MIKHAYLOV, N.V.; STRASHNOVA, T.T.; TEREKHOVA, G.M.

Method of determining phosphorus in polymers and fibers based on them. Khim. volok. no.4:66-67 '63.

(MIRA 16:8)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo volokna.

TERPILO, N.I.; ANGARSKAYA, M.A., direktor.

Microscopic study of the dynamics of extraction of alkaloids from the tissues of the belladonna plant. Ant.delo no.4:27-30 Jl-Ag '53.

(MLRA 6:8)

1. Khar'kovskiy nauchno-issledovatel'skiy khimiko-farmatsevticheskiy institut.

(Belladonna)

TERPILO, N.I.

Problem of improving of the processes for extracting medicinal vegetable raw material. Med.prom. no.2:32-35 Ap-Je '55.   (MLRA 9:12)

1. Khar'kovskiy nauchno-issledovatel'skiy khimiko-farmatsevticheskiy institut.
        (BELLADONNA,
              extraction of alkaloids)

TERPILO, N.I.

Microscopic examination of pruning material from the tea bush.
Apt.delo 6 no.6:26-28 N-D '57.   (MIRA 10:12)

1. Iz Khar'kovskogo nauchno-issledovatel'skogo khimiko-farmatsevti-
cheskogo instituta.
          (TEA--ANALYSIS)   (CAFFEINE)

TROPP, M.Ya.; TERPILO, N.I.

      Purple hellebore. Apt.delo 7 no.2:60-65 Mr-Ap '58.   (MIRA 11:4)

      1. Iz Khar'kovskogo nauchno-issledovatel'skogo khimiko-farmatsevticheskogo
instituta.
          (HELLEBORE)

TERPILO, N.I.; PROKOPENKO, A.P.

Cultivated carrot ([Daucus sativus (Hoffm.) Roch]) is a new
medicinal raw material. Apt.delo 9 no.1:85-91 Ja-F '60.

(MIRA 13:6)

1. Iz Khar'kovskogo nauchno-issledovatel'skogo khimiko-farma-
tsevticheskogo instituta.
(CARROT--THERAPEUTIC USE)

TERPILO, N.I.

Microscopic analysis of raw Anabasis in the process of extraction.
Med. prom. 14 no.7:47-50 Je '60.   (MIRA 13:8)

1. Khar'kovskiy nauchno-issledovatel'skiy khimiko-farmatsevticheskiy
institut.

(ANABASIS)

TERPILO, Nastas'ya Ivanovna, kand. biolog. nauk; VISYULINA, Ye.D.,
red.; CHUCHUPAK, V.D., tekhn. red.

[Anatomic atlas of medicinal plants] Anatomicheskii atlas le-
karstvennykh rastenii. 2., perer. i dop. izd. Kiev, Gos. med.
izd-vo USSR, 1961. 361 p.   (MIRA 15:3)
                    (BOTANY, MEDICAL)

TERPILO, N.N., inzh.

Rationalization of electric lighting of farms. Svetotekhnika 5
no.2:24-26 F '59.   (MIRA 12:1)

1.Ukrainskiy institut mekhanizatsii i elektrifikatsii sel'skogo
khozyaystva.
          (Electricity in agriculture)

TERPILO, N. N., CAND TECH SCI, "INVESTIGATION AND DE-
VELOPMENT OF A RATIONAL SYSTEM OF ELECTRICAL LIGHTING FOR
CATTLE FARMS." MOSCOW, 1961. (JOINT SCI COUNCIL OF VNII
[ALL-UNION SCI RES INST] FOR MECHANIZATION OF AGRICULTURE
"VIM" AND VNII FOR ELECTRIFICATION OF AGRICULTURE "VIESKH").
(KL, 3-61, 220).

270

21,
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L 45182-66   EWF(1)   WW/JW/RM   SOURCE CODE: PO/0038/66/011/002/0163/0176

ACC NR: AP6026460

AUTHOR: Terpilowski, Janusz--Terpilovski, Ya.

ORG: Department of Physicochemical Structural Research, PAN, Wroclaw
(Zaklad fizyko-chemicznych badan strukturalnych PAN)

TITLE: Thermodynamic properties of liquid metal solutions. The Zn—In—Cd
and In—Cd systems

SOURCE: Archiwum hutnictwa, v. 11, no. 2, 1966, 163-176

TOPIC TAGS: EMF, zinc indium cadmium system, indium cadmium system,
liquid solution, liquid system, thermodynamic potential

ABSTRACT: Thermodynamic investigations of Zn—In—Cd liquid solutions and
indirectly of In--Cd liquid solutions were carried out by the method of measuring
the electromotive forces of concentration cells of the following type:

| ⊖ Zn liquid | (0,58 LiCl + 0,42 KCl) + 0,05 ZnCl₂ melted salts | ⊕ Zn—In—Cd liquid solution |

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L 45182-66

ACC NR: AP6026460

The subject of investigations were 15 liquid solutions of Zn—In—Cd in the tempera-
ture range 430 to 580C. In the reproducible limits of the readings, the values of
EMF in cells varied linearly with temperature. The compositions of the investi-
gated solutions were expressed as atomic fractions of zinc (N_1), indium (N_2), and
cadmium (N_3). The EMF of the cells at 500C as (E_{500}) and their temperature
coefficients (dE/dT) are given in a table in the original article. The values for
the integrals of equations were determined. The results of the excess molar
thermodynamic functions of mixing for the three-component liquid system
Zn—In—Cd and for the binary one of In—Cd are presented. The author stated that
the activity of zinc in liquid solutions of Zn—In, Zn—Cd, and Zn—In—Cd at
500C has a positive deviation from the Raoult law. The values of the activity
coefficients for zinc are highest for the Zn—In liquid system, intermediate for the
Zn—In—Cd liquid system, and lowest for the Zn—Cd liquid system. The
Zn—In—Cd, Zn—In, Zn—Cd, and In—Cd liquid systems are characterized by
positive values of excess molar thermodynamical potentials and enthalpies/of
mixing for any one concentration of the components. The values of excess molar
entropies of mixing are equal to zero for three-component Zn—In—Cd liquid
solutions with low indium concentration and for binary Zn—Cd liquid solutions. In

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ACC. NR: AP6026460

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the liquid phase of Zn—In—Cd, the maximum for ΔG^{ex} (excess molar thermo-dynamic potential), ΔS^{ex} (excess molar entropy), and ΔH^{ex} (excess enthalpy) appears at the same ratio of the atom fractions of indium and cadmium $N_2/N_3 = 1$. The values of molar enthalpies of mixing for the In—Cd liquid system obtained in this work and determined by the calorimetric method approach each other (O. J. Klepa, Acta Metallurgica, 6, 1958, 233; F. E. Witting, E. Mueller, Z. Metallkde, 51, 1960, 226). Orig. art. has: 5 figures, 11 formulas, and 5 tables.   [Based on author's abstract]

[NT]

SUB CODE: 07/ SUBM DATEL 31Dec64/ ORIG REF: 006/ SOV REF: 002/
OTH REF: 015/

Card 3/3 pl

L 15008-66   EWT(1)/EWT(m)/EWP(t)/EWP(b)   IJP(c)   JD/JG

ACC NR: AP6001647

SOURCE CODE: UR/0051/65/019/006/0936/0938

AUTHOR: Terpilovskiy, D. N.

ORG: none

TITLE: Afterglow in aqueous solution of gadolinium salts

SOURCE: Optika i spektroskopiya, v. 19, no. 6, 1965, 936-938

TOPIC TAGS: gadolinium compound, fluorescence, nonradiative transition, AQUEOUS SOLUTION

ABSTRACT: The author considers fluorescence in strongly dissociated aqueous solutions of gadolinium salts to determine the time of afterglow. A theoretical model is proposed for calculating the probability of nonradiative transitions. The lanthanon ion is considered together with a hydrate shell whose vibrations are modulated by Brownian motion. Nonradiative transitions are possible due to the interactions between electron motion of the ion and the vibrations of the water dipoles. A formula is derived for luminescence attenuation. Calculation gives a reciprocal for the afterglow time of 464.8 cps, which agrees well with the experimentally observed value of 500 cps. Satisfactory agreement was also observed in the case of temperature

Card 1/2

UDC: 535.372

L 15008-66
ACC NR: AP6001647

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relationship; the experimental ratio of afterglow time at 20°C to that at 95°C was 6.06, while the theoretical value was 5.64. The data indicated that the proposed mechanism for nonradiative transitions in aqueous solutions plays an important part for the trivalent gadolinium ion. The author is sincerely grateful to S. A. Al't-shuler for guiding the work and to A. M. Leushin for valuable consultation. Orig. art. has: 1 figure, 4 formulas.

SUB CODE: 20/ SUBM DATE: 28Sep64/ ORIG REF: 003/ OTH REF: 005

Card 2/2

TERPILOVSKIY, K.F., Cand Tech Sci -- (diss) "Study of the nozzle

performance in pneumatic removal of reprocessed milling peat ."

Minsk, 1959. 15 pp (Min of Higher Education USSR. Belorussian Poly-

tech Inst im I.V. Stalin) 150 copies (KJ,37-59, 109)

52

TERPILOVSKIY, K.F.

Operation of the intake section of the nozzle of a pneumatic peat
harvester. Trudy inst. torf. AN 3SSR 8:281-297 '59.

