34481
S/020/62/142/004/018/022
B101/B110

15.2240

AUTHORS: Samsonov, G. V., Verkhoglyadova, T. S., Livov, S. N. and Nemchenko, V. F.

TITLE: Effect of oxygen on the electric properties of titanium nitride

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 142, no. 4, 1962, 862 - 865

TEXT: The electric properties of TiN, in the lattice of which N was stepwise substituted by O, were investigated. The TiN - TiO melts were obtained by treating a mixture TiO_2 + Ti for 4 hr with NH_3 at 800°C (reduction of TiO_2) and 4 hr at 1300°C (formation of TiN and solid solutions of TiN + TiO). Metallographic investigation and X-ray diffraction proved that the melts were monophase. The electric properties changing with the TiO content were:

Card 1/3

Effect of oxygen on the...

Mole% TiN	Mole% TiO	I	II	III	Mole% TiN	Mole% TiO	I	II	III
100	0	26	-0.67	-9.3	62.7	37.3	12.7	-1.36	-8.6
90	10	17.9	-0.4	-7.1	47.6	52.4	14.2	-1.64	-
79.6	20.4	13.1	-0.17	-6.4	46.7	53.3	-	-1.70	-13.4
73.1	26.9	11.3	-0.48	-0.75	46.0	54.0	14.3	-2.02	-
65.0	35.0	12.1	-0.82	-	41.8	58.2	27.0	-2.64	-

I = electric resistivity, μohm·cm; II = Hall coefficient $R \cdot 10^4$, cm^3/coulomb; III = coefficient of thermo-emf, μv/deg. The course of the electric resistance points to a superimposition of two factors: at low O content, the effect of its lower ionization potential, as compared with N, predominates; at high O content, the effect of the larger atom radius, as compared with N, predominates, thus reducing the overlapping of energy bands, and increasing the lattice spacing. All melts investigated showed reversal of the sign of the temperature coefficient of the electric resistance (Fig. 4) when a certain temperature was reached. The earlier passage through the maximum for melts rich in TiO is caused by the geometric factor: the larger radius of the oxygen ion. The pointed

Card 2/4

maxima correspond to the preponderant effect of one of the two nonmetals, the flat maxima correspond to the combined action of both nonmetals. Similar electric properties are assumed for the systems ZrN - ZrO, and HfN - HfO. There are 4 figures, 2 tables, and 6 references: 4 Soviet and 2 non-Soviet. The reference to the English-language publication reads as follows: A. Münster, K. Sagel, G. Schlamp, Nature, 174, 1154 (1954).

ASSOCIATION: Institut metallokeramiki i spetsial'nykh splavov Akademii nauk USSR (Institute of Powder Metallurgy and Special Alloys of the Academy of Sciences UkrSSR). Khersonskiy pedagogicheskiy institut im. N. K. Krupskoy (Kherson Pedagogical Institute imeni N. K. Krupskaya)

PRESENTED: September 14, 1961, by G. V. Kurdyumov, Academician

SUBMITTED: September 1, 1961

L'VOV, S.N.; NEMCHENKO, V.F.; KISLYY, P.S.; VERKHOGLYADOVA, T.S.; KOSOLAPOVA, T.Ya.

Electric properties of chromium borides, carbides, and nitrides. Porosh.met. 2 no.4:20-25 Jl-Ag '62. (MIRA 15:8)

1. Khersonskiy gosudarstvennyy pedagogicheskiy institut imeni Krupskoy i Institut metallokeramiki i spetsial'nykh splavov AN UkrSSR.
(Chromium compounds--Electric properties)
(Ceramic metals--Electric properties)

L'VOV, S.N.; NEMCHENKO, V.F.; SAMSONOV, G.V.

Effect of nonmetal atoms on the electric properties of high-melting transition metal compounds. Porosh.met. 2 no.4:3-10 Jl-Ag '62. (MIRA 15:8)

1. Khersonskiy gosudarstvennyy pedagogicheskiy institut imeni Krupskoy i Institut metallokeramiki i spetsial'nykh splavov AN UkrSSR.
(Intermetallic compounds--Electric properties)
(Ceramic metals)

SAMSONOV, G.V.; VERKHOGLYADOVA, T.S.; L'VOV, S.N.; NEMCHENKO, V.F.

Effect of oxygen on the electric properties of titanium nitride. Dokl. AN SSSR 142 no.4:862-865 F '62.
(MIRA 15:2)

1. Institut metallokeramiki i spetsial'nykh splavov AN USSR i Khersonskiy pedagogicheskiy institut im. N.K.Krupskoy. Predstavleno akademikom G.V.Kurdyumovym.
(Titanium nitride—Electric properties)
(Oxygen)

L'VOV, S.N.; NEMCHENKO, V.F.; SAMSONOV, G.V.

Heat conductivity of high-melting borides, carbides, and nitrides. Porosh.met. 1 no.6:70-74 N-D '61. (MIRA 15:5)

1. Khersonskiy gosudarstvennyy pedagogicheskiy institut imeni N.K.Krupskoy i Institut metallokeramiki i spetsial'nyk splavov AN UkrSSR.

(Borides--Thermal properties)
(Carbides--Thermal properties)
(Nitrides--Thermal properties)

KISLYY, P.S.; L'VOV, S.N.; NEMCHENKO, V.F.; SAMSONOV, G.V.

Physical properties of the boride phases of chromium. Porosh. met. 2 no.6:50-53 N-D '62. (MIRA 15:12)

1. Khersonskiy gosudarstvennyy pedagogicheskiy institut imeni N.K.Krupskoy i Institut metallokeramiki i spetsial'nykh splavov AN UkrSSR.

(Chromium boride—Testing)

L'VOV, S.N.; NEMCHENKO, V.F.; SAMSONOV, G.V.

Physical properties of chromium borides, carbides, nitrides, and silicides. Izv. vys. ucheb. zav.; fiz. no.5:21-26 '63. (MIRA 16:12)

1. Khersonskiy pedagogicheskiy institut imeni N.K.Krupskoy i Institut metallokeramiki i spetsial'nykh splavov AN UkrSSR.

L'VOV, S.N. [L'vov, S.M.]; NEMCHENKO, V.F. [Niemchenko, V.P.]; SAMSONOV, G.V. [Samsonov, H.V.]; VERKHOGLYADOVA, T.S. [Verkhohliadova, T.S.]

Semiconductor electroconductivity of refractory nitrides. Ukr. fiz. zhur. 8 no.12:1372-1377 D '63. (MIRA 17:4)

1. Khersonskiy pedagogicheskiy institut im. Krupskoy i Institut metallokeramiki i spetsial'nykh splavov AN UkrSSR.

L'VOV, S. N.
TITLE: Seminar on refractory metals, compounds, and alloys (Kiev, April 1963).
SOURCE: Atomnaya energiya, v. 15, no. 3, 1963, 266-267

ACCESSION NR: AP3008085

Ya. A. Kraftmakher. Heat capacity of W, Ta, and Nb.

V. M. Amonenko and others. Expansion coefficients of Zr, Nb, Mo, Ta, and W.

N. V. Ageyev, M. S. Model'. Expansion coefficients of chromium-base alloys.

S. N. L'vov, V. F. Nemchenko. Temperature dependence of emf and resistivity of Cr, Ti, V, and their borides, carbides, and nitrides; Ettingshausen-Nernst effect in titanium, TiB_2, TiC, and TiN.

N. V. Kolomoyets. The emf of chromium-group metals and their alloys.

G. V. Samsonov and others. Superconductivity and thermal-electron properties of refractory compounds.

D. A. Prokoshkin and others. Magnetic, optical, and other properties of refractory elements and the oxidation resistance of beryllides of refractory elements.

Card 10/11

L'VOV, S.N.; NEMCHENKO, V.F.; PADERNO, Yu.B.

Heat conductivity of hexaborides of alkaline and rare earth metals. Dokl. AN SSSR 149 no.6:1371-1372 Ap '63. (MIRA 16:7)

1. Khersonskiy pedagogicheskiy institut im. N.K.Krupskoy i Institut metallokeramiki i spetsial'nykh splavov AN UkrSSR. Predstavleno akademikom A.N.Frumkinym.
(Rare earth borides--Thermal properties)

ACCESSION NR: AP4017568 S/0149/64/000/001/0145/0150

AUTHOR: Samsonov, G. V.; Sinel'nikova, V. S.; L'vov, S. N.; Nemchenko, V. F.

