"APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7

MARUKHYAN, A. S. Editor

"Armenian SSR Economic and Geographic Essay," Geografgiz, Moscow, 1955

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1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

BC

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ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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1ST AND 2ND ORDERS

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3RD AND 4TH ORDERS

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Catalytic dehydrogenation of *p*-cymene. A. A. Bat-andin, G. M. Marukyan and R. G. Selinovich. *Doklady Akad. Nauk S. S. S. R.* 41, 71-3(1943); *Compt. rend. acad. sci. U. R. S. S.* 41, 67-9(1943)(in English).—Conversion of *p*-cymene (I) into α,4-dimethylstyrene (II) can be carried out efficiently by using catalysts and conditions previously worked out for conversion of EtPh into styrene (cf. *C. A.* 36, 417[7]). Optimum conversion of I into II amounted to 63.4% when 2 mols. CO_2 were admixed per mol. I before passing over the catalyst, which retained its activity after use for 81 hrs. Without CO_2, the best conversion of I was 82.3%. Supplementary expts. showed that II can be polymerized by heat, cold, concd. H_2SO_4 or Br_2O_3.

J. W. Perry

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PROCESSES AND PROPERTIES INDEX

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Ca

p,o-Dimethylstyrene. A. A. Balandin, G. M. Marukyan and R. G. Selmovich. U.S.S.R. 64,222, Jan. 31, 1945. *p*-Cymene is catalytically dehydrogenated in the vapor phase at 500°, at ordinary or reduced partial pressure of the *p*-cymene. Partial pressure of the cymene can be reduced either by dilg. with CO_2 or by employing a vacuum. M. Hosch

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1ST AND 2ND ORDERS

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CR

10

Production of α-methylstyrene by catalytic dehydrogenation of isopropylbenzene. A. A. Balandin and G. M. Manukyan. (Inst. Org. Chem., Acad. Sci. U.S.S.R.). *Compt. rend. acad. sci. U.R.S.S.* 48, 482-3(1945).—The catalytic dehydrogenation of iso-PrPh (I), b. 149-52°, d_4^{20} 0.8606, n_D^{20} 1.4897, in the presence of CO_2 (1 C_6H_{12}:2 CO_2) by a procedure previously described for PhEt (temp. 625°, velocity of flow 450-600 ml. of liquid I per l. of catalyst per hr.) (cf. Balandin, *et al.*, *C.A.* 39, 417°), gives 40-71% of *α-methylstyrene* (II), b. 160-2°, d_4^{20} 0.9000, n_D^{20} 1.5300. Analysis (Br addn. method) of a 200-g. sample of II thus prepd. proved it to contain 98% of II. In the absence of CO_2 the yields of II are somewhat lower.

B. L. May

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Catalytic preparation of α-methylstyrene. A. A. Balandin and G. M. Marukyan. *J. Applied Chem.* (U.S.S.R.) 19, 207-16 (1946). —See *C.A.* 40, 4686[1].
Boris Gutoff

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PROCESSES AND PROPERTIES INDEX

10

Ca

Production of styrene through catalyst oxyregeneration of ethylbenzene. II. A. A. Baiandin and G. M. Marukyan. *J. Applied Chem.* (U.S.S.R.) 19, 623-31(1946)(in Russian); cf. *C.A.* 36, 4177.—(1) On a Cu-Cr catalyst, in EtPh dild. with CO_2 (1:2 mols.) at 600°, the amt., *s*, of PhCH:CH_2 produced (in % of the condensate) remained practically independent (40.9-49.8) of the rate of feeding, *f*, between 330 and 900 ml./hr./l. catalyst; at 575°, *s* falls rapidly with increasing *f*, e.g., when *f* = 67 and 300, *s* = 68.5 and 30.5, resp. (2) At 650°, without diln., *s* is lower than in EtPh dild. with CO_2 and falls, but slowly, with increasing *f*; for *f* = 750, 1200, 1640, 2025, 3100, *s* = 35.4, 34.9, 31.8, 30.7, 22.4, resp.; hence, the productivity, *P* = *sf*, (expressing *f* in kg./hr./l.) can be higher at a higher *f*; e.g., diln. 1:2, *f* = 450, *P* = 0.214; no diln., *f* = 3100, *P* = 0.517 kg./hr./l. (3) Variation of the length of the column of catalyst from 20 cm. (holding 34 ml. catalyst) to 11 cm. (25 ml.) had no effect on *s* at 600-625° and *f* 525-500. (4) Example of a balance of a 5-hr. run: total EtPh passed 45 g., at 600°, *f* 470, diln. EtPh:CO_2 = 1:2 mols.; product 41.8 g. condensate, 15.51. gas; *s* = 49.7%, yield 46.2% based on EtPh passed; in the condensate, PhMe 0.26 g., PhEt 19.0 g., the rest polymerized styrene; hence, the yield with respect to PhEt converted, 81%; gas, CO_2 5.4, unsatd. 0.6, O_2 0.6, CO 40.6, H_2 38.8, the rest CH_4, C_2H_6, N_2. (5) A fresh catalyst gave *s* 51.3, after 30 hrs. *s* 41, after a 1st regeneration *s* 48.8, falling to 34 after 21 hrs.; on 2nd regeneration after 71 hrs., *s* = 50.4. (6) Regeneration of a catalyst fallen from *s* 51.3 to 39 (at 650°) in an air stream at 500° for 2 hrs. restored its full original activity; the same effect was attained with an air-steam mixt. (1:1) at 300 l./hr./l. for 2 hrs.; steam alone restored the activity only to *s* 46; it is recommended to regenerate every 20-25 hrs. (7) Under a pressure reduced to 300 mm. Hg, *s* was 41 as against 30 under 1 atm. and 48 in 1:2 mol. diln. with CO_2 (at 600°); consequently, diln. with CO_2 is more effective than reduced pressure. (8) Activation of the freshly prepd. catalyst, at 500°, in H, resulted in *s* 45.4 as against *s* 37.7 in CO_2; no activation in H is necessary after regeneration. (9) Spectroscopic traces of Ba inactivate the Cu-Cr catalyst. (10) Addn. of H_3PO_4 raises the activity but this effect cannot be restored on regeneration. (11) *To det. PhCH:CH_2* in the condensate, 0.1-0.2 g. is dissolved in 10 ml. $CHCl_3$, then 10-20 ml. of 0.1 *N* Br in AcOH added until a light-yellow tint is obtained, after 15 min. standing in the dark, 10 ml. of 10% KI is added and the excess iodine titrated with $Na_2S_2O_3$, accuracy 0.75% N. Thon