(MIRA 13:12)

(Peat--Harvesting)

TERPILOVSKIY, K.F.

Design of the nozzles of pneumatic heat harvesters. Trudy inst. torf. AN BSSR 8:298-308 '59.   (MIRA 13:12)
                    '(Peat—Harvesting)

TERPILOVSKIY, K.F.

Resistance of a nozzle of a pneumatic peat harvester during the flow of air and of peat-air mixture. Trudy Inst. torf. AN BSS. 9:13C-14G '60.   (MIRA 14:2)

(Peat machinery)

TERPILOVSKIY, K.F.

Rate of the forward movement of a pneumatic machine for harvesting granular peat. Trudy Inst. torf. AN BSSR 9:147-149 '66.
(MIRA 14:2)

(P at machinery)

PIUNOVSKIY, I.I., kand. tekhn. nauk; ZHIVOTKO, B.I., kand. tekhn.
        nauk; RUKTESHEL', S.V., kand. tekhn. nauk; SHTOMPEL',
        B.N., kand. tekhn. nauk; BUTVILOVSKIY, F.A., inzh.;
        KORZHENEVSKAYA, R.A., inzh.; LOGVINOVICH, I.P., inzh.;
        UTEVSKAYA, L.I., kand. tekhn. nauk; RUNTSO, A.A., kand.
        tekhn. nauk; NAGORSKIY, I.S., kand. tekhn. nauk;
        TERPILOVSKIY, K.F., kand. tekhn. nauk; LOSEV, V.I., kand.
        tekhn. nauk; YAROSHEVICH, A.A., kand. tekhn. nauk;
        KATSYGIN, V.V., kand. tekhn.nauk, red.; BOROVNIKOVA, R., red.

        [Problems of the technology of mechanized agricultural produc-
        tion] Voprosy tekhnologii mekhanizirovannogo sel'skokhoziai-
        stvennogo proizvodstva. Minsk, Izd-vo "Urozhai." Pt.2. 1964.
        336 p.   (MIRA 17:7)

        1. TSentral'nyy nauchno-issledovatel'skiy institut mekhani-
        zatsii i elektrifikatsii sel'skogo khozyaystva nechernozemnoy
        zony SSSR.

KUZNETSOV-FETISOV, L.I.; TERPILOVSKIY, N.N.

Laboratory ultrasonic unit for physicochemical investigations. Trudy
KKHTI no.17:63-68 '52 [publ. '53].   (MIRA 12:11)
                              (Ultrasonic testing)

PE RPILOVSKH, N M

TERPILOVSKIY, N.H.; KUZNETSOV-FATISOV, L.I.

Changes in the properties of drilling muds subjected to ultrasonic waves. Trudy KNITI no.18:100-106 '53 [publ. '54].   (MIRA 12:11)
          (Oil well drilling fluids)
          (Ultrasonic waves--Industrial applications)

IERAMILOVSKIT, N.M.

BTR v3
ib . 1954
Electrochemistry +
Electroprocesses

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✓1926 Study of Electrocrystallization of Metals in an Ul-
trasonic Field. (Russian.) S. M. Kochergin and N. N. Tr-
pilovskii. Zhurnal Fizicheskoi Khimii, v. 27, no. 3, Mar. 1953,
p. 391-398.
Mechanism of the effect of ultrasonic vibrations on elec-
trodeposition was studied. Diagrams, graphs. 4 ref.

S. M. Kirov Inst. Chem Technol, Kazan

SOV/156-58-4-43/49

AUTHORS: Kochergin, S. M., Terpilovskiy, N. N., Vyaseleva, G. Ya.

TITLE: The Influence Exerted by the Ultrasonic Field on the Gas
            Content During the Electrolysis (Vliyaniye ul'trazvukovogo
            polya na gazonapolneniye pri elektrolize)

PERIODICAL: Nauchnyye doklady vysshey shkoly. Khimiya i khimicheskaya
            tekhnologiya, 1958, Nr 4, pp 779-781 (USSR)

ABSTRACT: Experimental data were given on the influence exerted by
            ultrasonic vibrations on the gas content during the electrolysis
            of H_2SO_4 and NaCl as well as NaOH in order to obtain H_2O_2
            and Cl_2. The electrolysis indicated in table 1 was carried out
            by means of specially manufactured apparatus. The modification
            of the electrolyte resistance factor in dependence on the
            gas content at the ultrasonic field was investigated. The
            dependence of the gas content on time under influence exerted
            by ultrasonics on the electrolyte was investigated. A
            considerable reduction of the gas content percentage takes place
            in the ultrasonic field due to a decrease of the ohmic resistance
            during the analysis. In the course of a more extended electro-
Card 1/2   lysis in the ultrasonic field the percentage of gas content

SOV/156-58-4-43/49

The Influence Exerted by the Ultrasonic Field on the Gas Content During the Electrolysis

becomes constant. In order to obtain hydrogen and chlorine by application of ultrasonics a decrease in electric power consumption takes place.
There are 4 figures and 10 references, 8 of which are Soviet.

ASSOCIATION: Kafedra fizicheskoy khimii Kazanskogo khimiko-tekhnologiches-kogo instituta (Chair of Physical Chemistry at the Kazan' Chemico-Technological Institute)

SUBMITTED: May 31, 1958

Card 2/2

5(1,3)

AUTHORS: Nesmelov, V. V., Maminov, O. V.,   SOV/153-58-6-19/22
               Lebedeva, N. M., Danyushevskaya, R. G.,
               Terpilovskiy, N. N.

TITLE: Continuous Oxidation of Paraffin in Foam State in Apparatus
               of the Rotor- and Bottom Type (Nepreryvnoye okisleniye
               parafina v pennom sostoyanii v apparatakh rotornogo i
               polochnogo tipa)

ABSTRACT: The interaction between gases and liquids is very intensive
               in foam state (Refs 1,2). In the present paper the results
               of the oxidation mentioned in the title with molecular oxygen
               are discussed. This process belongs to the complex chemical
               heterogeneous catalytic processes with a chain mechanism of
               the reaction. The best results were obtained when the whole
               initial material was transformed in well mobile foam. The
               rate of process depends on the height of the foam in the
               oxidation column. However, completely satisfactory outputs
               of the foam apparatus can only be obtained in the case of a
Card 1/4   continuous process. The authors investigated two methods

Continuous Oxidation of Paraffin in Foam State   SOV/153-58-6-19/22
in Apparatus of the Rotor- and Bottom Type

of foam production from paraffin: 1) use of the centrifugal
force in a rotor apparatus; 2) exploitation of the kinetic
energy of the gaseous reagent, i.e. air which is blown
through a perforated bottom and forms a support in order to
maintain the foam on the bottom. The extended laboratories
in the Kazan' neftemaslozavod (Kazan' Petroleum and Oil
Refinery) were used for the experiment. B. Ya. Konovalov,
Director, and A. S. Moiseyeva, Head Engineer, collaborated in
the experiment; A. A, Aleksandrovskiy, Assistant of the
Kazan' Institute of Chemical Technology imeni S. M. Kirov,
M. S. Khaykin, V. V. Levandovskiy, A. V. Matuzova and
V. P. Solov'yeva, assistant chemists, collaborated in the
experimental part. A rotor apparatus worked out by V. S.
Nikolayev, Docent of the Kazan' Institute of Chemical
Technology imeni S. M. Kirov (Fig 1) served for the experi-
ments; paraffin of Groznyy, Drogobych, and Novokuybyshevsk
was used as material. Potassium permanganate and soda were
used as catalysts. The following conclusions were drawn:
1) the following facts are very important: a) The oxidation

Card 2/4   is imperfect if the paraffin is kept longer than 100 seconds

Continuous Oxidation of Paraffin in Foam State   SOV/153-58-6-19/22
in Apparatus of the Rotor- and Bottom Type

in the apparatus, b) The initial temperature of the process
is below $140°$, c) The variation of the air consumption does
not influence the time during which the paraffin is in the
apparatus. Two processes take place at the same time:
oxidation and distillation. e) An intensive resin- and mud
formation takes place at temperatures above $150°$. f) The
optimum paraffin consumption amounts to 10-20 l/hour. g) The
maximum rate of oxidation is reached at 740 rpm. However, a
transparent model shows that an intensive foam formation
takes place only at certain places of the apparatus. The
time the paraffin remains in the apparatus must be at least
five times longer in order to obtain a better oxidation
intensity. This would increase and complicate its structure.
However, the rate of oxidation in foam oxidation apparatus
(Fig 2) with bottoms is after the increase of the acid numbers
8-12 times and after the increase of aliphatic acids (Table 1)
20 times higher than in periodically working apparatus of the
bubbling type. The capacity is 2-3-5 times higher. The
oxidation proceeds mainly under the formation of carboxylic
Card 3/4   acids. Higher temperatures did not deteriorate the quality

Continuous Oxidation of Paraffin in Foam State   SOV/153-58-6-19/22
in Apparatus of the Rotor- and Bottom Type

of the products. Thus the oxidation may be intensified.
Rotor apparatus have a lower capacity, are, however, well
suitable for the formation processes of neutral oxygen-contain-
ing products. In foam oxidation apparatus heat conditions
are easily regulated. There are 2 figures, 2 tables, and
2 Soviet references.