TITLE: Physical properties of titanium, zirconium, and vanadium aluminides

SOURCE: IVUZ. Tsvetnaya metallurgiya, no. 1, 1964, 145-150

TOPIC TAGS: titanium alloy, zirconium alloy, vanadium alloy, aluminum alloy, aluminide, physical property, electrical conductivity, thermal conductivity, Hall effect, Wiedemann Franz ratio, thermal expansion, hardness, magnetic susceptibility

ABSTRACT: The physical properties determined were resistivity, thermal coefficient of resistivity, coefficient of thermo-emf, Hall constant effective current carrier mobility, effective current carrier concentration, heat conductivity, Wiedemann Franz ratio, coefficient of thermal expansion, microhardness, and magnetic susceptibility. The alloys TiAl,* $TiAl_3$, Zr_3Al, Zr_2Al, $ZrAl_3$, V_5Al_8, VAl_3, VA_6, and VAl_{11} were prepared by arc melting in argon or by sintering from AV000 aluminum and 99.98% pure iodide titanium, zirconium, and vanadium. The greater hardness, lower resistivity, and lower thermal expansion of $TiAl_3$ compared to TiAl indicate greater electron density in the Ti 3d-electron level. The specific conductivity of Zr-aluminides increases as the ratio of Al:Zr increases,

Card 1/2

ACCESSION NR: AP4017568

which process is linked to a gradual electron influx into the Zr d-level. V-aluminides show a similar pattern. Minimum current carrier concentrations and maximum current carrier mobilities for all $MeAl_2$ alloys are noted. Except for Ti-aluminides, the Wiedemann Franz ratio for the alloys was found to be greater than theoretical, which is accounted for by significant lattice contributions to the electrical conductivity. From the donor-acceptor theory, itis concluded that the probability of an Al-valence electron influx into the d-level decreases as the accepting ability of the latter decreases in the order Ti→Zr→V. Orig. art. has: 2 figures and 3 tables.

ASSOCIATION: Institut metallokeramiki i spetsial'ny*kh splavov AN UkrSSR (Institute of Powder Metallurgy and Special Alloys); Khersonskiy pedagogicheskiy institut (Kherson Pedagogical Institute)

SUBMITTED: 19Jul63 ENCL: 00

SUB CODE: MM NO REF SOV: 012 OTHER: 001

Card 2/2

NESHPOR, V.S.; L'VOV, S.N.; SAMSONOV, G.V.

Magnetic susceptibility of silicides of certain transition metals. Izv. vys. ucheb. zav.; fiz. no.1:160-163 '64. (MIRA 17:3)

1. Institut metallokeramiki i spetsial'nykh splavov AN UkrSSR i Khersonskiy pedagogicheskiy institut imeni Krupskoy.

L 39166-65 EPF(n)-2/EPR/EWT(m)/EWG(m)/EWP(b)/T/EWA(d)/EWP(e)/EWP(w)/EWP(t) Ps-4/
Pu-4 IJP(c) AT/WH/JD/JG

ACCESSION NR: AP4047876 S/0279/64/000/005/0121/0126

AUTHOR: Sinel'nikova, V.S. (Kiev); Samsonov, G.V. (Kiev); L'vov, S.N. (Kiev)

TITLE: Physical properties of aluminides of transition metals of the fifth group of the periodic system of elements

SOURCE: AN SSSR. Izvestiya. Metallurgiya i gornoye delo, no. 5, 1964, 121-126

TOPIC TAGS: transition metal aluminide, vanadium aluminide, niobium aluminide, tantalum aluminide, specific electrical resistance, Hall constant, thermal electromotive force, thermal conductivity, magnetic susceptibility, microhardness, work function

ABSTRACT: The specific electrical resistance, Hall constant, thermal- e.m.f., thermal conductivity, magnetic susceptibility, concentration and mobility of current carriers, Wiedemann-Franz ratio, and microhardness were determined at room temperature for the following aluminides: V_3Al, V_5Al_8, VAl_3, VAl_6, VAl_{11}, Nb_3Al, Nb_2Al, $NbAl_3$, $TaAl_3$, Ta_2Al and $TaAl_3$. The work function at 1500 K was determined for $ZrAl_3$, Zr_5Al_8, V_5Al_8, $TaAl_3$ and $NbAl_3$. "(Work

Card 1/2

L 39466-65

ACCESSION NR: AP4047876 2

function) Measurements were carried out by B. Ch. Dyubya and O. K. Kultashev" Orig. art. has: 4 tables.

ASSOCIATION: None

SUBMITTED: 01Feb64 ENCL: 00 SUB CODE: MM

NR REF SOV: 012 OTHER: 009

Card 2/2 /6

ACCESSION NR: AP4042116 S/0073/64/030/007/0667/0670

AUTHOR: Verkhoglyadova, T. S.; L'vov, S. N.; Nemchenko, V. F.

TITLE: Some properties of the niobium-nitrogen system

SOURCE: Ukrainskiy khimicheskiy zhurnal, v. 30, no. 7, 1964, 667-670

TOPIC TAGS: niobium nitrogen system, niobium nitrogen phase diagram, niobium nitride, niobium nitrogen alloy, alloy physical property, alloy structure

ABSTRACT: A series of niobium-nitrogen alloys with a nitrogen content up to 50 at% have been investigated. Alloy specimens were obtained by hot compacting of powders of the required composition at 1850 to 1900C under a pressure of 120—150 kg/cm^2. X-ray diffraction and metallographic analyses showed the existence of a α-solid solution and β-, γ-, ε-, and δ-phases (See Fig. 1 of the Enclosure). The β-phase appears at a nitrogen content of 2.6 at%; it has a region of homogeneity from 23.4 to 33.7 at% N. The γ-phase could not be isolated. The δ-phase was isolated only in specimens rapidly cooled from the compacting temperature. The α-phase, the solid solution

Card 1/3

ACCESSION NR: AP4042116

of nitrogen in niobium, the mixture of α- and β-phases, and pure niobium have hole-type conductivity the proportion of which decreases with increasing nitrogen content. At a nitrogen content of 27.3 at%, the alloy conductivity is predominantly of the electron type; only in the region of $\delta' + \delta$ phases does hole-type conductivity become again predominant. The composition dependence of resistivity and of the Hall constant is rather complicated (See Fig. 2 of the Enclosure). The composition dependence of density, thermal emf, and heat conductivity were also determined. Orig. art. has: 4 figures, and 1 table.

ASSOCIATION: Institut metallokeramiki i spetssplavov AN USSR (Institute of Powder Metallurgy and Special Alloys, AN USSR); Khersonskiy pedagogicheskiy institut (Kherson Pedagogic Institute)

SUBMITTED: 05Jul63 ATD PRESS: 3068 ENCL: 01

SUB CODE: IC, MM NO REF SOV: 004 OTHER: 004

ACCESSION NR: AP4042116

ENCLOSURE: 01

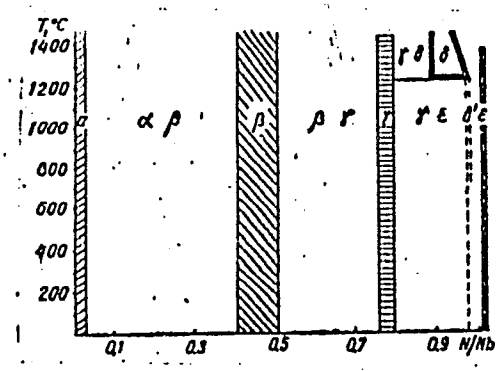


Fig. 1. Phase diagram of the niobium-nitrogen system

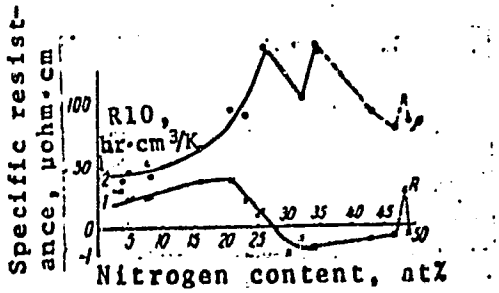


Fig. 2. Composition dependence of resistivity and Hall constant of niobium-nitrogen alloys

Card 3/3

ACCESSION NR: AP4042211 S/0020/64/157/002/0408/0411

AUTHOR: L'vov, S. N.; Nemchenko, V. F.; Kosolapova, T. Ya.; Samsonov, G. V.