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MARUKYAN, G. M.

A. A. Balandin, G. M. Marukyan, A. A. Tolstopyatova

"The Pyrolysis of Ethylbenzene and Styrene." Journal of Applied Chemistry, 19, 1079-[illegible], November 1946, Moscow, Laboratory for Organic Catalysis, [illegible] University and Institute of Organic Chemistry of the Academy of Sciences.

ABSTRACT AVAILABLE

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1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

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Ca

Dehydrogenation of ethylbenzene in its mixtures with xylene. A. A. Balandin and G. M. Manukyan (Inst Org. Chem., Acad. Sci. U.S.S.R.). *J. Applied Chem* (U.S.S.R.) 19, 1277–80(1946)(in Russian); cf. preceding abstr.—Instead of attempting to sep. PhEt from the close-boiling $C_6H_4Me_2$ in xylenic fractions by distn., it is more convenient to utilize the former by dehydrogenating it directly to PhCH:CH_2 without previous sepn.; not only does $C_6H_4Me_2$ not inhibit the reaction but it even promotes it without itself undergoing decompn. Even though at 625°, diln. with CO_2 1:2, Cu-Cr catalysts, vol. rate 400–500 ml./l./hr., the styrene content in the condensate does decrease, with the $C_6H_4Me_2$ content in the initial mixt. increasing at the expense of PhEt, the fall is distinctly slower than the decrease of the latter; thus, with initial PhEt 60, 34, and 19%, the PhCH:CH_2 obtained (reduced to standard catalyst activity) was 37.5, 34.5, and 21% of the condensate, and hence the *relative* dehydrogenation 54, 101, and 110%, resp., i.e., actually rising with increasing diln. by $C_6H_4Me_2$ (figures exceeding 100% being of course due to exptl. errors, particularly at low PhEt) which is tantamount to a promoting effect of $C_6H_4Me_2$. In PhEt-$C_6H_4Me_2$ mixts., the catalysts are exhausted faster than in pure PhEt but can be fully regenerated with the same ease in an air stream at 500–600°. As in exptl. PhEt-$C_6H_4Me_2$ mixts., high yields of PhCH:CH_2 were obtained with industrial xylenic fractions with 20–30% PhEt: at 625 and 650°, 13.7 and 23.6% styrene in the condensate, resp. Diln. with CO_2 is beneficial. Extn. by fractionation of the styrene formed being difficult on account of the closeness of the b.ps., polymerization with the aid of Ba_2O_2, followed by distn. of the liquid components, is recommended; the monomer, needed for the manuf. of *synthetic rubber*, can be recovered by depolymerization. N. T.

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1ST AND 2ND ORDERS

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3RD AND 4TH ORDERS

B

Production of α-Methylstyrene. A A Balandin and G M Marukyan. *U.O.P. Library Bulletin of Abstracts*, v 71, Aug 28, 1946, p 137-138. Abstract from *Institute of Organic Chemistry, Academy of Sciences, U.S.S.R*

For the study two series of experiments were made, one involving dilution with carbon dioxide and the other without dilution. In both series the temperature flow velocity and catalyst (chromium oxide) were kept constant. Results outlined

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MARUKYAN, G. M.

