., dotsent; STREL'NIKOV, A.P.,
assistant

Aspergillosis in ducklings. Veterinariia 41 no.9:48-50 S '64.
(MIRA 18:4)

1. Moskovskaya veterinarnaya akademiya.

VERTINSKIY, K.I., prof.; SHISHKOV, V.P., dotsent; KOKOVIN, A.I., ordinator

Clinical and anatomical changes in cattle due to leukemia.
Veterinariia 40 no.8:22-24 Ag '63.

(MIRA 17:10)

1. Moskovskaya veterinarnaya akademiya.

POTASHEVSKIY, N.D., aspirant; VERTINSKIY, K.I., nauchnyy rukovoditel'
raboty, prof.

Pathomorphology in mastitis. Veterinariia 42 no.12:71-74 D '65.
(MIRA 19:1)

1. Moskovskaya veterinarnaya akademiya.

VERTINSKIY, N.

Railroad workers improve their qualification. NTO 5 no.1:24 Ja '62.
(MIRA 16:5)

1. Instruktor Tsentral'nogo pravleniya Nauchno-tekhnicheskogo
obshchestva zheleznodorozhnogo transporta.
(Railroad engineering—Study and teaching)

VERTINSKIY, N., inzh.

Electromagnetic mail conveying. Zhel. dor. transp. no.1:81-82
'47. (MIRA 13:2)

(Electromagnets) (Conveying machinery)
(Railroads--Communication systems)

VERTINSKIY, H., inzhener

Improved types of railroad car retarders. Zhel.dor.transp.
no.10:79-82 0147. (MLRA 8:12)
(Railroads--Equipment and supplies)

VERTINSKIY, N.

Vertinskiy, N. "Automatic balance recorder for railroad cars on tracks,"
Zh.-d. transport, 1948, No. 12, pp. 83-84

SO: U-3264, 10 April 53 (Letopis 'Zhurnal 'nykh Statey, No. 4, 1949).

VERTINSKIY. N I

U/5
661.3
.v5

Novaya tekhnika na startsiyakh (New Technique at Stations, Br) M. I.
Vertinskiy i V. F. Fobedin. Moskva, Transzhellorizdat, 1962.

215 p. illus., diags., tables.

"Literatura": p. 214

VERTINSKIY, N.I.

[New technique at the stations] *Novaia tekhnika na stantsiakh.* Moskva,
Gos. transp. zhel-dor. izd-vo, 1952. 215 p. (MLRA 6:5)
(Railroads--Stations)

VERTINSKIY, N.I., inzh.

Determining the efficiency of capital investments. Zhel. dor.
transp. 45 no.10:48-51 0 '64. (MIRA 17:11)

IVANOV, S.H., inshener; VERTINSKIY, N.K., inshener; BADKEVICH, V.T.,
inshener.

The D-348 all-purpose painting machine. Stro.i dor.mashinostr. 1
no.10:25-26 0 '56. (MLRA 9:11)
(Painting, Industrial)

GUZMAN, Petr Abramovich; KUZNETSOV, V.I., prof., doktor tekhn.nauk, red.;
VERTINSKIY, N.S., red.; SAYCHENKO, Ye.V., tekhn.red.

[In the world of Soviet science and technology; through the halls
of the Polytechnical Museum. Metallurgy, chemistry, and fuel]
V mire sovetskoi nauki i tekhniki; po zalam Politeknicheskogo
museia. Metallurgiya, khimiia, toplivo. Pod red. V.I.Kuznetsova.
Moskva, Izd-vo "Znanie," 1960. 42 p. (MIRA 14:1)
(Metallurgy) (Chemistry)

VERTIPOROG, K.V.; SOKOL'SKIY, N.G.

Highway construction and maintenance in the Polish People's
Republic. Avt.dor.18 no.7:26-27 N '55. (MLRA 9:4)
(Poland--Highway Department)

VERTISHEV, M.S.; KOMAROVSKIY, A.A.

Hydroclassifier for fine grain material. Gor. zhur. no.5:75 My
'63. (MIRA 16:5)
(Ore dressing--Equipment and supplies)

VERTIY, I.V., fel'dsher (selo V. Budki Sumskoy oblasti)

Important part of the work of the feldsher. Fel'd i akush. 24
no.2:41-42 Fe '59. (MIRA 12:3)
(VELIKII BUDKI (SUMY PROVINCE)--PUBLIC HEALTH, RURAL)

VERTMAN, A.A.

- Physical and chemical properties of molten metals. Lit. proizv.
no.8:26-34 Ag '64. (MIRA 18:10)

LCMBERG, B.S.; VERTMAN, A.A.; YAKOBSON, A.M.; ZHELADNOV, V.I.; POLYAKOV,
A.Yu.