TITLE: Physical properties of titanium carbide in the homogeneity region

SOURCE: AN SSSR. Doklady*, v. 157, no. 2, 1964, 408-411

TOPIC TAGS: titanium carbide, carbon deficient titanium carbide, titanium carbide electrical property, titanium carbide electric conductivity, titanium carbide semiconducting property

ABSTRACT: An investigation has been made in the 20—1200C range of the time dependence of the specific resistivity and the coefficient of thermal emf of titanium carbide with a stoichiometric composition and also of carbon-deficient compositions, $TiC_{0.50}$ (87.3% Ti, 12.47% C_{fix}), $TiC_{0.72}$ (84.3% Ti, 15.3% C_{fix}), $TiC_{0.81}$ (82.4% Ti, 17.1% C_{fix}), and $TiC_{0.988}$ (79.8% Ti, 19.6% C_{fix}, 0.4% free C). The Hall coefficient and magnetic susceptibility have also been measured at room temperature. The specific resistivity at room temperature was found to decrease from 174 to 52.2 ohm·cm as the titanium carbide approached

Card 1/3

ACCESSION NR: AP4042211

the stoichiometric composition. The Hall coefficient increased from $-4.0 \cdot 10^4$ to $+6.7 \pm 0.2 \cdot 10^4$ $cm^3 \cdot coul$. The Hall coefficient and thermal emf, which varied from -7.7 ± 0.2 to $+12.5 \pm 0.2$ $\mu v/degC$, were both of the same sign and changed analogously with increasing carbon content. The magnetic susceptibility per unit mass, varying from $3.0 \pm 0.1 \cdot 10^{-6}$ to $3.22 \pm 0.36 \cdot 10^{-6}$, remained almost unchanged and practically equal to that of pure titanium, i.e., $3.2 \cdot 10^{-6}$. The charge carrier mobility increased quite sharply from 2.3 to 12.8 $cm^3/v \cdot sec$ as the titanium approached the stoichiometric composition. The negative values of the Hall coefficient and thermal emf indicate a predominantly electron conductivity in the entire homogeneity portion of the carbide studied. The relative contribution of electrons to electric conductivity increased on approaching the stoichiometric composition, with a particularly sharp increase in the region of 46—50 at%C. The increasing electric conductivity with increased carbon content observed can be explained by the higher mobility of conductivity electrons. The experimental data show the metallic nature of the electric conductivity of titanium carbide with stoichiometric and nonstoichiometric compositions in

Card 2/3

ACCESSION NR: AP4042211

the entire temperature range investigated. The data indicate no possibility of the appearance of semiconductor-type conductivity in the titanium carbide investigated. Orig. art. has: 4 figures and 1 table.

ASSOCIATION: Institut problem materialovedeniya Akademii nauk UkrSSR (Institute of Problems in the Science of Materials, Academy of Sciences, UkrSSR); Khersonskiy pedagogicheskiy institut imeni N. K. Krupskoy (Kherson Pedagogic Institute)

SUBMITTED: 06Mar64 ATD PRESS: 3073 ENCL: 00

SUB CODE: MM, EM NO REF SOV: 008 OTHER: 003

Card 3/3

L 29603-66 EWT(m)/ETC(f)/EWP(e)/EWP(t)/ETI IJP(c) AT/WH/JD/JG/GD
ACC NR: AT6013556 (A) SOURCE CODE: UR/0000/65/000/000/0100/0107

AUTHOR: L'vov, S. N.; Nemchenko, V. F. 46 B+1

ORG: Kherson Pedagogical Institute (Khersonskiy pedagogicheskiy institut im. N. K. Krupskoy)

TITLE: Temperature dependence of thermal emf and the specific resistance of titanium, vanadium, and chromium and their borides, carbides, and nitrides

SOURCE: AN UkrSSR. Institut problem materialovedeniya. Vysokotemperaturnyye neorganicheskiye soyedineniya (High temperature inorganic compounds). Kiev, Naukova dumka, 1965, 100-107

TOPIC TAGS: thermal emf, titanium, vanadium, chromium, boride, carbide, nitride

ABSTRACT: The temperature dependence of thermal emf and specific resistance of Ti, TiB_2, TiC, TiN, V, VB_2, VN, VC, Cr, Cr_4B_2, CrB_2, $Cr_{23}C_6$, Cr_7B_3, Cr_3B_2, Cr_2N, Cr_3C_2, and CrN were investigated in the 20°-1200°C range. The pure metals were over 99.9% pure. The specific resistance (ρ) and the coefficient of thermal emf (E_T) were measured in a special vacuum furnace ($2 \cdot 10^{-4}$-$8 \cdot 10^{-5}$ mm Hg). The temperature dependence of ρ for Ti- and V borides, carbides and nitrides and Ti and V, and Cr and its

Card 1/2

L 29603-66
ACC NR: AT6013556

borides is given. Data are also given on the temperature dependence of ρ and of the coefficient of thermoelectromotive force (E_τ) for chromium nitrides and the temperature dependence of E_τ for Cr, Ti, and V and their borides, carbides, and nitrides. Orig. art. has: 6 figures and 2 tables.

SUB CODE: 07/ SUBM DATE: 03Jul65/ ORIG REF: 012/ OTH REF: 002

Card 2/2

L 31874-66 EWT(m)/EWP(w)/T/EWP(t)/ETI IJP(c) GD/JD/WH
ACC NR: AT6013561 (A) SOURCE CODE: UR/0000/65/000/000/0237/0242

AUTHOR: L'vov, S. N.; Nemchenko, V. F.; Kosolapova, T. Ya.; Samsonov, G. V.

ORG: Institute of Materials Science Problems AN UkrSSR (Institut problem materialovedeniya AN UkrSSR)

TITLE: Effect of carbon on physical properties of titanium carbide in the range of its homogeneity

SOURCE: AN UkrSSR. Institut problem materialovedeniya. Vysokotemperaturnyye neorganicheskiye soyedineniya (High temperature inorganic compounds). Kiev, Naukova dumka, 1965, 237-242

TOPIC TAGS: titanium, carbide, nonferrous metal, titanium compound

ABSTRACT: The effect of carbon content (from 18-50 atm % C) on specific resistance and temperature dependence of thermal electromotive force of titanium carbide was studied in the 20°-1200°C range. The Hall coefficient and magnetic susceptibility were also measured at room temperature. The object of the work was to verify data in the literature. The results of the work are summarized in figs. 1-4. Orig. art. has: 4 figures, 1 table.

Card 1/3

L 31874-66

ACC NR: AT6013561

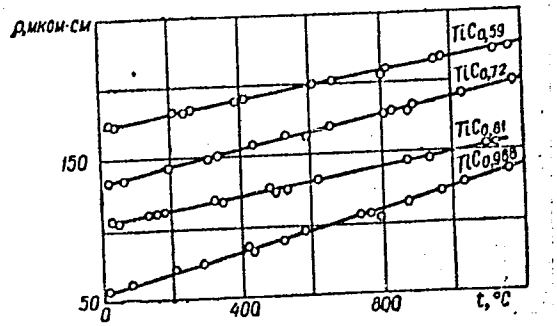


Fig. 1. Temperature dependence of specific resistance of titanium carbide.

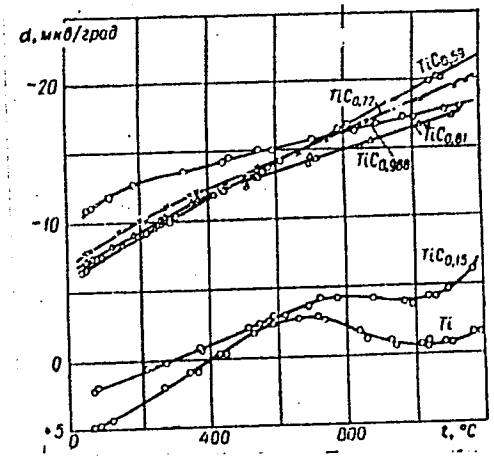


Fig. 2. Temperature dependence of the coefficient of thermal electromotive force of titanium and titanium carbide.

Card 2/3

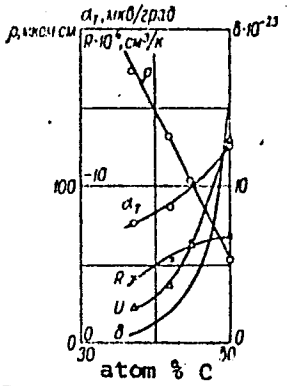


Fig. 3. Dependence of the specific resistance (G), the Hall coefficient (R), the thermal electromotive force (α_T) and the mobility of current carriers (u) and the difference $\delta = n_- u_-^2 - n_+ u_+^2$ on the carbon content in titanium carbide.

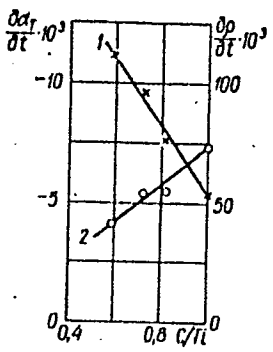


Fig. 4. The dependence of the slope of the ρ-temperature, line (1), and the α_T-temperature, line (2), upon carbon content in titanium carbide.