A. A. Bala[illegible], G. R. Lou[illegible], G. M. Marukyan

"Dehydration of Asymmetric Di[illegible]e." [illegible] Acade[illegible] of the [illegible], 52. 12[illegible]-30, 20 July 1[illegible], Moscow; Lomonosov University, Organic-Chemical Institute, and Academy of Sciences of the USSR.

[illegible] AVAILABLE

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MARUKYAN, G. M.

Jan 1947

USSR/Chemistry - Dehydrogenation
Chemistry - Hydrocarbons

"Relative Speed of Catalyctic Dehydrogenation of Mono- and Di-alkylbenzene," A. A. Balandin, G. M. Marukyan, 4 pp

"Dok Ak Nauk SSSR" Vol LV, No 3

Institute of Organic Chemistry Academy of Sciences of the USSR, 23 Nov 46. Apparatus and methods of experiments were the same as those described by A. A. Balandin, G. R. Lur'ye and G. M. Marukyan in Issue No. 53, 1946. Further exploration of the fact that for conforming mono- and di-alkylbenzenes, $C_6H_5.C_nH_{2n+1}$ and C_6H_4 $(C_nH_{2n+1})_2$ where $n \geq 2$, the catalyctic dehydrogenation occurs with practically the same speed. R. G. Seymovich assisted with the experiments.

PA 21P6

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1ST AND 2ND ORDERS

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3RD AND 4TH ORDERS

10

CA

Dehydrogenation of alkylaromatic hydrocarbons to substances capable of polymerization, and the laws governing their reactions. A. A. Balandin and G. M. Marukyan (Acad. of Sci., Moscow). *Compt. rend. acad. sci. U.R.S.S.* 55, 121–5(1947)(in English); cf. *C.A.* 40, 4686[1]; 41, 5117i.—The dehydrogenation of p-(iso-Pr)$_2$-C_6H_4 (I), b. 207–8°, d_4^{20} 0.8509, n_D^{20} 1.4901, over Cu-Cr at 625° and flowing at a rate of 425 ml. liquid I/l. catalyst/hr. gives 132% (expressed as a % of the control yield of styrene from PhEt) p-diisopropenylbenzene, and 1,2,3,4-tetrahydronaphthalene, b. 206.1–7.1°, d_4^{20} 0.9682, n_D^{20} 1.5420, gives 191% naphthalene. The results from previous studies are collated with these; in general (1) the rate of dehydrogenation and the yield are greater, the longer the side chain, but a longer chain is more easily broken; (2) the rate of dehydrogenation and the yield also increase when the H atoms in Et are replaced in succession by aromatic substituents; (3) for benzenes with one alkyl substituent contg. no less than 2 C atoms the rate of dehydrogenation is the same as that of benzenes with 2 such substituents; (4) for dialkylbenzenes of the above-mentioned type the rate of dehydrogenation and the yield depend little on the relative position of the 2 substituents.

H. S. Mason

Inst. Org. Chem., AS USSR

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1ST AND 2ND ORDERS

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Comparative velocity of the catalytic dehydrogenation of monoalkylbenzenes and dialkylbenzenes. A. A. Balandin and G. M. Marukyan (Inst. of Org. Chem., Acad. of Sci., U.S.S.R.). *Compt. rend. acad. sci. U.R.S.S.* 55, 215-18 (1947)(in English); cf. preceding abstr.—EtPh (I) and p-$Et_2C_6H_4$ (II) were alternately passed over a Cu-chromia catalyst, using the same app., catalyst, reactants, and method of analysis as previously. The length of catalyst layer was 11 cm.; diam. of tube, 15 mm.; temp., 625°; space velocity, 500 ml. (liquid)/1./hr. for I and equiv. for II. The hydrocarbon vapors were dild. (1:2 mols.) with CO_2. Over a freshly regenerated catalyst the rate of dehydrogenation was higher for I (52.1%) than for II (41.0%), but the difference became negligible as the catalyst was fatigued (38.8% and 39.0%). The analytical results (percent of unsaturates in condensate) were calcd. for the formation of 1 double bond in the monoalkylbenzenes and 2 double bonds in the dialkylbenzenes. H_2O_2 decompn. of the ozonide prepd. from the dehydrogenation product of II gave only HCO_2H and p-$(HO_2C)_2C_6H_4$; no p-$HEtC_6H_4CO_2H$ (the article reads p-ethylbenzene) was found. Similar results were obtained on dehydrogenation of iso-PrPh and p-$(iso\text{-}Pr)_2C_6H_4$, the initial rates being 56.6% and 50.7%, decreasing to fatigued rates of approx. 50% for both. An attempt was made to interpret exptl. data by a consideration of the crystal structure of the catalyst. Starting with the shape and size of I and II, the presence of a face-centered lattice of Cu with faces (111), and the fact that for the parallel dehydrogenation of 2 Et groups 2 doublets are needed, a model for dehydrogenation was constructed in agreement with the multiplet theory.

R. W. Fleming

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MARUKYAN, G. M.