ASSOCIATION: Kafedra obshchey khimicheskoy tekhnologii, Kazanskiy
khimiko-tekhnologicheskiy institut imeni S. M. Kirova (Chair
of General Chemical Technology, Kazan' Institute of Chemical
Technology imeni S. M. Kirov)

SUBMITTED: November 10, 1957

Card 4/4

5(1, 3)   SOV/153-58-5-25/2.
AUTHORS: Maminov, O. V., Nesmelov, V. V., Terpilovsky, N. N.,
               Lebedeva, N. M., Danyushevskaya, R. G.

TITLE: Some Characteristic Features of the Hydrodynamics of the Foam
               Layer of the Paraffin - Air System (Nekotoryye osobennosti
               gidrodinamiki pennogo sloya sistemy parafin-vozdukh)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskay
               tekhnologiya, 1958, Nr 5, pp 149-153 (USSR)

ABSTRACT: Paraffin oxidation is an exothermal process. The atmospheric
               oxygen is absorbed by paraffin by entering certain chemical
               reactions with the latter. In this case the mass exchange betwee
               air and paraffin depends to a high degree upon the hydrodynamic
               working conditions of the apparatus. The mass exchange is to a
               high degree influenced by the degree of turbidity of the gas
               and liquid flow (Ref 1). Under certain conditions of the motion
               in the turbulent range the gas becomes a disperse medium
               distributing within the liquid phase. The contact surface is
               enlarged and is rapidly renewed. These hydrodynamic conditions
               cannot be produced in the usual bubbling columns with periodic
Card 1/4   drive. The capacity of such columns is extremely insufficient.

SOV/153-58-5-25/28

Some Characteristic Features of the Hydrodynamics of the Foam Layer of the
Paraffin - Air System

In the foam apparatus as devised by Pozin and his collaborators
(Ref 2) there are, however, very favorable conditions. To use
this apparatus for paraffin oxidation several constructional
modifications were necessary, like, installation of electrical
heating, cooling coils etc. Experiments have shown that paraf-
fin can be oxidized continuously in a foam layer. The rate of
oxidation increases thereby by the 8-12 fold, since high
turbidity is attained. Table 1 (p 151) shows the influence
exerted by different air velocities and different types of raw
materials upon the foam formation and the degree of oxidation
as well as the losses of paraffin. The oxidation was carried
out for 15 minutes at 160° and in the presence of manganese
dioxide as catalyst. The results tend to show a dependence
between the foam formation and the efficiency of the oxidation
process. The more of the liquid is transformed into foam, and
the higher the foam layer is the more perfect the oxidation
process takes place. Pure paraffin without additions is very
difficult to transform into foam at temperatures up to 160°,
even at higher air velocities. Above 170° this takes place
easier, but then again the quality of the oxidation products

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SOV/153-58-5-25/25

Some Characteristic Features of the Hydrodynamics of the Foam Layer of the
Paraffin - Air System

suffers. The addition of regained paraffin or of 2-5% oxidized
paraffin increases the foam formation rapidly. Then the surface
active substances (alcohols) contained therein play a positive
role. High air velocities (higher than 0.2 m/sec.) are un-
favorable for the transformation of the whole paraffin into
foam. The intensity of the oxidation is decreased, a heat supp-
becomes necessary, and finally reaction products are carried
along by air and are removed. The air velocity of 0.1 m/sec.
optimal. A system in which the catalyst is distributed in the
form of colloidal particles favors the foam formation. Perfo-
rated bottoms with openings of 1-2 mm covering 80-90% of the
total surface are good for the foam formation. There are
1 table and 3 Soviet references.

ASSOCIATION: Kazanskiy khimiko-tekhnologicheskiy institut, Kafedra obshchey
khimicheskoy tekhnologii (Kazan' Chemo-Technological Institute,
Chair of General Chemical Technology)

Card 3/4

TERPILOVSKIY, N.N.

NESMELOV, V.V.; TERPILOVSKIY, N.N.; MAMINOV, O.V.; LEBEDEVA, N.M.;
DANYUSHEVSKAYA, R.G.

Continuous oxidation of foaming paraffins by molecular oxygen.
Khim. nauka i prom. 3 no.1:130 '58.   (MIRA 11:3)

1. Kazanskiy khimiko-tekhnologicheskiy institut im. S.M. Kirova.
                    (Paraffins)   (Oxidation)

TERPILOVSKIY, N. N.

NESMELOV, V.V., kand. tekhn.nauk; LEBEDEVA, N.M., kand. khim. nauk;
DANYUSHEVSKAYA, R.G.; TERPILOVSKIY, N.N., kand. tekhn. nauk;
MAMINOV, O.V., kand. tekhn. nauk

Continuous oxidation of paraffin in a foamy state. Masl.-zhir. prom.
24 no. 6:20-26 '58.   (MIRA 11:7)

1. Kazanskiy khimiko-tekhnologicheskiy institut imeni S.M.Kirova.
                            (Paraffins)

NESMELOV, V.V.; MAMINOV, O.V.; TERPILOVSKIY, N.N.; LEBEDEVA, N.M.;
DANYUSHEVSKAYA, R.G.

Problem of foam formation during the oxidation of paraffin in
bubble columns and in a continuous foam oxidizer. Trudy KKHTI
no.26:15-18 '59.
(MIRA 15:5)

(Paraffins)   (Oxidation)

NESMELOV, V.V.; TERPILOVSKIY, N.N.; LEBEDEVA, N.M.; DANYUSHEVSKAYA, R.G.;
    MAMINOV, O.V.

Study of the oxidation of Novo-Ufimsk paraffin in the foaming
state in the presence of manganese dioxide. Trudy KKHTI no.26:
19-22 '59.   (MIRA 15:5)
            (Paraffins)   (Oxidation)

NESMELOV, V.V., kand.tekhn.nauk; LEBEDEVA, N.M., kand.tekhn.nauk; TERPILOVSKIY, K.N., kand.tekhn.nauk; MAMINOV, O.V., kand.tekhn. nauk; MAMINOV, O.V., kand.tekhn.nauk; DANYUSHEVSKAYA, R.G.

Oxidation of paraffins in a foaming state. Masl.-zhir.prom. 26 no.1:15-18 Ja '60.   (MIRA 13:4)

1. Kazanskiy khimiko-tekhnologicheskiy institut imeni S.M. Kirova.
        (Paraffins) (Oxidation)

NESMELOV, V.V.; MAMINOV, O.V.; TERPILOVSKIY, N.N.; LEBEDEVA, N.M.

Alteration of certain physical properties of paraffin in the process of its oxidation in the foamed condition. Izv. vys. ucheb. zav.; khim. i khim. tekh. 4 no. 2:283-286 '61.

(MIRA 14:5)

1. Kazanskiy khimiko-tekhnologicheskiy institut im. S.M. Kirova. Kafedra obshchey khimicheskoy tekhnologii.
(Paraffins) (Oxidation)

KOCHERGIN, S.M.; TERPILOVSKIY, N.N.; VYASELEVA, G.Ya. (Kazan')

Anodic dissolution of copper in an ultrasonic field. Zhur. fiz.
khim. 35 no. 4:917-919 Ap '61.   (MIRA 14:5)

1. Kazanskiy khimiko-tekhnologicheskiy institut im. S.M. Kirova,
kafedra fizicheskoy i kolloidnoy khimii.
                (Copper)   (Ultrasonic waves)

BURMISTROVA, T.P.; TERPILOVSKIY, N.N.; NESMALOV, V.V.

Influence of certain factors on froth-forming process during the
oxidation of p-xylene. Trudy KKHTI no.30:289-295 '62.
(MIRA 16:10)

3

L 41352-65   EWT(m)/EPF(c)/T   Pr-4   DJ   S/0065/63/000/005/0018/0022
ACCESSION NR: AP3000501

AUTHOR: Sedachev, V. M.; Nesmelov, V. V.; Moyseyeva, A. S.; Lebedeva, N. M.;
Kuznetsova, I. M.; Latypov, R. Sh.; Terpilovskiy, N. N.; Maminov, O. V.

TITLE: Oxidation of paraffin in the foam state

SOURCE: Khimiya i tekhnologiya topliv i masel, no. 5, 1963, 18-22

TOPIC TAGS: synthetic lubricant, continuous oxidation, bubble column, paraffin
fraction, paraffin oxidation

ABSTRACT: The Kazan' Synthetic Lubricant Plant in cooperation with the Kazan'
Institute of Chemical Technology, has developed a new process for oxidizing highly
foamed paraffin up to carboxylic acids. This continuous process was adopted on a
pilot-plant scale in 1961. The new continuous foam process increases the yield
up to 270% as compared with the previous process. The author gives the processing
data and diagrams of equipment used, as well as a breakdown of the paraffin frac-
tions and their specifications. The basic operating parameters are: temperature,
125 - 130°C; air consumption, 1 m³/kg of oxidized paraffin; acid number of oxidate,
50 - 60 mg of KOH. In order to obtain good air dispersion, the use of screens in

Card 1/2

L 41352-65
ACCESSION NR: AP5000501   0

the bubble column is recommended. The final product meets the requirement placed
on synthetic petroleum products. Orig. art. has: 5 tables and 2 diagrams.