SUB CODE: 07,11/ SUBM DATE: 03Jul65/ ORIG REF: 006/ OTH REF: 003

Card 3/3 PB

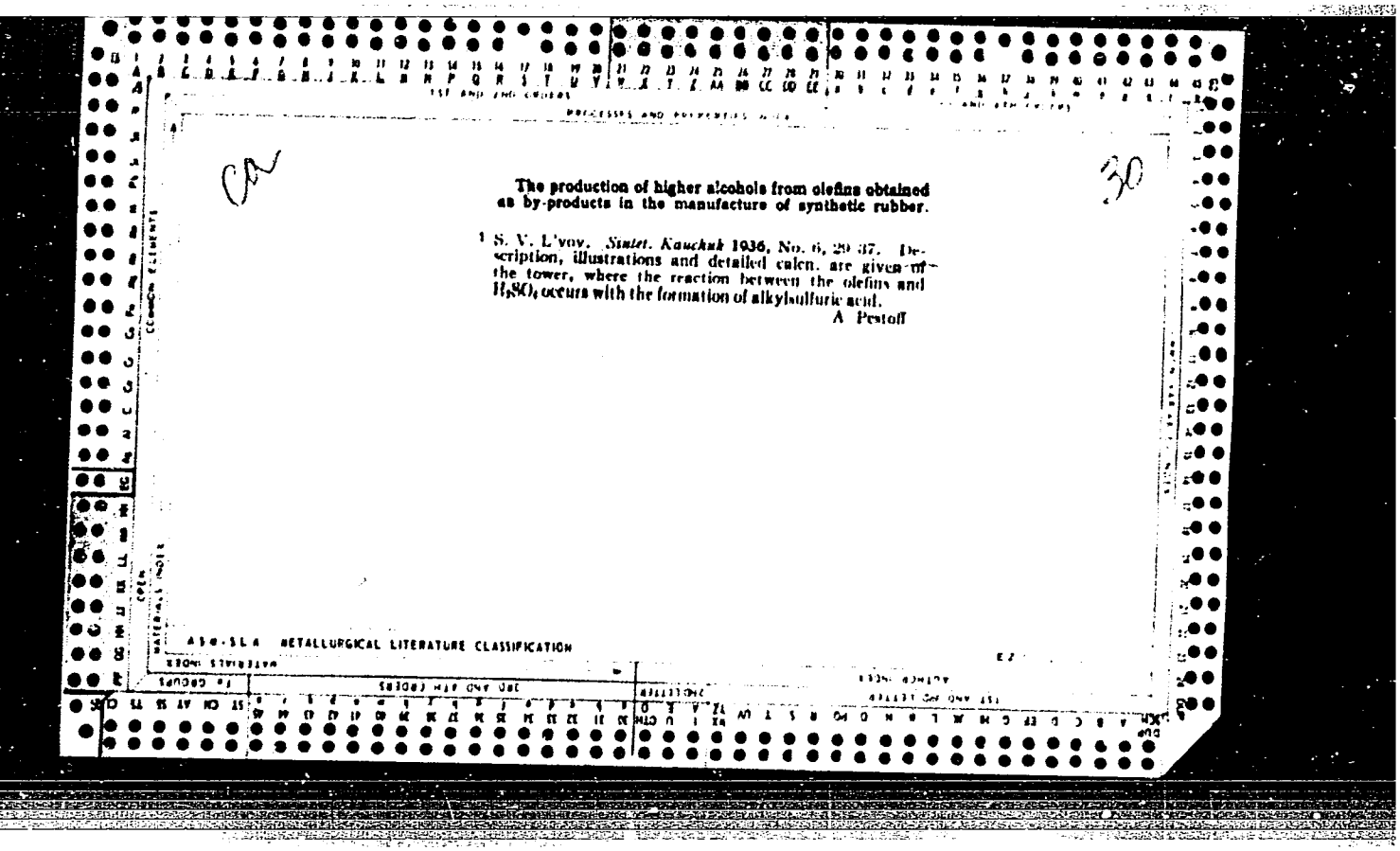
LVOV, S.N. [L'vov, S.N.]; NEMCHENKO, V.F. [Nemchenko, V.P.]

Nernst-Ettingshausen effect in titanium and its diboride, carbide, and nitride. Ukr. fiz. zhur. 10 no.7:805-806 Jl '65. (MIRA 18:8)

1. Khersonskiy pedagogicheskiy institut im. N.K.Krupskoy.

BORODIN, Mikhail Maksimovich; L'VOV, Sergey Vladimirovich; NEMIROVSKIY, Yevgeniy Il'ich; PROSKURYAKOV, Nikolay Aleksandrovich; CHULITSKIY, Lev Dmitriyevich; REBROVA, G.I., red.; LABAZINA, S.N., red. izd-va; GRECHISHCHEVA, V.I., tekhn. red.

[Work and wages for the workers of the forest economy and the lumbering industry]Trud i zarabotnaia plata rabotnikov lesnogo khoziaistva i lesnoi promyshlennosti. Moskva, Goslesbumizdat, 1962. 323 p. (MIRA 16:3)
(Wages--Forests and forestry)



The production of higher alcohols from olefins obtained as by-products in the manufacture of synthetic rubber.

[1] S. V. L'vov. *Sintet. Kauchuk* 1936, No. 6, 29-37. Description, illustrations and detailed calcn. are given of the tower, where the reaction between the olefins and H_2SO_4 occurs with the formation of alkylsulfuric acid.

A Pestoff

L'VOV.S.V.

Rectification of multicomponent mixtures. Khim.prom.no.6:171-173 Je '47. (MLRA 8:12)

(Distillation, Fractional)

CA

Technical calculation of the rectification process for multicomponent liquid mixtures. S. V. Lyov. *Doklady Akad. Nauk S.S.S.R.* 57, 375–8(1947).—It is suggested that in calcn. of fractionation problems with multicomponent mixts., such mixts. be regarded as mixts. of a no. of binary systems (the no. of these is readily computed from the possible permutations of components) and the calcns. are based on consideration of several simultaneous processes of sepn. of binary mixts. No specific examples are cited.

G. M. Kosolapoff

L'VOV, S. V. Dr. Technical Sci.

"Investigation in the Field of Rectification of Multicomponent Mixtures." Sub 3 Jul 51, Moscow Inst of Chemical Machine Building.

Dissertations presented for science and engineering degrees in Moscow during 1951.

SO: Sum. No. 400, 9 May 55.

L'vov, S.V.

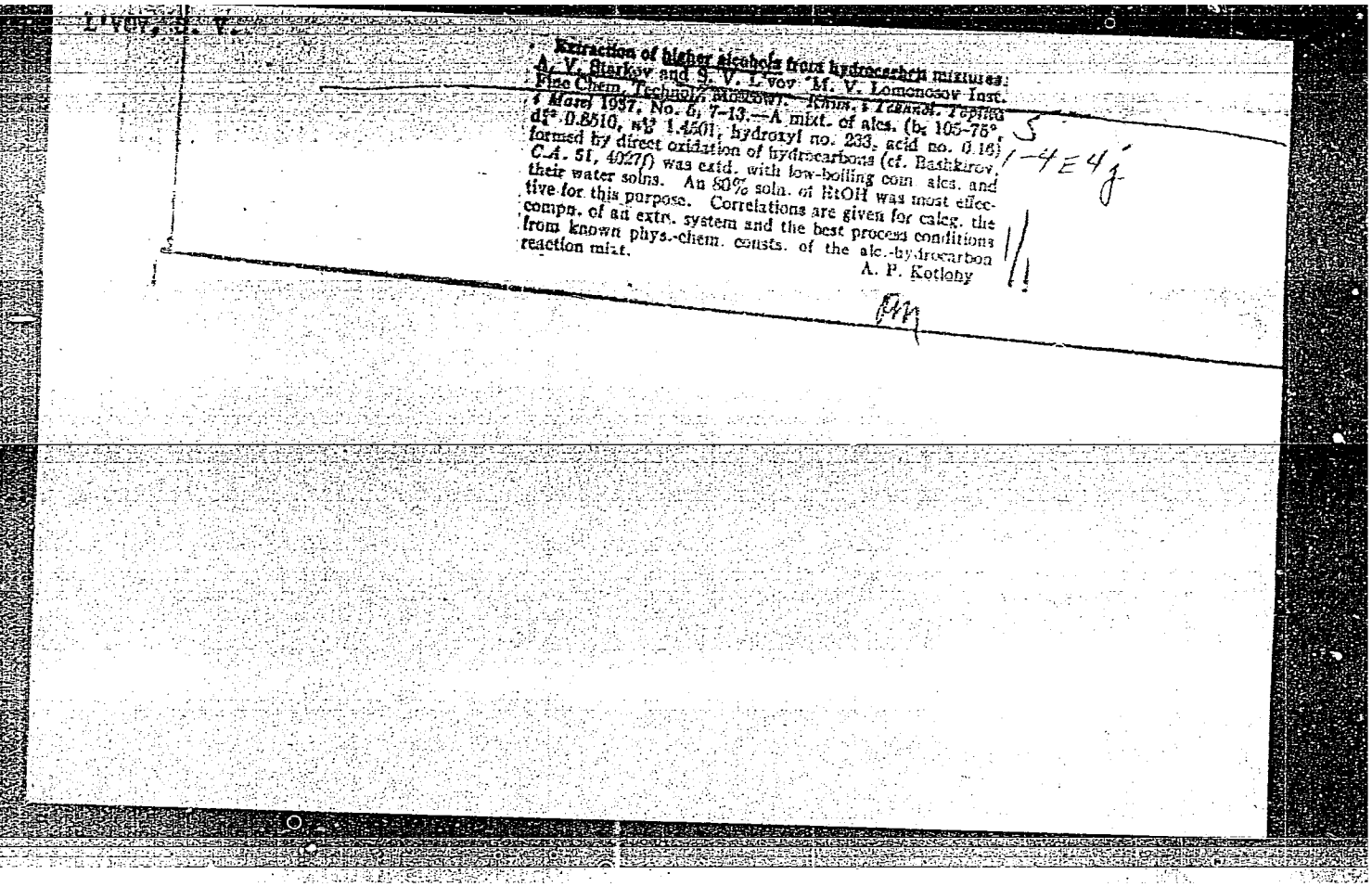
The distillation of polycomponent, azeotropic mixtures. S. V. L'vov. *Trudy Moskov. Inst. Tonkoi Khim. Tekhnol. im. M.V. Lomonosova* 1955, No. 5, 10-14.—Theoretical. It was shown that polycomponent, azeotropic mixts. can be sepd. by continuous distn. in 2 columns at different pressures. The calcns. which are used for polycomponent systems are also applicable for azeotropic mixts. J. R. L.