A. A. Balandin and G. M. Marukian. The Catalytic Dehydrogenation of 1, 3, 5-tri-ethylbenzene. P. 451.

SO: Bulletin of the U.S.S.R. Academy of Sciences (Chemistry Series) Izvestia Akad. Nauk, S.S.S.R., No. 4, 1948.

Experiments show that 1, 3, 5-triethtlbenzene is dehydrated with the evolution of three hydrogen molecules with the same speed as m-diethylbenzene, with the evolution of two, and ethylbenzene, with the evolution on one hydrogen molecule. These facts are interpreted by the multiplet theory. Submitted 4 Feb 48.

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AUTHORS:

TITLE:

PERIODICAL:

ABSTRACT:

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Synthesis of Alinhatic-Aromatic Silanes and Their Dehydrogenation

SOV [illegible]

[illegible] failed [illegible]

[illegible]

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Synthesis of [illegible] SOV [illegible]
Their Dehydrogenation

[illegible]

There are [illegible]
The U.S. [illegible]

[illegible]

ASSOCIATION: [illegible] Zelinskiy [illegible] SSSR [illegible]
Institut [illegible] Zelinskogo AN SSSR

SUBMITTED: [illegible]

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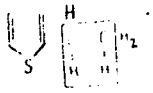
5.3020

AUTHORS: [illegible]

TITLE: Catalytic Dehydrogenation of [illegible]-Ethylthiophene

PERIODICAL: [illegible] (USSR)

ABSTRACT: Catalytic dehydrogenation of [illegible]-ethylthiophene [illegible] over copper-chromium oxides, copper-[illegible] and copper-iron oxides to form [illegible]-vinylthiophene. According to the multiplet theory, catalytic [illegible] of the ethyl group can be represented by the [illegible]



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Catalytic Dehydrogenation of [illegible] SOV/[illegible]
Ethylthiophene

where the reacting atoms, in contact with [illegible] are within the square. The reaction was [illegible] flow system (at the space velocity of [illegible] atmospheric pressure in presence of water [illegible] ben dioxide as well as in absence of these [illegible] product was collected in a receiver provided with denser and analyzed by bromometric titration. [illegible] correction for bromination of the thiophene ring; the gaseous products, collected in a gasometer, were [illegible] in the Orsat apparatus. [The [illegible]-ethylthiophene ([illegible] 135.0-1[illegible].5° ([illegible] mm); $n_D^{[illegible]}$ 1.[illegible]; $d_4^{[illegible]}$ [illegible]) was submitted by Ya. L. Gol'dfarb.] Best results were [illegible] tained by dehydrogenation at [illegible] oxides as catalyst. Under these conditions [illegible] hydrogenation was not accompanied by side [illegible] such as breaking off of the side chain (only [illegible] of unsaturated hydrocarbons--saturated hydrocarbons [illegible] not determined--were found in the gaseous products [illegible] yielded 50-[illegible]% of vinylthiophene. Addition of [illegible]

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Catalytic Dehydrogenation of [illegible] Ethylthiophene

SOV/[illegible]

[illegible] enhances [illegible] [illegible] hydrogenation. Preliminary experiments have shown that under the conditions of the experiment the thiophene ring is not opened. There are [illegible] references, 11 Soviet, [illegible] German, [illegible] U.K., [illegible] U.S. The [illegible] most recent U.S. and U.K. references are: [illegible] J. Am. Chem. Soc., [illegible] ([illegible]); [illegible] N. Y., [illegible] ([illegible]); W. S. Emerson, T. M. [illegible] Ch., [illegible] ([illegible]); Am. Pat. [illegible] Howard, Thiophene and Its Derivatives, London, [illegible]

ASSOCIATION: N. D. Zelinskiy Institute of Organic Chemistry [illegible] organicheskoy khimii imeni N. D. Zelinskogo)

SUBMITTED: December [illegible]

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BALANDIN, A.A., akademik; MARUKYAN, G.M.; SEYMOVICH, R.G.

Catalytic dehydrogenation of alkylphenols. Dokl. AN SSSR. 141 no.3:616-619 N '61. (MIRA 14:11)

1. Institut organicheskoy khimii im. N.D. Zelinskogo AN SSSR.
(Phenol) (Dehydrogenation)

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"APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7

S/062/62/000/011/009/021
B101/B144

AUTHORS: Balandin, A. A., Marukyan, G. M., Lavrovskaya, T. K., Seymovich, R. G., and Gryzlova, L. V.