ASSOCIATION: none

SUBMITTED: 00   ENCL: 00   SUB CODE: OC, IE

NO REF SOV: 000   OTHER: 000

Card 2/2

TERPILOWSKI J.

POLAND/Physics of Solids - Phase Conversion in Solid Bodies

E-6

Abs Jour : Ref Zhur - Fizika, No 2, 1958, No 3484

Author   : Terpilowski Janusz
Inst   : Not Given
Title   : Thermodynamic and Structural Characteristics of Ag-Zn

Orig Pub : Zesz. nauk. Politechn. wrocl., 1956, No 11, 3-40

Abstract : The author reports electrochemical investigations of 59
           solid alloys Ag-Zn ranging from 28.4 to 82.4 atomic percent
           of zinc, and of five liquid alloys Ag-Zn with a composition
           (0.0 atomic percent of zinc. The investigations were
           based on the measurement the emfs of high temperature re-
           versible cells of the Zn (liquid) type on the basis of the
           data obtained, the following were calculated: (a) partial,
           molar variations of the isobaric thermodynamic potential,
           entropy, and enthalpy of dissolution of zinc in solid alloys
           Ag-Zn, and also of the process of dissolution of liquid zinc
           in liquid Ag-Zn alloys. (b) The enthalpy, the isobaric ther-
           modynamic potential, and the entropy of formation of solid
           Ag-Zn alloys from solid components at 400° C. (c) Activity

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POL

and coefficient of activity of components in solid Ag-Zn
alloys at 400°C. The phase diagram of the Ag-Zn system was
checked for the temperatures at which the experiments were
performed. It is confirmed that the β and ε phases of the
Ag-Zn system have a disordered structure at higher temper-
atures. The problem of ordering of the phase of the Ag-Zn
system is discussed, starting with the calculation of the
entropy of formation of solid alloys from solid...

POLAND / Physical Chemistry. Thermodynamics. Thermochem-   B
istry. Physico-Chemical Analysis. Phase Transition.

Abs Jour: Ref Zhur-Khimiya, No 11, 1958, 35384

Abstract: following has been determined: 1) the phases β, Σ Au-Cd; β Ag-Mg; γ Cu-Zn and γ Ag-Cd belong to the Daltonoid group; 2) the phases δ' Au-Cd; β', β, Σ Cu-Zn; β' β, δ Σ Ag-Cd; γ, Σ Bi-Tl; β Pb-Tl; β, Σ Ag-Zn belong to the Bertholoid group. The Bertholoids have a disordered structure; the variations of $\overline{\Delta G}$, ΔS and $\overline{\Delta H}$ within the limits of these phases are insignificant and gradual. On the other hand, the Daltonoids offer a low degree of irregularity, the variations of $\overline{\Delta G}$, ΔS and ΔH within their limits are considerable and occur intermittently, forming an inflection point in the vicinity of the Stoichiometric composition. See also R Zh-Khim, 1956, 77515; 1957, 50724

Card 2/2

9

'5910   346.87;546.682

Terpilowski J. Thermodynamic Properties of Liquid Metallic Solutions.
II. The Bi-In System.

"Wlasności termodynamiczne ciekłych roztworów metali. II Uklad
Bi-In", Archiwum Hutnictwa (PAN), No. 3, Warszawa, 1958, pp.
227—237, 4 figs., 5 tabs.

In this work the Bi—In system of hitherto unknown thermodyna-
mical properties was investigated by the method of measuring electro-
motive forces. During these investigations, reversible elements of the
following type were applied: $In_{liq.}$ $|(0.6\ LiBr + 0.4\ KBr) + 0.1\ InBr|$
$Bi_x\ In_{1-x}$
liq. solution.   Tests were carried out with 11 alloys of 5 to 95

atomic % of Indium in the range of 380 to 530°C. The results of measure-
ments of the electromotive forces in these types of elements were di-
rectly recalculated on changes of partial molar thermodynamical va-

lues for indium: thermodynamical potential $(\overline{\Delta G}_{In})$, entropy $(\overline{\Delta S}_{In})$ and

enthalpy $(\overline{\Delta H}_{In})$ at 400°C, and activities (a_{In}) and the coefficient of acti-
vity (f_{In}) for indium in alloys at 400° and 500°C. Later as in a previous
work of this series, the author calculated the changes of partial molar
thermodynamical values for bismuth: thermodynamical potential
$(\overline{\Delta G}_{Bi})$, entropy $(\overline{\Delta S}_{Bi})$ and enthalpy $(\overline{\Delta H}_{Bi})$ at 400°C, and the activities
(a_{Bi}) and the activity coefficients (f_{Bi}) for bismuth in alloys at 400° and
500°C. The changes of the following thermodynamical functions were
also calculated: thermodynamical potential (ΔG), entropy (ΔS) and en-
thalpy (ΔH) during mixing of pure liquid metals into liquid alloys at

TERPILOWSKI J.

400°C. The results of measurements and calculations are given in ta-
bles and presented in diagrams. The liquid system Bi-In is characteri-
zed by a negative deflection from the Raoult's law, decreasing with in-
creasing temperature. The values of the enthalpy changes are negative
for the temprature 400°C in the whole composition range, and they
attain — 594 cal for the alloy $Bi_{0.5}In_{0.5}$. The liquid solutions Bi-In be-
have as semi-regular, because the course of $\overline{\Delta S}_{In}, \overline{\Delta S}_{Bi}$ and $\overline{\Delta S}$ in rela-
tion to the composition may be expressed by equations.

TERPILOWSKI, J.

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1

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Distr: 4E2c

Electrochemical Investigation of β-phase of the silver-magnesium system. Janusz Terpilowski (Politech., Wroclaw, Poland). Zeszyty Nauk. Politech. Wroclaw., Chem. No. 4, 3-11(1958)(English summary).—E.m.f.s., E, of cells Mg(solid)|LiCl + KCl eutectic mixt. + MgCl$_2$|Ag-Mg (solid alloy), were measured (cf. T., C.A. 51, 17378c) at 500-610°. The solid alloy compn. (Mg at. %), E at 600° (mv.), temp. coeff. dE/dT (μv./degree) were found: 42.0, 205.5, −25; 44.0, 194.0, −28; 45.5, 197.9, −30; 47.0, 188.1, −27; 48.1, 184.5, −21; 49.3, 170.8, −6; 50.5, 167.9, +7; 51.3, 165.7, +20; 51.7, 165.3, +30; 52.4, 159.8, +32; 54.2, 152.0, +40; 56.7, 144.0, +37; 57.4, 143.0, +36; 61.1, 134.3, and +33, resp. The partial molar heats, entropies, and thermodynamic potentials of Zn corresponding to alloy formation from solid components, activity and activity coeffs., are calcd. directly. Equations of Wagner and Schottky (C.A. 25, 1431) fitted the curves of E and dE/dT vs. compn., if a suitable degree of disorder, (0.03), was assumed. Thus β-phase of Ag-Mg system is almost completely ordered.   J. Stecki

Distr: 4E2c

Thermodynamic properties and degree of order of the β-phase of zinc-gold system. Janusz Terpiłowski (Politech. Wrocław, Poland). Zeszyty Nauk. Politech. Wrocław., Chem. No. 4, 13-23(1958)(English summary); cf. preceding abstr.—E.m.fs., E, of cell: Zn|LiCl + KCl eutectic mixt. +ZnCl₂|Au-Mg solid alloy were measured at 430-550° for liquid Zn electrode and at 380-419° for the solid one. The following alloy compn. (Zn at. %), E at 500° (mv.), and temp. coeff. dE/dT (μv./degree) were found, resp.: 43.8, 239.3, −96; 45.1, 235.1, −98; 45.5, 233.6, −99; 46.8, 229.1, −102; 47.5, 225.4, −103; 48.7, 218.3, −109; 49.6, 211.3, −117; 50.1, 203.3, −125; 50.2, 201.6, −128; 50.8, 193.4, −135; 50.9, 193.2, −136; 51.2, 187.9, −140; 52.3, 177.7, −146; 52.9, 174.9, −147; 53.6, 168.0, −148; 54.6, 160.2, −149; 54.8, 158.7, −150; 54.9, 157.8, −150. The temp. coeff. dE/dT for solid Zn electrode, was −48, −83, and −95, for 47.5, 51.2, and 54.8% Zn alloys. The calcd. heat of fusion of Zn is 1.79 kcal /g. atom, in agreement with Ölander (C.A. 27, 4175). The partial molar heats, entropies and thermodynamic potentials of Zn corresponding to transfer of liquid Zn to solid alloy, were calcd. directly. Changes of dE/dT with compn. differed from those calcd. theoretically after Ölander (C.A. 27, 4473) for either slightly or completely disordered phases. Probably the Kopp-Neumann rule is invalid too. X-ray diagrams for the alloy contg. 50.1 at. % Zn, as well as the changes of thermodynamic functions with compn. indicate that the Zn-Au β-phase is not a typical daltonide. Considerable disordering begins at some 400°.   J. Stecki

POLAND / Physical Chemistry. Thermodynamics. Thermo-   B
chemistry Equilibria. Physico-Chemical An-
alysis. Phase Transitions.

Abs Jour: Ref Zhur-Khimiya, No 24, 1958, 80625.

Author : Terpilowski, J., Trzebiatowski, W.
Inst   : Not given.
Title   : Thermodynamic Characteristics of Intermetallic
          Phases of the Daltonian and Berthelotian Types.