Isothermal conditions in the proce[illegible]es of liquid chemisorption. V. B. Fal'kovskil and S. V. L'vov. *Trudy Moskov. Inst. Tonkoi Khim. Tekhnol. im. M. V. Lomonosova* 1955, No. 5, 15–17.—Math. J. Rovtar Leach

L'vov, S. V.

The height of one element of the extraction column equivalent to a theoretical plate. S. V. L'vov and V. B. Fal'kovskii (M. V. Lomonosov Inst. Fine Chem. Technol., Moscow). *Doklady Akad. Nauk S.S.S.R.* 103, 1027(1955).—The equation was derived: $H/n = (1/a)[\ln(k/A)]/[(k/A) - 1]$, where H/n is the column height equiv. to 1 theoretical plate, k/A is the ratio of phase concns. to quantities, and a is the coeff. The equation proves that H/n is a less characteristic quantity than the coeff. a.

W. M. Sternberg



L'vov, S. V.

Extraction of higher alcohols from hydrocarbon mixtures. A. V. Sterkov and S. V. L'vov (M. V. Lomonosov Inst. Fine Chem. Technol., Moscow). *Khim. i Tekhnol. Topliva i Masel* 1957, No. 6, 7–13.—A mixt. of alcs. (b. 105–75°, d_4^{20} 0.8510, n_D^{20} 1.4501, hydroxyl no. 233, acid no. 0.16) formed by direct oxidation of hydrocarbons (cf. Bashkirov, *C.A.* 51, 4027f) was extd. with low-boiling com alcs. and their water solns. An 80% soln. of EtOH was most effective for this purpose. Correlations are given for calcg. the compn. of an extn. system and the best process conditions from known phys.-chem. consts. of the alc.-hydrocarbon reaction mixt.

A. P. Kotlobay

S
1-4E4j
11
11

5.3831(A)
~~5 (1), 5 (3)~~

67039

AUTHORS: L'vov, S. V., Pal'kovskiy, V. B., Starkov, A. V. SOV/153-2-5-24/31

TITLE: Synthesis of New Monomers by Catalytic Dehydrogenation of Polyalkyl Benzenes in the Presence of Steam

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya tekhnologiya, 1959, Vol 2, Nr 5, pp 776 - 778 (USSR)

ABSTRACT: The present paper deals with the dehydrogenation of polyethyl- and polyisopropyl benzenes to aromatic products which contain in the side chain vinyl- or isopropenyl-groups. This was carried out in a conventional dynamic system on self-regenerating catalysts (volume 30-70 cm^3). The initial raw materials were mixtures of isomers of the dialkyl- and trialkyl benzenes. Figure 1 shows the dehydrogenation results of the diiso- and triisopropyl benzenes on the catalyst K-1 at 575-650°C. It shows that the yield of unsaturated liquid products increases with the increase in temperature, and with the decrease in the volume velocity of the introduction of reagents. The results also show that the diiso- and triisopropyl benzenes may be dehydrogenated at about equal velocities. Similar results were obtained with the catalyst K-2 at 600-875°C (Fig 2). At a volume velocity of the liquid polyalkyl

Card 1/2

Synthesis of New Monomers by Catalytic Dehydrogenation of Polyalkyl-Benzenes in the Presence of Steam

67039
SOV/153-2-5-24/31

benzenes of 0.1-0.2 h^{-1}, one can obtain, in one single passage, liquid products with a bromine number of 100-115. Among the reaction products and the gaseous by-products, considerable quantities of saturated and unsaturated gaseous products were absent. Thus the side alkyl groups of the polyalkyl benzenes are dehydrogenated while side reactions of splitting-off of side alkyl groups occur to a small extent only. The reaction products tend to thermal polymerization, and are of special interest for the synthesis of ion-exchanging resins and synthetic materials. As a raw material for the synthesis of new monomers, polyalkyl benzene tar (Ref 1) - a waste product of the production of ethyl benzene and isopropyl benzene may be used. No separation is needed in this case because the content of vinyl- and isopropenyl groups is very high. There are 2 figures and 1 Soviet reference.

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni M. V. Lomonosova (Moscow Institute of Fine Chemical Technology imeni M. V. Lomonosov)

Card 2/2

PHASE I BOOK EXPLOITATION SOV/4108

L'vov, Sergey Vasil'yevich

Nekotoryye voprosy rektifikatsii binarnykh i mnogokomponentnykh smesey (Certain Problems in the Rectification of Binary and Multicomponent Mixtures) Moscow, Izd-vo AN SSSR, 1960. 165 p. Errata slip inserted. 2,500 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Nauchno-tekhnicheskiy sovet po khimicheskoy pererabotke uglevodorodov nefti.

Resp. Ed.: V.A. Sokolov, Doctor of Chemistry; Ed. of Publishing House: A.L. Bankvitser; Tech. Ed.: G.A. Astaf'yeva.

PURPOSE: This book is intended for chemical design engineers.

COVERAGE: This study of rectification of binary and multicomponent mixtures was begun at the Giprokauchuk Institute and completed at the Moskovskiy institut tonkoy khimicheskoy tekhnologii (Moscow Institute of Fine Chemical Technology) within a period of 12 to 15 years. It incorporates material originally presented to engineering, scientific, and technical workers of the oil, gas, and chemical

Card 1/7

industries and to students of the Division of Technology of Basic Organic Synthesis of the MITKhT. The author suggests what he calls a new premise for the analysis and calculation of multicomponent rectification processes. With this premise, the rectification process of a multicomponent mixture is considered as a fully determined whole of simultaneously developing rectification processes of separable pairs of components, those pairs which are most difficult to separate determining the entire process. Any one of the separated pairs can and must be considered as a binary mixture so that the effect of all remaining components on the equilibrium ratio of each separated pair can be taken into account under actual process conditions. This premise permits: 1) showing the imperfection and sometimes the unsuitability of existing analysis and rectification methods for multicomponent rectification since their application is limited to ideal mixtures, 2) laying the groundwork for extensive application of a well developed binary mixture rectification theory to the analysis and calculation of multicomponent rectification even of nonideal mixtures, 3) offering a simple and easy method for experimental studies of the phase equilibria of any nonideal multicomponent mixtures including the azeotropic, 4) offering a general solution to the problem of optimum process to selection for complete separation of multicomponent mixtures into practically pure components as well as into groups of components (fractions), 5) analyzing and evaluating the work of existing flow sheets for rectifying columns, and

6) making analysis and calculations of other phases of multicomponent rectification, such as azeotropic distillation. The second part of the book describes the new method and illustrates its application to multicomponent rectification calculations while showing its superiority to the stepwise and key component methods. The expediency of the new method was experimentally confirmed by the young researcher L.A. Serafimov at the Moscow Institute of Fine Chemical Technology. Serafimov is carrying out experiments on continuously operating pilot rectification columns in order to determine the phase equilibria of nonideal mixtures and consequently to develop a rapid and efficient method for obtaining phase equilibria curves of separated pairs of components. The phase equilibria curves will be suitable for easy calculation of the static rectification process for pairs of components separating most difficultly and consequently serving as determinants of the entire process. The author thanks Professor S.I. Strizhenov for his aid in the mathematical calculations. There are 127 references: 42 Soviet, 79 English, 4 German, and 2 French.

YERMAKOVA, A.; KVASHA, V.B.; SERAFIMOV, L.A.; L'VOV, B.V.