TITLE: Catalytic dehydrogenation of chloro-ethyl benzene

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye khimicheskikh nauk, no. 11, 1962, 2031 - 2036

TEXT: Chloro styrene, an important raw material for polymer chemistry, was obtained by dehydrogenation of chloro-ethyl benzene on a mixed oxide catalyst at 600°C, volume rate 0.2 - 0.35 hr^{-1}. The dehydrogenation was carried out in a continuous apparatus; the chloro-ethyl benzene was diluted with water vapor or CO_2. Preliminary tests with chloro benzene showed that it was not changed by the catalyst in the presence of water vapor, whereas about 50% of it was disintegrated to benzene and HCl in the presence of H_2. The catalyzate, which contained up to 36% chloro styrene and, on heating, formed a solid polymer, was analyzed by gas-liquid chromatography. The chromatograph contained a detector for thermal conductivity, the column was filled with diatomite and 15% dinonyl sebacinate

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"APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7

Catalytic dehydrogenation of... S/062/62/000/011/009/021
B101/B144

as solid phase, and nitrogen was used as carrier gas. The analysis was made at 130°C. For deciphering the chromatogram, mixtures of possible components of the catalyzate were subjected to comparative chromatography. Ethyl benzene could not be separated from chloro benzene. The chromatographic analysis of six experiments yielded (in % by weight):- composition of the initial substance: o-chloro-ethyl benzene, 48-57; p-chloro-ethyl benzene, 43-48; ethyl benzene, 0-4; composition of the reaction product: benzene, 0.1-0.8; toluene, 0.1-0.8; ethyl benzene + chloro benzene, 1.7 -13.2 (the higher values with CO_2 as diluent); styrene, 0.5-7.7 (the higher values in the presence of CO_2); chloro toluene, 1.0-4.0; o-chloro-ethyl benzene, 28.5-44.3; p-chloro-ethyl benzene, 18.6-33.5; o-chloro-styrene, 10.1-18.0; p-chloro styrene, 8.2-19.3. There are 4 figures and 4 tables. The most important English-language references are: S. Freeman, Analyt. Chem., 32, 1304 (1960); H. Nadeon, D. Oaks, Analyt. Chem., 33, 1157 (1961).

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry imeni N. D. Zelinskiy of the Academy of Sciences USSR)

SUBMITTED: April 3, 1962

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"APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7

ARTAMONOV, A.A.; BALANDIN, A.A., akademik; MARUKYAN, G.M.; KOTELENETS, M.I.

Isolation of 4-vinylpyridine from a mixture of pyridine bases.
Dokl. AN SSSR 163 no.2:359-361 Jl '65. (MIRA 18:7)

1. Donetskiy filial Vsesoyuznogo nauchno-issledovatel'skogo instituta khimicheskikh reaktivov i osobo chistykh khimicheskikh veshchestv i Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.

APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7"

"APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7

MARUKYAN, S. M.

"Experiment in the Propagation of Forests in the High and Middle Mountain Areas of the Armenian SSR." Cand Agr Sci, Moscow Forestry Engineering Inst, Min Higher Education USSR, Moscow, 1955. (KL, No 16, Apr 55)

SO: Sum. No. 704, 2 Nov 55 - Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (16).

APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7"

"APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7

MARUKYAN, S.M.

Some wild spec es of trees and shrubs first located in the Lake Sevan Basin. Izv.AN Arm.SSR Biol.i sel'khoz.nauki 9 no.7:15-22 Jl '56. (MLRA 9:9)

1. Kafedra lesovodstva sel'skokhozyaystvennoy akademii imeni Timiryazeva, Moskva.
(Sevan region--Shrubs)

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"APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7

CATEGORY :

ABS. JOUR. : RZhBiol., No. 14 1959, No. [illegible]

AUTHOR : [illegible]

INST. : [illegible]

TITLE : [illegible]

ORIG. PUB. : [illegible] 31, 2[illegible]

ABSTRACT : [illegible]

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"APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7

GRACHEV, A.P.; LARYUKHIN, G.A.; MARUKYAN, S.M.; MIRONOV, V.V.; MUKHIN, A.I.; PANASIK, A.V.; PONOMAREVA, Ye.N.; SIMSKIY, A.M.

[Kolkhoz forester's manual] Spravochnik kolkhoznogo lesovoda. Moskva, Lesnaia promyshlennost', 1965. 424 p. (MIRA 18:8)

APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7"

"APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7

STEPANYAN, E.D., kand. biolog. nauk; MARUKYAN, T.Kh., starshiy laborant

Effect of ionizing radiation on the formation of antibodies following combined application of various antigens. Vop. radiobiol. AN ARM. SSR 2:121-130 '61.