Orig Pub: Arch. hutn., 1958, 3, No 2, 97-112.

Abstract: Previously published data (Celader A., Z.
          phys. Chem., 1933, A 163, 107; A 164, 428;
          1934, A 168, 274; A 169, 260) pertaining
          to electrochemical measurements for the de-
          termination of partial molal thermodynamic
          constants (such as the thermodynamic potential
          G, enthropy   S, enthalpy   H) of the

                              14
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POLAND / Physical Chemistry. Thermodynamics. Thermo-   B
chemistry Equilibria. Physico-Chemical An-
alysis. Phase Transitions.

Abs Jour: Ref Zhur-Khimiya, No 24, 1958, 80625.

Abstract: less noble components of intermediate phases
of the Ag-Cd, Au-Cd, Cu-Zn, Bi-Tl and Pb-Tl
systems were utilized. Results of previous
investigations (Ref. Zhur-Khimiya, 1957, 44009,
50724) indicate that the order of determined
values of .   G, ... S and ... H, in the lim-
its of existence of - an -phases of the
Au₂Cd system, and also of   -phase of the Ag-Cd
and Cu-Zn systems, are characteristic with Dal-
tonian type of phases. Whereas the order of
determined values of the same properties in the
remaining phases, ie. / . and of the Ag-
Cd system; ' of the Au-Cd system; / and c

Card 2/3

POLAND / Physical Chemistry. Thermodynamics. Thermo-   B
          chemistry Equilibria. Physico-Chemical An-
          alysis. Phase Transitions.

Abs Jour: Ref Zhur-Khimiya, No 24, 80625.

Abstract: of the Cu-Zn system;   and   of the Bi-Tl
          system; and   phase of the Pb-Tl system are
          characteristic with the Berthelotian type
          phases. It was established that a degree of
          deviation in the stochiometric compositions
          constitutes the basic criterion that deter-
          mines the direction of behaviours of the in-
          termetallic phase of varying composition and
          causes it to act either as Daltonian or as
          Berthelotian phase.

Card 3/3   15

TERPILOWSKI, J.

D

POLAND/Atomic and Molecular Physics - Heat.

Abs Jour   : Ref Zhur Fizika, No 3, 1959, 17632

Author   : Terpilowski, Janusz

Inst   : Institute for Structural Research, Institute of Chemis-
              try and Physics, Polish Academy of Sciences, Wroclaw,
              Poland

Title   : Thermodynamic Properties of Liquid Metallic Solutions.
              II. The System Bi-In.

Orig Pub   : Arch. hutn., 1958, 3, No 3, 227-237

Abstract   : A study was made of the thermodynamic properties of the
              system Bi-In containing five -- 95 atomic percent of
              indium, in the temperature range from 380 to 520° C,
              by a method of measuring the emf. The partial molar
              thermodynamic functions of indium, and bismuth are cal-
              culated: the thermodynamic potential, the entropy and

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POLAND/Atomic and Molecular Physics - Heat.   D

Abs Jour   : Ref Zhur Fizika, No 8, 1959, 17632

the enthalpy at 400° C of the activity and the coeffi-
cient of activity for indium and bismuth in alloys at
400 and 500° C. Also calculated were the changes in
the thermodynamic potential, the entropy, and enthalpy
during the mixing of pure liquid metals at 400° C.
The results of the measurements and calculations are
reduced in tables and are plotted on curves. The liquid
system Bi-In is characterized by a negative deviation
from the Paul law, diminishing with increasing temperatu-
re. The changes in the entropy are negative over the en-
tire region of compositions and reach a magnitude of -594
calories for the alloy $Bi_{0.5} In_{0.5}$. It is shown that
liquid solutions Bi-In behave like semi-regular ones,
inasmuch as the changes in their entropy is connected
with the coefficient Л, which characterizes the devia-
tion from the behavior of regular solutions.

Card 2/2

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D

POLAND/Atomic and Molecular Physics - Heat.

Abs Jour   : Ref Zhur Fizika, No 10, 1959, 22414

Author   : Terpilowski, Janusz, Prezezdziecka, Ekilia

Inst   : Academy of Metals, Wroclaw, Poland

Title   : Thermodynamic Properties of Liquid Solutions of Metals.
              Part III. Semi-Regular Binary Solutions.

Orig Pub   : Arch. hutn., 1958, 3, No 4, 315-327

Abstract   : On the basis of calculations performed in Part I
              (Referat Zhur met, 1958, No 10, 20661) and Part II
              (Referat Zhur Fizika, 1959, No 8, 17633) it is shown
              that liquid solutions Au-Dl, Bi-Cd, Bi-Sn, Cd-Pb, Cd-Sn,
              In-Zn, Pb-Sb, Sn-Tl, and Sn-Zn behave like semi-regular
              ones. The experimentally determined values of the chan-
              ge in the partial molar entropy for the components
              ΔS_1, ΔS_2) and the mixing entropy (S) in the entire

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D

POLAND/Atomic and Molecular Physics - Heat.

Abs Jour   : Ref Zhur Fizika, No 10, 1959, 22414

region of the solution concentration can be expressed
by means of the following equations:
$$\Delta S_1 = -DR \ln N_1; \quad \Delta S_2 = -DR \ln N_2; \quad \Delta S = -\Delta R$$
$(N_1 \ln N_1 + N_2 \ln N_2);$
Where D is a coefficient that expresses the deviation of
the solution from regularity (N_1 and N_2 are the concen-
trations of the first and second component in the solu-
tion). Numerical values are obtained for the coeffi-
cient D and are tabulated. If one considers the solu-
tion Sn   Zn, Cd   Pb, Ag   Pb as semi-regular, one ob-
tains a better agreement between the experimental and
calculated data, then in the case of assuming these solu-
tions to be regular. It is shown that the local ordering
influences insignificantly the value of the coefficient
D in semi-regular solutions. As can be seen from the
results obtained, there exists a connection between the
changes in the volume during mixing and the values of

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POLAND/Atomic and Molecular Physics - Heat.   D

Abs Jour   : Ref Zhur Fizika, No 10, 1959, 22414

            the coefficient D_1. Although this dependence is not
            proportional one can nevertheless say that changes in the
            volume play a substantial role in the changes of the
            coefficient D.

Card 3/3

Terpilowski, J

POLAND / Chemical Technology. Chemical Products and   H
          Their Application. Synthetic and Natural
          Medicinal Substances. Galenical Preparations
          and Medicinal Forms.

Abs Jour: Ref Zhur-Khimiya, No 9, 1959, 32465.

Author : Terpilowski, J., Szmyt, K.
Inst   : Not given.
Title   : An Application of Ionic Substitutes in the
          Analysis of Pharmaceutical Preparations.

Orig Pub: Farmac. polska, 1958, 14, No 13, 198-200.

Abstract: A review. Bibliography of 70 titles.

Card 1/1

COUNTRY   : Poland   H-17
CATEGORY   :

ABS. JOUR.   : RZKhim., No. 16   1959, No.   58091

AUTHOR   : Terpilowski, J. and Sznyt, K.
INST.   : Not given
TITLE   : The Chelatometric Determination of Magnesium in
                Certain Prescriptions

ORIG. PUB.   : Acta Polon Pharmac, 15, no 4, 285-292 (1958)

ABSTRACT   : A simple, rapid, and accurate chelatometric
                method has been developed for the determination
                of Mg in a number of widely used subscriptions.
                Optimum conditions for the dissolution of various
                mixtures have been determined together with the
                most effecient ways of removing components which
                interfere with the determination; the latter
                purpose was achieved by the use of a column
                packed with Amberlite IRA-400 anion exchange
                resin and by the use of the hydrolysis reaction
                (in the case Bi salts).
                                             From authors' summary

CARD: 1/1

TERPILOWSKI, J.; WOJCIECHOWSKI, K.

"Order-disorder" transformations in metallic alloys. p. 41.

WIADOMOSCI CHEMICZNE. (Polskie Towarzystwo Chemiczne) Wroclaw, Poland. Vol. 13,
no. 1, Jan. 1959.

TERPTLOWSKI, J.

BILINSKA, Urszula; TERPILCWSKI, Janusz

Determination of phosphorus in certain coppor alloys. Chem anal 5
no.1:17-22 '60.   (EEAI 9:11)

1. Katedra Chemii Nieorganicznej Wydzialu Farmaceutycznego Akademii
Medycznej, Wroclaw.
        (Phosphorus)   (Copper)

23302

P/038/60/005/003/001/002
A076/A126

18.8100   1418 1138 1043

AUTHORS: Terpiłowski, Janusz, and Przeździecka-Mycielska, Emilia

TITLE: Thermodynamic properties of liquid-metal solutions - Part VI. The In-Sn system

PERIODICAL: Archiwum Hutnictwa, v. 5, no. 3, 1960, 281 - 290

TEXT: In order to investigate the thermodynamic properties of the liquid In-Sn solutions the results of measurements of the electromotive forces - emf - were applied. These forces were measured in reversible concentration cells of the type:

| In liquid | (0.6 LiBr + 0.4 KBr) + 0.1 InBr melted salts | In_xSn_{1-x} liquid solution |
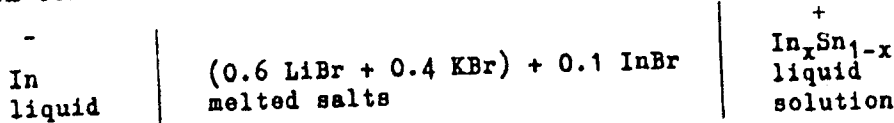
The authors investigated 10 liquid In-Sn solutions with an In content from 5 to 90 atomic %. The design of the electrolytic cell was the same as in the previous works of this series (Ref. 5: Terpiłowski, J. "Archiwum Hut-

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P/038/60/005/003/001/002
A076/A126

Thermodynamic properties of liquid-metal...

nictwa", no. 4, 1959, p. 355). The emf of the cell were measured in a temperature range of from 390 to 610°C and the values of the emf were determined at 400°C (E_{400}), 500°C (E_{500}), and 600°C (E_{600}) as the temperature coefficients of emf $\left(\frac{dE}{dT}\right)$ in the above range of the temperatures concerned.