Investigating the dynamics of the absorption of alkyl chlorides and alkylchlorosilanes. Khim.prom. 41 no.4:318-22 Ap '65. (MIRA 18:8)

5.1100,5.1105,5.1175

77561
SOV/65-60-2-11/15

AUTHORS: L'vov, S. V., Fal'kovskiy, V. B.

TITLE: The Method of Calculation of Bubble-Type Chemical Reactors

PERIODICAL: Khimiya i tekhnologiya topliv i masel, 1960, Nr 2, pp 52-54 (USSR)

ABSTRACT: Many chemical processes, such as alkylation of benzene with ethylene and propylene in the presence of aluminum chloride, polymerization of isobutylene during its bubbling through sulfuric acid, oxidation of butyraldehyde with air, hydrochlorination of unsaturated compounds in the presence of aluminum chloride, and acetylation of organic hydroxyl-containing substances with ketene, can be described by the following first-order equation:

$$\frac{H}{s} = Kw^{0,25}, \qquad (1)$$

Card 1/8

where H is the height of the bubbling layer, in meters; $w = \frac{V_0}{\sigma}$ is the nominal initial linear gas velocity in relation to the full column cross section in m^3/m^2. seconds; σ is the cross section of the column, in m^2; $s = \ln \frac{y_H}{y_K}$, or $s = \ln \frac{1}{1 - a}$, characterizes the dimensionless component of the number of reactor units for first-order reactions; y_H, y_K is the concentration of the reacting gas at the entrance to and exit from the column, in volume %; a is the degree of conversion for concentration of gases $s = \ln \frac{V_H}{V_K}$, where V_H, V_K is the amount of the reacting gas at the entrance to and exit from the column, respectively, in m^3/seconds; and K is a constant coefficient for a given chemical process and distributing equipment, which depends on diffusion coefficient, viscosity of substances, and other physical

values. The calculation of the reactor height is analogical to that of absorption, extraction, and rectification columns. The productive capacity G (in kg/m^3 seconds) of volume unit of the bubble-type reactor can be described by equation

$$G = \frac{V_0 c_H a}{H \varrho} \qquad (2)$$

or, according to Eq. (1),

$$G = \frac{w c_H}{H}(1 - e^{-1}), \qquad (3)$$

where V_o is the amount of the initial gas, in m^3/seconds; and C_H is the initial concentration of the reacting substance, in kg/m^3. The hydraulic resistance Δp (in kg/m^2) of the bubble reactor is directly

proportional to the height of the bubbling layer and specific gravity of the gas-liquid foaming mixture γ_* (kg/m^3).

$$\Delta p = H\gamma_*. \qquad (4)$$

From Eqs. (1) and (4) it follows that:

$$\Delta p = Ks\gamma_* w^{0.25}. \qquad (5)$$

Depreciation and repair of the chemical reactor and its accessories in relation to unit of the reacted substance is calculated (in rubles/kg) by Eq. (6).

$$A_1 = \frac{H Q M a}{\beta n V_0 c_n \alpha}, \qquad (6)$$

Card 4/8

where M is the nominal price of the reactor and its accessories in relation to 1 m^3 of its total volume, in ruble/m^3; a is the yearly depreciation and repair of the reactor and accessories, in fraction of a unit; β is the charge coefficient of the reactor, in fraction of unity; n is the working time, in seconds/year. Combining Eqs. (1) and (6):

$$A_1 = B_1 w^{-0.75}, \qquad (7)$$

where $B_1 = \frac{KsMa}{\beta n c_н a}$ is a constant coefficient for a given degree of conversion. The price of the electric power needed to provide a necessary pressure of a liquid and gas to overcome the hydraulic resistance of the chemical reactor can be calculated (in ruble/kg) by Eq. (8):

$$A = \frac{c_э}{3600 V_0 c_н \alpha}\left[\frac{V_0 H \gamma_*}{102\eta_2} + \frac{G_* H}{102\eta_3}\right], \quad (8)$$

where $c_э$ is the price of the electric power, in rubles/kilowatt-hour; G_* is the initial amount of the liquid phase, in kg/seconds; and η_2 and η_3 are the efficiency coefficients of the gas-blowing turbine and of the pump, respectively. Combining Eqs. (5) and (8) we get:

$$A = (B_2 + B_3) w^{0,25}, \quad (9)$$

where B_2 and B_3 are constant coefficients:

$$B_2 = \frac{K s c_э \gamma_*}{3600 \cdot 102 c_н \alpha \eta_2},$$

$$B_3 = \frac{K s c_э G_*}{3600 \cdot 102 c_н \alpha \eta_3 V_0}.$$

The total expenses according to (7) and (9) are:

$$\sum A = B_1 w^{-0.75} + (B_2 + B_3) w^{0.25}. \quad (10)$$

By differentiating (10) and assuming that $\frac{d \sum A}{dw} = 0$, the optimal velocity and, consequently, the height of the bubbling layer are found, at which the expenses will be minimum.

$$w_{opt} = \frac{3B_1}{B_2 + B_3}. \quad (11)$$

In case of the rotation compressors, when such are used, whose capacity is given by Eq. (12),

$$N = \frac{V_0 p_1 \ln \frac{p_2}{p_1}}{102 \eta_c} \quad (12)$$

optimum gas velocity can be found by Eq. (11) in which the coefficient:

The Method of Calculation of Bubble-Type Chemical Reactors

77551
SOV/65-60-2-11/15

$$B_2 = \frac{Ksc_0 \gamma_* p_1}{3600 \cdot 10^2 c_H \alpha \eta_2 p_2},$$

There are 11 references, 9 Soviet, 2 U.S. The 2 U.S. references are: Johnson, D. L., Saito, H., Polejes, I. D., Hougen, O. A., A. I. Chem. Journal, 3, 411, 1957; Houghton G., McLean, A. M., Ritchie, P. D., Chem. Eng. Science, 7, 40, 1957.

ASSOCIATION: Moscow M. V. Lomonosov Institute of Fine Chemical Technology (Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni M. V. Lomonosova)

Card 8/8

S/065/60/000/012/002/007
E030/E412

AUTHORS: Serafimov, L.A., Potapova, G.Ye. and L'vov, S.V.

TITLE: Direct Investigation of the Phase-Equilibrium of Non-Ideal Multicomponent Systems by Distillation

PERIODICAL: Khimiya i tekhnologiya topliv i masel, 1960, No.12, pp.10-14

TEXT: Ideas are put forward for separating multicomponent mixtures by distillation, whether they are ideal or non-ideal, or whether they form azeotropes or not. The separation of the system МЭК(MEK), 2-butyl alcohol, and water is carried and the phase equilibrium determined by continuous distillation. The conventional determination of the complete phase-equilibrium for multicomponent systems is shown to be unnecessary for predicting the separation to be effected by distillation. In the present method, only those regions are investigated which are relevant to the separation. The entire system can be regarded as a series of independent binary mixtures, where the liquid phase is always the liquid mixture, and for the vapour phase each of the vapours to be separated are considered in turn as the second phase of the binary system. This procedure is clearly valid for ideal

Card 1/3

S/065/60/000/012/002/007
E030/E412

Direct Investigation of the Phase-Equilibrium of Non-Ideal Multicomponent Systems by Distillation

systems, and for non-ideal systems it is true to a degree of accuracy dependent on the particular mixture and component to be separated. In practice, even for non-ideal systems considerable accuracy in predicting separation is achieved by studying the phase-equilibrium by subjecting the various concentrations of the components to continuous distillation. The method has been shown to work for three and twenty seven real plate distillation columns for MEK, 2-butyl alcohol, and water. Analysis was by determination of the MEK content by hydroxylamine and determination of the other components by refractivity, the accuracy being 0.1 to 0.4% absolute. x,X Diagrams were obtained, confirming that there is an azeotrope at 59.4% MEK, 40% water and 0.4% butyl alcohol. Below this, in spite of stratification, there is no azeotrope and considerable separation is possible. The presence of water steepens the x,X curves for MEK in 2-butyl alcohol and confirms the desirability of water as an extracting agent. There are 2 figures,

Card 2/3

S/065/60/000/012/002/007
E030/E412

Direct Investigation of the Phase-Equilibrium of Non-Ideal Multicomponent Systems by Distillation

3 tables and 13 references: 7 Soviet and 6 non-Soviet.

ASSOCIATION: Institut tonkoy khimicheskoy tekhnologii im. M.V.Lomonosova (Institute of Fine Chemical-Technology im. M.V.Lomonosov)

Card 3/3

L'VOV, S.V.; FAL'KOVSKIY, V.B.; STARKOV, A.V.

Synthesis of new monomers by the catalytic dehydrogenation of polyalkylbenzenes in the presence of water vapor. Izv.vys.ucheb. zav.; khim.i khim.tekh. 2 no.5:776-778 '59. (MIRA13:8)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni M.V. Lomonosova.