Phagocytic activity of leucocytes in immunized rabbits under the action of ionizing radiation. Ibid.:131-142 (MIRA 18:4)

APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7"

"APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7

ALAVERDYAN, M.I., dotsent; VLASENKO, S.F., kand. med. nauk; MANUKYAN, T.Kh., mladshiy nauchnyy sotrudnik; AYRAPETYAN, F.O., aspirant; GRIGORYAN, D.G., starshiy laborant

Effect of X-rays on the activity of hyaluronidase and hyaluronic acid. Vop. radiobiol. [AN Arm. SSR] 3/4:229-234 '63. (MIRA [illegible])

APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7"

"APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7

ALAVERDYAN, M.I., dotsent; GEZALYAN, L.S., kand. biol. nauk; MARUKYAN, T.Kn., mladshiy nauchnyy sotrudnik; TERDZHANYAN, O.Ye.; OKHIKYAN, V.M., starshiy laborant

Effect of decortication and X-rays on the phagocytic activity of leucocytes in rabbits. Vop. radiobiol. [AN Arm. SSR] 3/4:47-52 '63. (MIRA 17:6)

APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7"

"APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7

ALAVERDYAN, [illegible], dotsent, MOVSESYAN, M.A., starshiy nauchnyy sotrudnik; MARUKYAN, T.Kh., mladshiy nauchnyy sotrudnik

Combined effect of irradiation and blood loss on the phagocytic activity of leucocytes in rabbits. Vop. radiobiol. [AN Arm. SSR] 3/4:17-26 '63. [illegible]

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"APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7

MARULIDI, R.A.

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PHASE I BOOK EXPLOITATION SOV/5976

Shklennik, Ya. I., A. V. Baranov, V. N. Ivanov, S. A. Kazennov, B. S. Kurchman, N. N. Lyashchenko, R. A. Marulidi, G. K. Militsin, V. A. Ozerov, A. I. Sitnichenko, M. Ya. Tells, and M. L. Khenkin

Lit'ye po vyplavlyayemym modelyam (Investment Casting) [Leningrad] Mashgiz [1961] 455 p. (Series: Inzhenernyye monografii po liteynomu proizvodstvu) Errata slip inserted. 8000 copies printed.

Eds. (Title page): Ya. I. Shklennik and V. A. Ozerova; Reviewers: N. D. Titov, Candidate of Technical Sciences, and A. I. Klauzen, Engineer; Ed.: Yu. L. Markis, Engineer; Tech. Eds.: A. Ya. Tikhanov, Z. I. Chernova and V. D. El'kind; Managing Ed. for Literature on Hot-Working of Metals: S. Ya. Golovin, Engineer.

PURPOSE: This book is intended for engineering and technical personnel in the metalworking industry and for scientific research workers. It may also be used by students specializing in foundry work.

COVERAGE: The book reviews the most important problems in investment casting. Among the topics considered are the following: mechanical properties of castings;

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the manufacture of castings; precision surface quality; materials and methods of making patterns and molds; the melting of metals and alloys; pouring, cleaning, heat treatment, and inspection of castings; economic aspects in the production of castings; organization of production; and modern concepts relating to processes taking place in the manufacture of investment castings. No personalities are mentioned. There are 180 references, mostly Soviet.

TABLE OF CONTENTS:

Introduction

Ch. I. Designing Cast Parts 5
Properties of castings
Dimensional precision 12
Surface quality 13
Mechanical properties of cast metal 13
Design elements of castings 16

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"APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7

MAHULIGI, S.R.

Two cases of poisoning from elderberries. Pediatriia 37 no.12: 56-57 D '59. (MIRA 13:5)

1. Iz detskoy bol'nitsy Batumi.
(ELDER--TOXICOLOGY)

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"APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7

MARULIN, B.A. (Kiyev)

Diffuse septic phlegmon of the neck and mediastinum of an odontogenic character. Vrach.delo no.10:114-115 O '60. (MIRA 13:11)

1. Klinika gospital'noy khirurgii (zav. - zasluzhennyy deyatel' nauki, prof. N.Ye.Dudko) Kiyevskogo meditsinskogo instituta imeni akademika A.A.Bogomol'tsa i gorodskaya klinicheskaya bol'nitsa imeni Oktyabr'skoy revoliutsii.

(PHLEGMON)
(NECK--ABSCESS)
(MEDIASTINUM--DISEASES)

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L 15290-65 Pa-4 AMD
ACCESSION NR: AR4045872 S/0299/64/000/014/M025/M025

SOURCE: Ref. zh. Biologiya. Svodnyy tom, Abs. 14M163

AUTHOR: Marulin, B. A.

TITLE: Semisoluble prostheses for replacing blood vessels

CITED SOURCE: Sb. 3 Vses. konferentsiya po peresadke tkaney i organov, 1963. Yerevan, 1963, 530-531

TOPIC TAGS: prosthesis, blood vessel, anticoagulant, thrombosis, fiber, polyvinyl alcohol, sodium alginate

TRANSLATION: The inclusion of soluble fibers with a polyvinyl alcohol or sodium alginate (up to 10 to 15%) base in the composition of knitted, tissue, or woven tubes is proposed to improve existing vessel prostheses. Swelling of the fibers increases the strength of the prosthesis wall and prevents bleeding, and resorption promotes faster growth of granulation tissue and the formation of a fibrous capsule. At time of operation and in the postoperative period lowering of blood pressure should be avoided to prevent thrombosis

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formation. The use of anticoagulants is not safe and they should be used (preferably synanthrin C) only during the early postoperative period or when there is danger of thrombosis formation.