Apparatus for measuring the metal-slag interphase tension at high
temperatures. Zav. lab. 31 no.8:1020-1021 '65. (MIRA 18:9)

1. Institut metallurgii imeni Baykova.

VERTMAN, ALEKSANDR ABRAMOVICH

SAMARIN, Aleksandr Mikhaylovich; KARASEV, Robert Alekseyevich, kandidat
tekhnicheskikh nauk; VERTMAN, Aleksandr Abramovich, inzhener;
KAREV, Viktor Nikolayevich, kandidat tekhnicheskikh nauk;
UDAL'TSOV, A.N., glavnyy redaktor; SHTEYNBOK, G.Yu., redaktor

[Apparatus for studying kinetic processes at high temperatures.
Apparatus for studying the discharge of viscous liquids through
orifices and nozzles] Ustanovka dlia izucheniia kinetiki protsessov
pri vysokikh temperaturakh. Ustanovka dlia issledovaniia
istecheniia viazkikh zhidkosti iz otyerstii i nasadkov. Tema 4.no.P-56-457
Moskva, 1956. 15 p. (MIRA 10:5)

1. Moscow. Institut tekhniko-ekonomicheskoy informatsii.
(Chemical apparatus) (Viscosity) (Fluid dynamics)

VERTMANN, A. A., and SAMARIN, A. M.

"Procedure for Investigation of the Kinetic Reaction of the
Recovery of CO in a Vacuum" a paper read at the International
Metallurgists' Conference, Moscow June 26-30, 56

~~XXXXXXXXXX~~, ~~XXXXXXXXXX~~.

VERTMAN, A.A.; NOVIKOV, L.M.

Vacuum in metallurgy. Priroda 45 no.9:81-86 S '56. (MIRA 9:10)

1. Institut metallurgii imeni A.A. Baykova Akademii nauk SSSR (Moskva)
(Steel--Metallurgy) (Smelting furnaces) (Vacuum)

VERTMAN, A.A., SAMARIN, A.M.

"Measuring of Electric Conductivity and Viscosity of Metal Melts,"
lecture given at the Fourth Conference on Steelmaking, A.A. Baikov Institute of
Metallurgy, Moscow, July 1-6, 1957

VERTMAN, A.A.

137-1958-1-323

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 1, p 49 (USSR)

AUTHORS: Samarin, A.M., Vertman, A.A.

TITLE: Production of Chromium and Carbon-free Ferrochrome by Vacuum Sintering (Polucheniye khroma i bezuglerodistogo ferrokroma metodom vakuum-spekaniya)

PERIODICAL: Tr. In-ta metallurgii AN SSSR, 1957, Nr 1, pp 60-66

ABSTRACT: It is shown theoretically that reduction of Cr oxides requires only heating to 1350°-1400° in 1 mm Hg vacuum. The effects of temperature, pressure, and other factors on the deoxidation rate of Cr oxide are studied. At 1320°, reduction ends after 2 - 2.5 hrs. Evaporation of Cr increases at higher temperatures. Higher rates of evacuation of the gaseous reaction products promotes completion of the process (which does not take place at higher pressures). The use of a deoxidizer of higher reactivity, such as carbon black, makes it possible to reduce the process temperature. The pressure employed in briquetting has no effect whatever on the rate of deoxidation. It is hypothesized that the deoxidation of chromic oxide by carbon occurs in two stages: reaction of oxide and CO, and regeneration of CO₂. The deoxidation of the chromic oxide occurs

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137-1958-1-323

Production of Chromium and Carbon-free Ferrochrome (cont.)

at the phase contact surface and is governed by the equation $\alpha = 1 - \exp(-kt^n)$, α being the degree of deoxidation, t the time, and k and n proportionality factors. To obtain Cr, briquetted chromic oxide and C were heated in the graphite crucible of a vacuum induction furnace to 1400° for 2 hours at 1 mm Hg. After the sintering the C content did not exceed 0.07 - 0.05%. The composition of the Cr obtained by this thermal carbon process differs little from electrolytic Cr. Extensive possibilities for the production of carbon-free Fe-Cr by this method are indicated, as is the possibility of its employment in the production of stainless steel in which $C < 0.03\%$.

B. L.

1. Sintered chromium--Production
2. Chromium--Processing
3. Chromium-iron alloys--Production
4. Sintered chromium-iron alloys--Production

Card 2/2

Copy
VERTMAN, A. A.: Master Tech Sci (diss) -- "Reducing chromium oxide with carbon
in vacuo". Moscow, 1958. 13 pp (Acad Sci USSR, Inst of Metallurgy im A. A.
Baykov), 150 copies (KL, No 5, 1959, 149)

18(0)

PHASE I BOOK EXPLOITATION

SOV/2182

Vertman, Aleksandr Abramovich, and Boris Vadimovich Linchevskiy

Vakuumnaya metallurgiya (Vacuum Metallurgy) Moscow, 1958. 27 p.
(Series: Stenogramma lektsii. Seriya "Metallurgiya," vyp. 1)
3,000 copies printed.

Sponsoring Agencies: Obshchestvo po rasprostraneniyu politicheskikh
i nauchnykh znaniy RSFSR. Moskovskiy dom nauchno-tekhnicheskoy
propagandy imeni F.E. Dzerzhinskogo.

Tech. Ed.: R.A. Sukhareva.

PURPOSE: This book is intended for technical personnel in the
field of metallurgy.