(Benzene) (Dehydrogenation)

SERAFIMOV, L.A.; POTAPOV, G.Ye.; L'VOV, S.V.

Directed study of the phase equilibrium of nonideal multicomponent systems by separated pairs. Khim.i tekh.topl.i masel 5 no.12:10-14 D '60. (MIRA 13:12)

1. Institut tonkoy khimicheskoy tekhnologii im. M.V.Lomonosova.
(Phase rule and equilibrium)

FAL'KOVSKIY, V.B.; L'VOV, S.V.

Isothermal conditions of the catalyst surface in adiabatic apparatus with a stationary catalyst bed. Izv.vys.ucheb.zav.; khim.i khim.tekh. 3 no.6:1111-1112 '60. (MIRA 14:4)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni M.V. Lomonosova, kafedra tekhnologii osnovnogo organicheskogo sinteza.
(Catalysis)

ARZUMANOV, A.O.; KRUZHALOV, B.D.; L'VOV, S.V.

Synthesis and testing of a new polymerization initiator. Sbor. nauch. rab. Inst. fiz.-org. khim. AN BSSR no.8:19-21 60. (MIRA 14:3)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii im. M.V. Lomonosova.

(Polymerization)

L'VOV, S.V.; SERAFIMOV, L.A.; MOZZHUKHIN, A.S.

Comparative efficiency of different systems for distilling the binary mixtures of partialloy mixing components. Khim.i tekh. topl.i masel 6 no.9:26-32 S '61. (MIRA 14:10)

1. Institut tonkoy khimicheskoy tekhnologii imeni M.V.Lomonosova.
(Distillation) (Mixtures)

SERAFIMOV, L.A.; L'VOV, S.V.

Composition of multicomponent mixtures on a feed plate during rectification. Khim. i tekh. topl. i masel 6 no.11:32-34 N '61.
(MIRA 14:12)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii im. M.V. Lomonosova.
(Distillation)

L'VOV, S.V.; STARKOV, A.V.; FAL'KOVSKIY, V.B.; TIKHONOVA, N.K.

Dehydrochlorination of dichloroethane in packing-free columns.
Zhur.prikl.khim. 34 no.8:1894-1895 Ag '61. (MIRA 14:8)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni M.V. Lomonosova.
(Ethane) (Ethylene)

KOSTYUK, N.G.; L'VOV, S.V.; FAL'KOVSKIY, V.B.; STARKOV, A.V.; LEVINA, N.M.

Preparation of anhydrides of higher carboxylic acids by the reaction of transanhydridization. Zhur.prikl.khim. 35 no.3: 698-699 Mr '62. (MIRA 15:4)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni M.V.Lomonosova.

(Anhydrides)

SERAFIMOV, L.A.; KUSHNER, T.M.; L'VOV, S.V.

Liquid - vapor phase equilibrium in the system acetic acid-propionic acid at atmospheric pressure. Zhur.fiz.khim. 36 no.8:1830-1832 Ag '62. (MIRA 15:8)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii.
(Acetic acid) (Propionic acid) (Phase rule and equilibrium)

L'VOV, S.V.; FAL'KOVSKIY, V.B.; KOSTYUK, N.G.; STARKOV, A.V.; GOLENKOVA, I.B.; KUSKOVA, N.B.; TYURICHEVA, T.A.

Continuous method of preparation of isovaleric acid from isoamyl alcohol by a catalytic reaction. Zhur.prikl.khim. 35 no.3:700-701 Mr '62. (MIRA 15:4)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni M.V.Lomonosova.
(Isovaleric acid) (Isopentyl alcohol)

KRYUCHKOV, B.S.; SERAFIMOV, L.A.; L'VOV, S.V.

Recovery of organic acids by the liquid extraction method.
Khim.i tekh.topl.i masel 7 no.7:20-24 Jl '62. (MIRA 15:9)
(Acids, Organic) (Gasoline)

GAVRILENKO, B.A., kand.tekhn.nauk; L'VOV, S.V., inzh.

Dimension series of controlled hydrodynamic clutches.
Vest.mashinostr. 43 no.2:24-27 F '63. (MIRA 16:3)
(Clutches (Machinery))

FAL'KOVSKIY, V.B.; KALMYKOVA, Ye.M.; TYURICHEVA, T.A.; L'VOV, S.V.

Oxidation of toluene by oxygen in bubble columns. Izv.vys.ucheb.zav.;-khim.i khim.tekh. 6 no.1:125-127 '63. (MIRA 16:6)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni Lomonosova, kafedra tekhnologii osnovnogo organicheskogo sinteza.
(Toluene) (Oxidation)

FAL'KOVSKIY, V.B.; KALMYKOVA, Ye.M.; L'VOV, S.V.

Conversion of adipic acid to cyclopentanone. Zhur.prikl.khim. 36 no.1:230-231 Ja '63. (MIRA 16:5)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni M.V.Lomonosova.

(Adipic acid) (Cyclopentanone)

SERAFIMOV, L.A.; MOZZHUKHIN, A.S.; L'VOV, S.V.

Design of distillation columns for separating binary mixtures of partially mixing components. Khim.i tekh.topl.i masel 8 no.8: 16-19 Ag '63. (MIRA 16:9)

1. Institut tonkoy khimicheskoy tekhnologii im. M.V.Lomonosova.
(Distillation apparatus)

PAVLENKO, T.G.; FAL'KOVSKIY, V.B.; SERAFIMOV, L.A.; L'VOV, S.V.

Conduction of chemisorption processes in countercurrent spray columns operating continuously (in the system liquid - liquid). Izv.vys.ucheb.zav.;khim. i khim.tekh. 6 no.2:328-332 '63. (MIRA 16:9)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni Lomonosova, kafedra tekhnologii osnovnogo organicheskogo sinteza.
(Extraction apparatus)

FAL'KOVSKIY, V.B.; TYURICHEVA, T.A.; KALMYKOVA, Ye.M.; L'VOV, S.V.

Preparation of glutaric acid by the oxidation of cyclopentanone with oxygen. Izv.vys.ucheb.zav.;khim. i khim.tekh. 6 no.2: 344-345 '63. (MIRA 16:9)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni Lomonosova, kafedra tekhnologii osnovnogo organicheskogo sinteza.
(Glutaric acid) (Cyclopentanone) (Oxygen)

PAVLENKO, T.G.; ANDRIANOV, K.A.; L'VOV, S.V.; KHANANASHVILI, L.M.; SERAFIMOV, L.A.; KAMARITSKIY, B.A.

Hydrolysis of organochlorosilanes in continuous countercurrent spray columns. Izv. vys. ucheb. zav.; khim. i khim. tekh. 6 no.3:465-470 '63. (MIRA 16:8)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni Lomonosova kafedra tekhnologii osnovnogo organicheskogo sinteza elementoorganichekikh i neorganicheskikh polimerov.
(Silane) (Hydrolysis)

PAVLENKO, T.G.; FAL'KOVSKIY, V.B.; L'VOV, S.V.

Continuous method for removing unsaturated and sulfur-containing compounds from benzene with sulfuric acid. Khim.i tekh.topl.i masel 8 no.2:3-6 F '63. (MIRA 16:10)

1. Institut tonkoy khimicheskoy tekhnologii im. Lomonosova.

KRYUCHKOV, B.S.; SERAFIMOV, L.A.; L'VOV, S.V.

Recovery of organic acids by liquid extraction. Khim. i tekh. topl. i masel 8 no.12:58-61 D '63. (MIRA 17:1)

1. ITKhT im. M.V. Lomonosova.

UGRYUMOV, Pavel Grigor'yevich; AVERBUKH, Anatoliy Yakovlevich; BELOTSVETOV, A.V., dots., retsenzent; L'VOV, S.V., prof., retsenzent; KOZLOV, V.V., red.

[Organic synthesis in industry; a manual for teachers and students of pedagogical institutes] Organicheskii sintez v promyshlennosti; posobie dlia uchitelei i studentov pedagogicheskikh institutov. Izd.2., perer. i dop. Moskva, Prosveshchenie, 1964. 318 p. (MIRA 17:7)

L'VOV, S.V.; SERAFIMOV, L.A.; ZEMLYAKOVA, A.

Method of investigating phase relations in the process of absorption of a multicomponent mixture. Khim. prom. no.5:364-367 My '64. (MIRA 17:9)

L 16922-65 EWT(m)/EPF(c)/EWP(j)/T Pc-4/Pr-4/Pa-4 RM

ACCESSION NR: AP5002733 S/0065/64/000/007/0018/0022

AUTHOR: Timofeyev, V. S.; Serafimov, L. A.; L'vov, S. V.