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"APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7

GUBANOV, A.G., dotsent (Kiyev, ul. Chkalova, d.74, kv.7); FURMANOV, Yu.A.; MARULIN, B.A.

Soft elastic porous polymers as plastic material in surgery. Vest. khir. 89 no.10:65-72 O '62. (MIRA 17:1[illegible])

1. Iz Ukrainskogo nauchno-issledovatel'skogo instituta tuberkuleza i grudnoy khirurgii imeni akademika F.G. Yanovskogo (dir. - dotsent A.S. Mamolat).

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A205/A126

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2.2410

2406

AUTHOR: Maruna, Jaroslav

TITLE: Infratechnique in military engineering

PERIODICAL: Amatérské radio, no. 5, 1960, 135 - 136

TEXT: The author gives a brief description of infrared radiation and lists its application in military engineering. Infrared devices, enabling warfare at night, were already used in World War II. One of the first instruments developed was an infrared image converter tube consisting of an infrared-sensitive photocathode, a fluorescent screen, electron lenses, and a glass bulb encasing the entire system. In case of infrared illumination, the photocathode emits electrons, proportional to the illumination intensity. This electron beam is accelerated and focused by the electron lenses on the fluorescent screen, where a visible image is produced. This instrument has an input of only 0.1 w and can be powered by a small source. Such an image converter tube is the basic component of an infrared telescope. In case the own heat radiation of an object to be viewed is not sufficient, it is illuminated by an infrared searchlight, consisting of a bulb, a parabolic mirror and an i.r. filter. Infrared devices are mounted on rifles and guns and are of special significance for motor vehicle and tank units. A foreign infrared tele-

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Infratechnique in military engineering

scope, destined for steering motor vehicles at night, has a magnification of 1X, a view-angle of 30°, a range of 100 m and weighs 15 kg. An infrared telescope for guns has a magnification of 2X, a visual field of 30°, a range of 300 - 500 m and weighs 30 kg. Whether an object is illuminated by an infrared searchlight can be determined with the aid of a small, portable detector, weighing only 200 - 400 grams. The detector contains a fluorescent screen, excited by sunlight , ultraviolet rays or an alpha radiator, and converts the infrared into visible light. However, such a detection is not possible when only the own heat radiation of the target is used for observation. The US developed an infrared camera for aerial reconnaissance with a range of 50 km. Infrared devices are also used for tracing own and hostile aircraft, for inter-aircraft signalization and for guidance of aircraft and missiles. Infrared homing systems are much simpler than radar homing systems. The "AMM-N-7" Sidewinder air-to-air missile is equiped with an infrared homing system. It is expected, that ICBMs will also be equipped with infrared homing guidance, since they are aimed at large cities or plants which are sources of intense heat radiation. Locators which report targets emitting infrared light are used for locating aircraft, submarines, etc. A locator with a 1.5 m reflector is able to locate bombers at a distance of 10 - 15 km, large ships can be located at a distance of 25 - 35 km. Infrared telephones were used in WW II. Such a telephone has a range of 20 km, is hard to tap, easily to operate and signals can be coded. The US intelligence equip-

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Infratechnique in military engineering

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ped Gisela Gebhard with an i.r. telephone to transmit intelligence items from East to West Berlin. In conclusion, the author states that the rapid development of photoelectronics in WW II and postwar years largely contributed to the expanded use of i.r. radiation in military engineering. There are 6 figures and 11 references: 4 Soviet-bloc and 7 non-Soviet-bloc. (Ref.3: A. Locke: Guidance); (Ref. 6: Flight, roc. 1957, 1958, 1959); (Ref. 7: Electronics, roc. 1954); (Ref. 8: Radio and Television News c. 6/1955).

Card 3/3

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AUTHOR: Maruna, Jaroslav

TITLE: Remarkable Progress of Soviet Radio Electronics

PERIODICAL: Sdělovací technika, 1960, Nr. 10, pp. 371 - 37[illegible]

TEXT: This article describes the Soviet progress in the field of radio communication, TV, radar, radio navigation, radio telemetry, radio meteorology and in the design of electronic computers, electro-vacuum and semi-conductor apparatus. The radio and TV network was expanded by automatic equipment. Automatic 2-program stations "DOZHD-2" for FM ultra-short-wave transmission and remote-controlled 50 kw stations for short-wave transmissions. New fully automatic 150 kw medium-wave transmitters are being developed. Directional and relay TV stations are being expanded and 300 relay stations will be in operation by 1965. The TV studios, with 80 currently under operation, will be increased to 160 by 1965, to supply 90 million subscribers. New TV transmitters will be remote-controlled from the studio. Radiotelegraphic links will be equipped with automatic 5, 20 and 50 kw transmitters and with fully automatic receivers. They will operate with single-sideband modulation. Highly effective directional links, such as the "Vesna" system, which allows transmission of 2 TV programs