Based on the results of these measurements and the Gibbs-Duhem equation the following calculations were performed: a) activities (a_{In}, a_{Sn}) and the activity coefficients (f_{In}, f_{Sn}) of the constituents, b) changes of the partial molal thermodynamic potentials ($\overline{\Delta G}_{In}$, $\overline{\Delta G}_{Sn}$), entropy ($\overline{\Delta S}_{In}$, $\overline{\Delta S}_{Sn}$) and enthalpy ($\overline{\Delta H}_{In}$, $\overline{\Delta H}_{Sn}$) of indium and tin, c) changes of the thermodynamic potential (ΔG), entropy (ΔS) and enthalpy (ΔH) during the mixing of pure liquid metals into liquid solutions. It was stated that the enthalpy of mixing shows negative values in the whole concentration range and attains - 40 cal/gramatom for liquid alloys containing from about 72 to 82 at.% of indium. The small values of the enthalpy of mixing and the values of the activity coefficients for indium and tin, which approach unity, prove that the constituents influence each other very little in the temperature range of the measurements. The ΔG curve has its extremity displaced towards high-

Card 2/3

Thermodynamic properties of liquid-metal...

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P/038/60/005/003/001/002
A076/A126

er concentrations of indium in the liquid solutions likewise the ΔH curve. The activity isotherm for tin is distinguished by positive-negative deviations from the Raoult's law and that of the activity for indium by negative ones. It is possible that such a course of these thermodynamic curves is in relation with the appearance of the solid phase β of a variable composition in the In-Sn system. The values of ΔS_{In}, ΔS_{Sn} and ΔS in the temperature range of measurements are not much higher than those for regular solutions. This results probably from the fact that both of these metals are close to each other in the periodic system. There are 4 tables, 4 figures and 20 references: 12 Soviet-bloc and 8 non-Soviet-bloc. The reference to the most recent English-language publication reads as follows: Kubaschewski, O., Catterall, J. A., Thermochemical Data of Alloys, London - New York, 1956.

ASSOCIATION: Katedra Chemii Nieorganicznej, Wydział Farmaceutyczny Akademia Medyczna, Wrocław (Department of Inorganic Chemistry, Pharmaceutical Section. Medical Academy, Wrocław)

Card 3/3

TERPILOWSKI, J.; TRZEBIATOWSKI, W.

Thermodynamic properties of indium antimonide. Bul chim PAN 8 no.3:
                                            (EEAI 10:9/10)
95-98 '60.

1. Department of Structural Research (Wroclaw), Institute of Physical
Chemistry, Polish Academy of Sciences. Presented by W. Trzebiatowski.

(Antimony indium alloys)

TERPIŁOWSKI, Janusz, doc.dr.

On Daltonids and Berthollides among the intermetallic phases and
their thermo-dynamic properties. Wiad chem 14 no.3:157-174 Mr '60.

1. Kierownik Katedry Chemii Nieorganicznej, Wydział Farmaceutyczny,
Akademia Medyczne, Wroclaw i Zaklad Badan Strukturalnych, Instytut
Chemii Fizycznej, Polska Akademia Nauk, Wroclaw.

34695
S/137/62/000/002/004/1'
A006/A101

/P. P/ C O

AUTHORS: Terpilowski, Janusz; Kundys, Emil; Slaby, Henryk

TITLE: Thermodynamical properties of liquid metal solutions. VII. The
             Ag-Tl system

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 2, 1962, 12, abstract 2A57
             ("Arch. hutn", 1961, vol. 6, no. 2, 137-146, Polish; Russian and
             English summaries)

TEXT: The authors measured emf E of reversible concentration elements of
type Tl (liquid)/(0.58 LiCl + 0.42 KCl) + 0.05 TlCl (molten salt)/Ag_xTl_{1-x}
(liquid solution)+. Investigations were made of 10 liquid solutions of Al-Tl
containing 10 - 95 at. % Tl. The investigation method was described previously
(RZhMet, 1960, no. 9, 19484). E values were determined for 950, 1,050 and 1,150
^{0}K. The emf of all elements varied linearly with the temperature. For elements
containing solutions with 0.1 and 0.2 atom portions of TlNTl, numerical values
of $E_{1,050}$ were extrapolated from the linear dependence of emf on temperature.
The results of measurements and extrapolation were applied for the case of the
Au-Tl system to calculate changes in the partial molar thermodynamical potentials

Card 1/2

Thermodynamical properties of liquid metal ...

S/137/62/000/002/004/144
A006/A101

of entropy ($\Delta \bar{S}_{Tl}$, $\Delta \bar{S}_{Ag}$) and enthalpy ($\Delta \bar{H}_{Tl}$, $\Delta \bar{H}_{Ag}$) of Tl and Ag, activities and activity factors of components, changes in the thermodynamical potential, entropy (ΔS) and enthalpy (ΔH) of mixing liquid Tl and supercooled liquid Ag. Isotherms of activity of the components in the liquid range of the Ag-Tl system show positive deviations from the Raoult's law only within a N_{Tl} range from about 0.1 to 0.4. The isotherm of Ag activity is characterized by a low negative deviation from this law. Mixing enthalpies are positive over the whole concentration range and show maximum values on the side of liquid solutions enriched with Tl. These maxima attain 950 cal. g-atom of the solution. $\Delta \bar{H}_{Tl}$, $\Delta \bar{H}_{Ag}$ and ΔH curves have an asymmetrical shape, and a maximum on the ΔH curve appears on the side which is opposite to the enormous majority of other liquid metal systems with sharply different atomic volumes of components. Values $\Delta \bar{S}_{Tl}$, $\Delta \bar{S}_{Ag}$ and ΔS for the liquid Ag-Tl system are higher than for ideal and regular solutions. The basic cause of this fact is the great difference between atomic volumes of Ag and Tl. Liquid Ag-Tl solutions behave like semiregular solutions with coefficient $D = 1.42$. Information VI see RZhMet, 1961, 3A14.
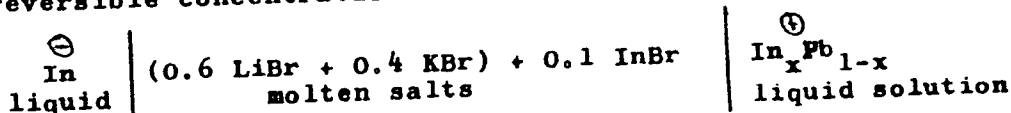
Authors' summary

[Abstracter's note: Complete translation]

Card 2/2

30577
P/038/61/006/003/002/003
E071/E180

18.7530

AUTHORS: Terpilowski, Janusz., and Gregorczyk, Zofia.

TITLE: Thermodynamic properties of liquid metallic solutions

PERIODICAL: Archivum hutnictwa, v.6, no.3, 1961, 197-204

TEXT: Thermodynamic properties of liquid indium-lead alloys
were investigated by measuring the electromotive forces in
reversible concentration cells of the following type:

$$\overset{\ominus}{\underset{\text{liquid}}{\text{In}}} \Bigg| \underset{\text{molten salts}}{(0.6 \text{ LiBr} + 0.4 \text{ KBr}) + 0.1 \text{ InBr}} \Bigg| \overset{\oplus}{\underset{\text{liquid solution}}{\text{In}_x\text{Pb}_{1-x}}}$$

Spectroscopically pure indium, and lead of 99.99% purity were used
for the experiments.   Altogether ten In-Pb alloys, with an atomic
fraction of indium varying from 0.05 to 0.9, were studied at
temperatures of 400, 500 and 600 °C.   From the results obtained,
the following values were calculated: temperature coefficient of
the electromotive force (dE/dT) within the temperature range
studied;   activities (a_{In}, a_{Pb}) and activity coefficients (f_{In},
f_{Pb}) of the components;   changes of partial thermodynamic molar
Card 1/ 3

Thermodynamic properties of liquid ...