TITLE: Investigation of the process of isolating butyraldehydes from products of oxo-synthesis

SOURCE: Khimiya i tekhnologiya topliv i masel, no. 7, 1964, 18-22

TOPIC TAGS: aldehyde, propylene, alcohol, chemical separation

ABSTRACT: The reaction mixture obtained in the production of butyraldehydes from propylene, using isobutyl alcohol as the solvent, after removal of the catalyst, volatiles, and condensation products, contains the basic components: isobutyraldehyde (13.9%), normal butyraldehyde (34.9%), isobutyl alcohol (44.7%), normal butyl alcohol (1.0%), and water (5.5%). Two schemes were developed for isolating butyraldehydes from the products of oxo-synthesis: 1) with preliminary dehydration and 2) with the addition of water during the isolation process. The scheme with the addition of water proved to be most suitable, and gave a high yield of the final products. The basic

Card 1/2

L 16922-65

ACCESSION NR: AP5002733

parameters of the fractional distillation columns of the technological schemes investigated were determined experimentally. Orig. art. has 2 figures, 3 tables.

ASSOCIATION: ITKhT im. M. V. Lomonosova

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

NO REF SOV: 012 OTHER: 003 JPRS

Card 2/2

FAL'KOVSKIY, V.B.; NURMUKHAMEDOVA, R.A.; GLAZOVA, T.I.; YELEPINA, L.T.; L'VOV, S.V.

Preparation of carboxylic acids by one-stage oxidation of polymethylbenzenes in bubble columns. Izv.vys.ucheb.zav.; khim. i khim. tekh. 7 no. 1:122-126 '64. (MIRA 17:5)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii im. M.V.Lomonosova, kafedra tekhnologii osnovnogo organicheskogo sinteza.

KRYUCHKOV, B.S.; SERAFIMOV, L.A.; STRELETS, I.P.; GOLYNETS, Yu.F.; L'VOV, S.V.

Extraction of double-base acids by liquid extraction. Khim. i tekh. topl. i masel 9 no.4:6-9 Ap '64. (MIRA 17:8)

TIMOFEYEV, V.S.; SERAFIMOV, L.A.; L'VOV, S.V.

Investigating the separation of lubricant aldehydes from oxo-synthesis products. Khim. i tekh. topl. i masel 9 no.7: 18-22 Jl '64.

(MIRA 17:12)

1. ITKhT im. M.V. Lomonosova.

SERAFIMOV, L.A.; TYURIKOV, I.D.; RUMYANTSEV, P.G.; L'VOV, S.V.

Liquid - vapor phase equilibrium in the system methyl borate - methanol at atmospheric pressure. Zhur. fiz. khim. 38 no.5: 1326-1331 My '64. (MIRA 18:12)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni Lomonosova. Submitted June 29, 1963.

SERAFIMOV, L.A.; TIMOFEYEV, V.S.; STEBKOVA, M.P.; L'VOV, S.V.

Liquid - vapor phase equilibrium in the system isobutyric anhydride - n-butyraldehyde at atmospheric pressure. Zhur. fiz. khim. 38 no.7:1865-1867 Jl '64. (MIRA 18:3)

SERAFIMOV, L.A.; TIKHONOVA, N.K.; L'VOV, S.V.

Liquid - vapor equilibrium in the acetone - vinyl acetate system at atmospheric pressure. Zhur.fiz.khim. 38 no.8:2065-2067 Ag '64.
(MIRA 18:1)

GRUZDEV, Ye.A.; ANOSOVA, I.G.; SERAFIMOV, L.A.; L'VOV, S.V.

Directed study of phase equilibrium curves for the technological flow sheet of the rectification of catalyzates of the Oxo synthesis. Khim. prom. 40 no.8:613-616 Ag '64. (MIRA 18:4)

SERAFIMOV, L.A.; TIMOFEYEV, V.S.; L'VOV, S.V.

Liquid - vapor phase equilibrium in some binary mixtures present in the products of oxo synthesis from propylene at atmospheric pressure. Zhur. fiz. khim. 39 no.8:1890-1894 Ag '65.
(MIRA 18:9)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni Lomonosova.

FAL'KOVSKIY, V.B.; BORISOVICH, I.G.; ASTAKHOVA, I.A.; BROVKO, S.P.; FRENKLAKH, Zh.M.; L'VOV, S.V.

Production of monobasic and dibasic aromatic acids. Khim. prom. 41 no.10:735-736 O '65. (MIRA 18:11)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni Lomonosova.

ACC NR: AP6034643 (A) SOURCE CODE: UR/0118/66/000/008/0016/0018

AUTHOR: Yevdokimov, A. I. (Engineer); L'vov, S. V. (Engineer)

ORG: none

TITLE: Pneumatic electrohydraulic servosystem

SOURCE: Mekhanizatsiya i avtomatizatsiya proizvodstva, no. 8, 1966, 16-18

TOPIC TAGS: pneumatic servomechanism, servosystem, system analysis

ABSTRACT: The authors note that industrial servosystems with pneumatic drives (PEGSS) have many advantages, but also some static and dynamic faults, and present a diagram of an improved system. A detailed description lists such features as the displacement signal from a master or completion monitor passing through a phase rectifier to a dc booster, then to a jet relay which governs pressure in the air-compression cylinder on the hydraulic line. The piston rod is coupled directly to the load, but the great advantage of the system is that two throttles with uniform cross sections but different in area regulate pressures in two halves of the air cyclinder. These throttles also act on a diaphragm which enlarges the opening in one throttle by moving a slide gate (held by a spring) to pass air more rapidly when larger displacements are signaled. Tests have shown that the throttles with identical cross sections provide continuous and smooth operation of the regulatory system in spite of friction or other

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ACC NR: AP6034643

interference even under slight displacement angles. Friction stress on the air cylinder piston rod was 20 kg in the system tested, but much higher stress affects the reaction rate of the system, which attains a frequency of 6 to 7 rad/sec. Orig. art. has: 1 formula and 3 figures.

SUB CODE: 09,13/ SUBM DATE: none

Card 2/2

L'VOV, V.

Fund of an enterprise and raising the role of collective forms of material encouragement (The Moscow Brake Factory). Sots.trud 7 no.1:106-110 Ja '62. (MIRA 15:4)

1. Nachal'nik otdela truda i zarabotnoy platy Moskovskogo tormoznogo zavoda.
(Moscow--Brakes) (Moscow--Incentives in industry)

L'VOV, V.

Make individual articles more precise. Sots.trud 5 no.1:40-41 Ja '60. (MIRA 13:6)

1. Nachal'nik otdela truda i zarabotnoy platy Moskvoskogo tormoznogo zavoda.
(Labor laws and legislation)

L'VOV, V.

Technical and economic basis of a plan for the increase of labor productivity. Biul.nauch. inform.: trud i zar. plata 5 no.3: 19-26 '62. (MIRA 15:3)
(Moscow--Brakes) (Labor productivity)

L'VOV, V.

On the "Ostankino" State Farm. Sel'. stroi. 15 no.3:8-9 Mr '60. (MIRA 16:2)

1. Fotokorrespondent zhurnala "Sel'skoye stroitel'stvo". (Farm buildings)

PASUKHINA, A.; L'VOV, V.

Here they like sport. Zhil.-kom. khoz. 13 no.1:22-23 '63. (MIRA 16:3)

1. Neshtatnyy korrespondent zhurnala "Zhilishchno-kommunal'noye khozyaystvo".

(Moscow—Sports)

L'VOV, V. (Moskva)

Railraod workers are producing sidewalk cleaning machines. And why don't others do the same? Zhil.-kom. khoz. 13 no.3:12 Mr '63. (MIRA 16:3)
(Cleaning machinery and appliances)

L'VOV, V.

A miniature radio receiver. Radio no.5:16 My '65. (MIRA 18:5)

L'VOV, V., inzh.

Floors covered with linoleum. Stroitel' no.5:7-8 My '58. (MIRA 11:6)

(Czechoslovakia--Linoleum) (Floors)

YEGOROV, I.N., inzh. Prinimali uchastiye: TELKOV, K.A., inzh.; L'VOV, V.A., inzh.

Automatic welding of boiler connections during repairs. Svar. proizv. no.5:35-36 My '62. (MIRA 15:12)

1. Proyektno-konstruktorsko-tekhnologicheskoye byuro Glavnogo upravleniya po remontu podvizhnogo sostava i izgotovleniyu zapasnykh chastey Ministerstva putey soobshcheniya.
(Locomotive boilers—Maintenance and repair)

L'VOV, V.A.

21725 L'VOV, V.A. Opredeleniya vremeni zamedpeniya elektromagnit-nov volny v apparature dal'ney svyai. Studench. Nauch.-Tekhn. Stornik (Mosk. elektrotekhn. IN-T svyai), 7, 1949, S. 70-79 -- Bibliogr: 6 Nazv.

SO: Letopis'Zhurnal'nykh Statey, No. 29, Moskva, 1949