COVERAGE: The author describes several types of vacuum-melting
induction and arc furnaces and discusses the effect of vacuum-
melting on the properties of metals. He also describes the
process of obtaining metal by reduction in vacuum. No personali-
ties are mentioned. There are 4 Soviet references.

Card 1/2

Vacuum Metallurgy SOV/2182

TABLE OF CONTENTS: None given. The book is divided as follows:

Introduction 3

Vacuum-melting Induction Furnaces 4

Vacuum-melting Arc Furnaces and Furnaces With Automatic
Crucible 10

Degassing of Molten Steel in a Ladle 17

Effect of Vacuum-melting on Properties of Metals 18

Obtaining Metals by Reduction in Vacuum 24

Bibliography 27

AVAILABLE: Library of Congress

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GO/ad
8-6-59

VERTMAN FLU
Use of Vacuum in Metallurgy Moscow, 533 Izd-vo, AN SSSR, ¹⁹⁵⁶ 165pp. (ed. SAMARIN, A.M.)
Trans. of a conf. on Above - (Inst. Metallurgy, AN SSSR)
Neymark, N.Ya. (Address) 129

Neymark described investigations conducted by an unidentified plant in cooperation with the Dnepropetrovsk Metallurgical Institute with the aim of producing blister-free ingots of ferrochrome. Success was achieved by blowing carbon dioxide gas through the melt and by vacuum-treating the melt.

III. EXTRACTION OF PURE METALS AND ALLOYS FROM ORES IN VACUUM

Vertman, A.A. and Samarin, A.M. Kinetics and Mechanism of the Thermal Reduction of Chromic Oxide by Carbon in Vacuum 132

The authors show that it is possible to obtain chromium, as well as other metals which form stable carbides, by carbon reduction, until recently believed impossible, by carrying out the process in a vacuum, which incidentally permits the reactions to take place at considerably reduced temperatures. There are 14 references of which 10 are Soviet, 2 English, and 2 German.

Card 13/16

SOV/24-58-10-16/34

AUTHORS: Vertman, A. A., Samarin, A. M. (Moscow)

TITLE: Magnetic Analysis of Molten Iron Base Alloys (Magnitnyy analiz zhidkikh splavov na osnove zheleza)

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, 1958, Nr 10, pp 100-103 (USSR)

ABSTRACT: Although a great deal of information about the behaviour of solid alloys is available, it is not known why this behaviour deviates from the ideal. The basic method for studying the structure of a melt is X-ray analysis, but again it is liable to misinterpretations in the case of the structure of molten alloys. The electron diffraction study of thin liquid films has an advantage over the X-ray method, its limitation being that the structure of thin films differs from the structure of larger quantities of molten alloys. Some results of magnetic susceptibility tests of molten metallic alloys by the Faraday method are given. All the tests were carried out in an argon atmosphere; the field strength for alloys of the same system was kept strictly constant. Fig.1 gives the isotherm of the magnetic susceptibility of molten alloys of the Fe-Si system at 1600°C. Measurements were taken during cooling from 1700°C. In this system a number of strong chemical

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compounds form. The strongest is FeSi which, according to N. Kh. Abrikosov (Ref.6), exists in the corresponding alloy even in its molten state. It can be seen from Fig.1 that the magnetic susceptibility depends essentially on the composition. The minimum magnetic susceptibility exists in molten alloys corresponding in composition to the chemical compounds Fe_2Si , Fe_3Si_2 , FeSi and $FeSi_2$. Study of the Fe-Si system has shown that a definite degree of order is preserved in molten alloys corresponding in their composition to chemical compounds, even on considerable super-heating above the liquidus line. Not only is it possible for the molten alloys to retain their structures, but they also form definite structures in the molten state which differ from the fully molecular mixing. In order to prove this, the iron-cobalt system was studied, the thermal equilibrium diagram and magnetic susceptibility isotherm at $1600^{\circ}C$ of which are given in Fig.2. It can be assumed that the structure of molten alloys containing up to 40% cobalt does not differ from the

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structure of pure iron. At a cobalt content of 40 to 45% a sharp increase in magnetic susceptibility occurs. This points to the appearance in the melt of a weaker structure. This increase in magnetic susceptibility appears to be associated with the transformation of the melt from the δ -Fe structure to the structure of molten cobalt. The same applies to alloys of the Fe-Ni system. Such a sharp change in the properties of a melt corresponds with a change in structure of the near order. The change in structure of liquid alloys also influences the chemical behaviour. It has been shown by Averin et al (Ref.13) that when oxygen is dissolved in liquid alloys of the systems Fe-Ni and Fe-Co considerable deviation from the Henry law is observed. This deviation reaches a maximum in that concentration range where a sharp change in magnetic properties is evident. The energy of the atomic bonds in these regions is different from those in other structural regions. The atoms form complexes and the structure of these complexes in the Fe-Co system changes in the region of 40 to 50% Co. A change in structure in a solution appears to take place only when the alloy consists of components of different lattices. There is no change in structure in alloys consisting of components with identical lattices (Ni and Co) and the

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