30577
P/038/61/006/003/002/003
E071/E180

potentials ($\overline{\Delta G}_{In}$, $\overline{\Delta G}_{Pb}$), entropies ($\overline{\Delta S}_{In}$, $\overline{\Delta S}_{Pb}$) and enthalpies ($\overline{\Delta H}_{In}$, $\overline{\Delta H}_{Pb}$) of indium and lead and changes of the thermodynamic potential (ΔG), entropy (ΔS) and enthalpy (ΔH) for the process of mixing pure liquid metals into liquid solutions. The activities of indium and lead indicate that there is a positive deviation from the Raoult law. These deviations decrease with increasing temperature. The liquid indium-lead solutions can be approximately regarded as semi-regular, with the values of entropies of mixing higher than for ideal solutions. This increase in the entropy of mixing is probably caused by the difference in the atomic volumes of indium and lead as well as by the effect of atomic bonds. The values of $\overline{\Delta H}_{In}$, $\overline{\Delta H}_{Pb}$ and ΔH are positive for the whole range of concentrations of liquid indium-lead solutions. On the basis of investigations by O. Kubaschewski (Ref.8: Z. Elektrochem., 59, 1955, 840) it may be postulated that, during the formation of these solutions, a loosening of the atomic bonding of indium and lead, associated with the absorption of energy, occurs. The existence of solid

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Thermodynamic properties of liquid ...

30577
P/038/61/006/003/002/003
E071/E180

intermetallic phases of variable composition does not appear to have any influence on the thermodynamic properties of liquid indium-lead solutions within the range of temperatures studied. There are 4 figures, 4 tables and 11 references: 7 Soviet-bloc and 4 non-Soviet-bloc. The English language references read:
Ref.9: O. Kubaschewski, Trans. Faraday Soc., 45, 1949, 931.
Ref.10: W.J. Svirbely, S.M. Selis. J. Am. Chem. Soc., 75, 1953, 1532.
Ref.11: R.W. Bohl, V.D. Hildebrandt. J. Am. Chem. Soc., 79, 1957, 2711.

SUBMITTED: September 1960

Card 3/3

TERPILOWSKI, J.; BARYCKA, I.

Thermodynamical properties of liquid cadmium-magnesium solutions.
Bul chim PAN 9 no.4:175-178 '61.

1. Department of Structural Research, Wroclaw, Institute of Physical
Chemistry, Polish Academy of Sciences and Department of Inorganic
Chemistry, Technical University, Wroclaw. Presented by W. Trzebiatowski.

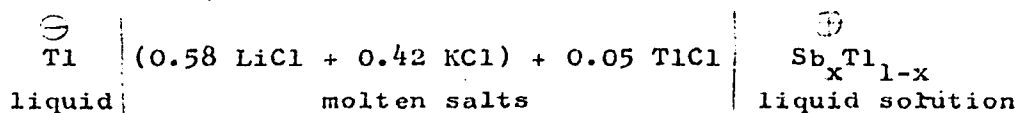(Cadmium)   (Magnesium)   (Solutions)

TERPILOWSKI, J.; MANCZYK, R.

Complexonometric determination of zinc in some prescription
mixtures.   Apt. delo 10 no. 2:85 Mr-Ap '61.   (MIRA 14:4)
                    (ZINC—ANALYSIS)

P/038/62/007/001/002/003
E193/E383

/P. 7540

AUTHORS: Kundys, Emil, Terpiłowski, Janusz and Josiak, Jerzy

TITLE: Thermodynamic properties of liquid metallic solutions.
           IX. The Sb-Tl system

PERIODICAL: Archiwum ·hutnictwa, v. 7, no. 1, 1962, 39 – 46

TEXT: The object of the present investigation was to, study
thermodynamic properties of liquid Sb-Tl solutions. To this end,
the e.m.f. of reversible concentration cells of the type:

$$\overset{\ominus}{\text{Tl}} \;\Big|\; (0.58\ \text{LiCl} + 0.42\ \text{KCl}) + 0.05\ \text{TlCl} \;\Big|\; \overset{\oplus}{\text{Sb}_x \text{Tl}_{1-x}}$$

$$\text{liquid} \qquad\qquad \text{molten salts} \qquad\qquad \text{liquid solution}$$

was measured. A linear temperature-dependence of the e.m.f. was
observed in every case. The other results are reproduced in
Table 1. Changes of partial molar thermodynamic potentials
(ΔG_{Tl}, ΔG_{Sb}), entropy (ΔS_{Tl}, ΔS_{Sb}) and enthalpy (ΔH_{Tl}, ΔH_{Sb})

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Thermodynamic properties P/038/62/007/001/002/003
                                        E193/E385

were calculated from these data as well as the activities (a_{Tl}, a_{Sb}), activity coefficients (f_{Tl}, f_{Sb}) for Tl and Sb, and changes of the thermodynamic potential $(\angle G)$, entropy $(\triangle S)$ and enthalpy $(\triangle H)$ of their solutions. As will be seen from Fig. 4, where a_{Sb} and a_{Tl} are plotted against Tl concentration (N_{Tl}) at 650 °C, the activity isotherms for both metals show a negative deviation from Rault's law. The enthalpy of the solution is negative for the entire concentration range, reaching a value of -490 cal/g.atom at the Tl-rich end. The asymptotic character of curves for the enthalpy of the solution and for partial molar enthalpy of the components can probably be attributed to the existence of an intermediate γ-phase in the system studied. As shown in Fig. 2 (where $\angle S_{Tl}$, $\triangle S_{Sb}$ and $\angle S$ (cal/°C) are plotted against N_{Tl} - the broken curves relating to ideal solutions), changes of partial molar entropy of the components and entropy of the solution for the entire

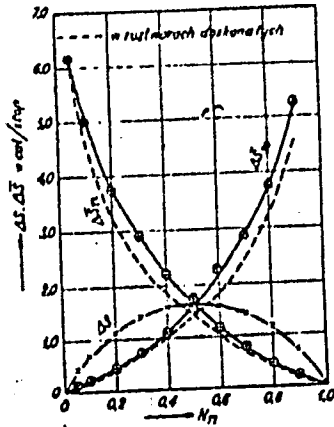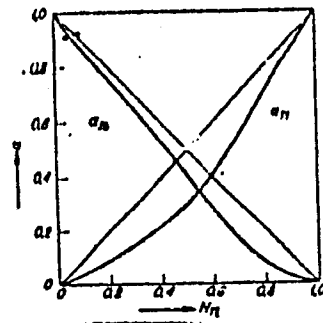Card 2/4

Thermodynamic properties ....

concentration range were found to be higher than those of an
ideal solution. This effect is probably associated with
relatively large volume changes accompanying the formation of
liquid solutions and with the difference in atomic volume of
both components.   There are 4 figures and 4 tables.

Fig. 2:

Fig. 4:

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Thermodynamic properties ....

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E193/E383

Table 1:   Key 1 -.Lp.= No.   2 - Temperature range of the measurement, ^{o}C.

① Lp.	N_{Tl}	$E_{us}°$) mV	$\frac{dE}{dT}$) mV/100°	Zakres tempo ② ratur pomia- rów w °C
1	2	3	4	5
1	0,050	317,5	26,8	620—700
2	0,100	253,1	21,7	590—680
3	0,200	192,2	16,3	550—700
4	0,300	151,9	12,7	510—690
5	0,400	120,8	9,6	460—690
6	0,500	96,8	7,4	410—690
7	0,600	71,0	4,9	400—690
8	0,700	48,6	3,4	400—690
9	0,800	26,2	2,1	400—690
10	0,900	12,4	1,0	400—690

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P/038/62/007/003/001/002
E193/E383

AUTHORS: Kundys, Emil, Terpiłowski, Janusz and Zaleska, Ewa

TITLE: Thermodynamic properties of liquid-metal solutions.
            X. Pb-Tl system

PERIODICAL: Archiwum hutnictwa, v. 7, no. 3, 1962, 233-241

TEXT: Measurements of e.m.f. generated at 400 - 600 °C by
a reversible cell of the type:

$$\ominus \quad \text{Tl} \quad | \quad (0.58 \text{ LiCl} + 0.42 \text{ KCL}) + 0.05 \text{ TlCl} \quad | \quad Pb_x Tl_{x-1} \quad \oplus$$

liquid | melted salts | liquid solution
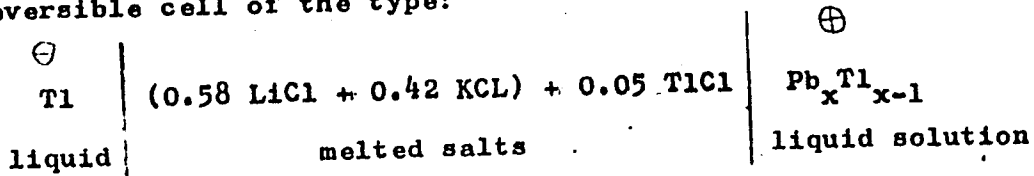
were used to determine some thermodynamic properties of liquid
Pb-Tl solutions in a wide concentration range. Using the
Gibbs-Duhem's equation and the experimental values of e.m.f.
at 400, 500 and 600 °C and the temperature coefficient of e.m.f.,
the authors calculated the following properties:
1) changes in the partial molar thermodynamic potential $\Delta \bar{G}$,
Card 1/3

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Thermodynamic properties E193/E383

entropy $\Delta \bar{S}$ and enthalpy $\Delta \bar{H}$ of both constituents;
2) changes of the thermodynamic potential, entropy and enthalpy
of the solutions (calculated per g.a. of each solution);
3) activities α and activity coefficients f for both
components in liquid solutions. The results, tabulated and
reproduced graphically, were similar to those obtained earlier
for the Bi-Tl and Bi-Pb solutions. The validity of the method
employed was confirmed by the fact that the values of enthalpy
of solutions obtained by this method were in good agreement
with those obtained by F.E. Wittig and P. Scheidt (Z. phys.
Chem. NF, 28, 1961, 120) with the aid of the calorimetric method.
In general, the results of the present investigation provided
support for the view that metals occupying adjacent positions
in the periodic table form liquid solutions only slightly
deviating from ideal solutions. This is demonstrated in Fig. 2,
where the change in the partial molar enthalpy of both components
($\Delta \bar{S}_{Tl}$, $\Delta \bar{S}_{Pb}$) and the change in the entropy of the

solutions ($\Delta \bar{S}$) are plotted against the Tl concentration, the

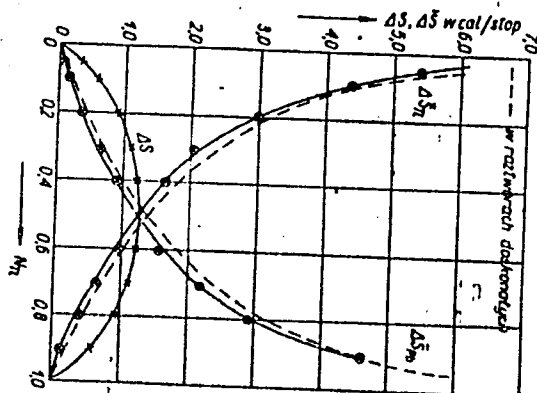Card 2/3

Thermodynamic properties P/038/62/007/003/001/002
                                       E193/E383

broken curves relating to ideal solutions.
There are 5 figures and 5 tables.

SUBMITTED: September 26, 1961

Fig. 2:

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S/137/62/000/012/001/085
A006/A101

AUTHORS: Terpiłovski, Janusz, Starościk, Rudolf

TITLE: On the solubility of In_2S_3

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 12, 1962, 7 - 8,
            abstract 12A36 ("Chem. analit", Polska, 1962, v. 7, no. 3,
            629 - 633; Polish, summary in English)

TEXT: The reproduction of In_2S_3 solubility at $25^\circ C$, equal to $5.8 \cdot 10^{-24}$,
is determined from thermodynamical data. The concentration of In ions in satu-
rated In_2S_3-solutions is polarographically determined, depending on the acidity
index. The experimental reproduction of solubility approaches the calculated val-
ues with higher acidity. This fact confirmed the formation of In^{3+} ions in the
solution.

V. Vigdorovich

Card 1/1

STARCSCIK, Rudolf; TERPILOWSKI, Janusz

Calorimetric determination of indium by pyrocatechol
violet. Chem anal 7 no.4:803-808 '62.

1. Department of Inorganic Chemistry, Faculty of Pharmacy,
Academy of Medicine, Wroclaw.

S/137/63/000/001/001/019
A006/A101

AUTHOR: Terpiłowski, J.

TITLE: Thermodynamic properties of liquid solutions

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 1, 1963, 7, abstract 1A29
("Bull. Acad. polon. sci. Ser. sci. chim.", 1962, v. 10, no. 5,
221 - 225, English; summary in Russian)

TEXT: In the binary Mg-Zn system the presence of an $MgZn_2$ phase, and of
three other intermetallides within a narrow range, was observed. The $MgZn_2$-phase
has a close-packed lattice and melts congruently at 590°C; the hereditary struc-
ture of the short-range order is supposed to be preserved in the melt which
would affect the thermodynamic properties of the latter. The thermodynamic pro-
perties of the Mg-Zn system liquid alloys were investigated by measuring the emf
on 12 specimens within a range of 0.035 - 0.90 atomic portions of Mg. The emf
depends linearily on the temperature. By applying graphical integration, the
author determined changes in the partial molar values (ΔF_{Zn}, ΔS_{Zn}, ΔH_{Zn}) and
of free energy ΔF, entropy ΔS and enthalpy ΔH. Activity of Mg and Zn in

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Thermodynamic properties of liquid solutions

S/137/63/000/001/001/019
A006/A101

solid solutions was calculated from equations $\Delta F_i = RT \ln a_i$. It is noted that the thermodynamic properties of alloys Zn-Mg and Cd-Mg are similar. In both cases negative deviations from the Raoult's law are observed. A minimum on the concentrational dependence curves of activity corresponds to the $MgZn_2$ phase; this proves a substantial interatomic interaction of components and the presence of a definite degree of order in these alloys.

A. Vertman

[Abstracter's note: Complete translation]

Card 2/2

PRZEZDZIECKA-MYCIELSKA, Emilia; TERPILOWSKI, Janusz; STROZECKA,
Krystyna

Thermodynamic properties of liquid metallic solutions. Pt.
9. Archiw hutn 8 no. 2: 85-102 '63.

1. Katedra Chemii Nieorganicznej, Wydzial Farmaceutyczny,
Akademia Medyczna, Wroclaw.

TERPILOWSKI, J.; SLABI,H.

Thermodynamic properties of liquid magnesium-thallium solutions. Bul Chim PAN 11 no.6:317-320 '63.

1. Department of Inorganic Chemistry, Faculty of Pharmacy, School of Medicine, Wroclaw. Presented by W.Trzebiatowski.

JASKIEWICZ, A.; TERPILOWSKI, J.

Anomalous delay effect in polycrystalline $BaTiO_3$. Acta physica Pol 23 no.3:407-409 Mr '63.

1. Physical Institute, Wroclaw University, Wroclaw.

TERPILOWSKI, Janusz; ZALESKA, Ewa

> Thermodynamic properties of thallium-tellurium liquid solutions.
> Rocz chemii 37 no.2:193-200 '63.
>
> 1. Department of Inorganic Chemistry, School of Medicine, Wroclaw.

TERPILOWSKI, J.; RATAJCZAK, E.

Thermodynamic properties of CdSe and CdTe. Bul chim PAN 12 no.6:
355-358 '64.

SLABY, H.; TERPILOWSKI, J.

Thermodynamic properties of liquid magnesium—gallium solutions.
Bul chim PAN [i.e. 12] no.9:581-585 '64.

1. Department of Inorganic Chemistry of the Division of Pharmacy
of the School of Medicine, Wroclaw. Submitted July 6, 1964.

TERPILOWSKI, Janusz; JOSIAK, Jerzy

EMF measurements of concentration cells as used in thermodynamic research on melted salt solutions; PbCl in the fused PbCl$_2$--KCl system. Rocz chemli 38 no. 1:97-103 '64.

1. Department of Inorganic Chemistry, Division of Pharmacy, School of Medicine, Wroclaw.

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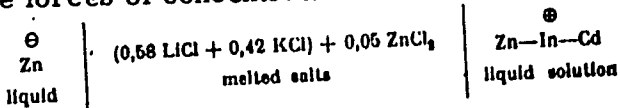
AUTHOR: Terpilowski, Janusz--Terpilovski, Ya.

ORG: Department of Physicochemical Structural Research, PAN, Wroclaw
(Zaklad fizyko-chemicznych badan strukturalnych PAN)

TITLE: Thermodynamic properties of liquid metal solutions. The Zn—In—Cd
and In—Cd systems

SOURCE: Archiwum hutnictwa, v. 11, no. 2, 1966, 163-176

TOPIC TAGS: EMF, zinc indium cadmium system, indium cadmium system,
liquid solution, liquid system, thermodynamic potential

ABSTRACT: Thermodynamic investigations of Zn—In—Cd liquid solutions and
indirectly of In--Cd liquid solutions were carried out by the method of measuring
the electromotive forces of concentration cells of the following type:

$$\ominus \quad Zn \quad \text{liquid} \quad \Big| \quad (0,58\ LiCl + 0,42\ KCl) + 0,05\ ZnCl_2 \ \text{melted salts} \quad \Big| \quad \oplus \quad Zn\text{—}In\text{—}Cd \ \text{liquid solution}$$

Card   1/3

L 45182-66

ACC NR: AP6026460   /

The subject of investigations were 15 liquid solutions of Zn—In—Cd in the tempera-
ture range 430 to 580C. In the reproducible limits of the readings, the values of
EMF in cells varied linearly with temperature. The compositions of the investi-
gated solutions were expressed as atomic fractions of zinc (N_1), indium (N_2), and
cadmium (N_3). The EMF of the cells at 500C as (E_{500}) and their temperature
coefficients (dE/dT) are given in a table in the original article. The values for
the integrals of equations were determined. The results of the excess molar
thermodynamic functions of mixing for the three-component liquid system
Zn—In—Cd and for the binary one of In—Cd are presented. The author stated that
the activity of zinc in liquid solutions of Zn—In, Zn—Cd, and Zn—In—Cd at
500C has a positive deviation from the Raoult law. The values of the activity
coefficients for zinc are highest for the Zn—In liquid system, intermediate for the
Zn—In—Cd liquid system, and lowest for the Zn—Cd liquid system. The
Zn—In—Cd, Zn—In, Zn—Cd, and In—Cd liquid systems are characterized by
positive values of excess molar thermodynamical potentials and enthalpies of
mixing for any one concentration of the components. The values of excess molar
entropies of mixing are equal to zero for three-component Zn—In—Cd liquid
solutions with low indium concentration and for binary Zn—Cd liquid solutions. In

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