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Remarkable Progress of Soviet Radio Electronics

and 1,800 telephone conversations over a distance of 5,000 km will be [illegible] duced during the 3rd Five-Year Plan. Repeater stations of this system will [illegible] fully automatic. Another directional link is the "P-60/120" which allows [illegible] taneous transmission of 240 telephone conversations and one TV program. [illegible] transmitters with an output of 5/1.5 kw for a frequency range of 174 [illegible] are being developed. Obsolete radio relay stations are being replaced by [illegible] matic stations which are remote-controlled. Radar equipment is used in the [illegible] for studies on the moon, on meteors and planets and especially for navigation (in addition to radio direction finders, radio compasses, etc). The Soviet "[illegible] -18" aircraft, for instance, is equipped with 4 radio stations, radar, one [illegible] landing and marker-beacon receivers, radio altimeters and 2 radio compasses. All these radio-electronic instruments are operating under any climatic conditions. The progress of Soviet radio electronics was also demonstrated by [illegible] cessful satellite and rocket launchings. The precise position and altitude of earth satellites and cosmic rockets were determined by radar. Precise launching and orbiting of moon rockets was accomplished with the aid of Soviet radio telecontrol and telemeasuring equipment. The first 2 earth satellites launched in 1957, employed radio direction finders and the Doppler effect. The position

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Remarkable Progress of Soviet Radio Electronics

distance and speed of these satellites was determined by the frequency deviation of signals received from a satellite-borne transmitter. The improved system of the 3rd earth satellite employs several satellite-borne radio transmitters and the position was determined by especially equipped scientific ground stations. These position data were checked by radar and results were transmitted to a common coordination center which is equipped with electronic computers. The 3rd satellite was a flying scientific station which carried a radio telemeasuring system, a radio instrument for measuring the geographical position of the satellite, thermoregulation equipment, instruments for temperature measuring, devices for connection and disconnection of scientific measuring instruments and electrochemical power sources. The radio telemeasuring system contained memories which continuously stored data measured during the flight and transmitted them when passing over the measuring stations on the earth. The automatic operation and periodic connection and disconnection of all measuring instruments was provided by an elctronic programming and timing equipment employing semiconductors only. This equipment transmitted also periodic signals for the determination of the exact time. Instruments on board of the cosmic rocket which hit the moon, allowed precise tracing of the course from launching till to the moment when the

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Remarkable Progress of Soviet Radio Electronics

container with the scientific instruments reached the moon surface. [illegible] was traced from the ground from several stations installed in various parts of the USSR. These stations were interconnected by a communication system for transmitting measuring data to a computer center and for receiving results from the computer center. An even larger success of Soviet radio-electronics was demonstrated by the automatic interplanetary station which photographed the far side of the moon. The entire guiding system was more precise than that of previous cosmic rockets. The rocket-borne equipment consisted of a complicated radiomechanical and photo-television system, scientific instruments, a special orientation system, a device for program control of instrument operation, automatic temperature regulation, and electric power sources. The photo-television system consisted of a camera with 2 lenses for simultaneous photographing with 2 ranges. The film was transported to a special chamber and the pictures were simultaneously transmitted. A special transmitted-light picture tube with high resolving power and a highly stable photoelectronic multiplier were used for this purpose. The beam deflection in the picture tube was provided by [illegible] cal af sweep devices. It also contained a stabilized narrow band [illegible] and a device which automatically compensated factors which might [illegible]

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Remarkable Progress of Soviet Radio Electronics

the change of the medium density of the negative and impair the [illegible]
The entire device was equipped with semiconductors and transistors. Pictures
of high quality could thus be transmitted over a distance of 470,000 km. Upon
orders from the ground station, feed sources were connected and the TV system
adjusted to transmitters. There were about 1,000 lines per picture. The radio-
-signals of the photograph were transmitted to the earth over one common line
together with telemeasuring data and data required for the determination of
movement parameters. The output of the satellite-borne transmitters was only
a few watts and large antennas, highly sensitive receivers and special methods
for signal transmission and processing had to be developed. A Soviet multistage
ballistic rocket was launched only 4 months later. The unique radio-electric
equipment and the automatic equipment which eliminated all negative influences
on direction and speed made it possible that the target impact could be precise-
ly maintained (deflection less than 2 km). The rocket-borne radio equipment
supplied all necessary data to observation ground stations and ships during the
flight even in dense atmosphere. Soviet research on electronic computers started
in 1948 and large computers, such as the "Strela", "BESM" and "M-2" were complet-
ed only 5 years later. The "Strela" electronic computer accomplishes 2 000 arith-

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Remarkable Progress of Soviet Radio Electronics

metical calculations within 1 second, it contains 6,400 electron tubes, occupies a floor space of 300 m^2, weighs 33 tons and has a power consumption of 90 kw. The "BESM" electronic computer accomplishes 8 - 10,000 calculations per second and was used for a calculation with 800 equations, the solution of which required 250 million individual arithmetical operations. The "BESM" can also be used for calculation of aircraft supporting surface profile calculations. The USSR uses electronic computers chiefly for complicated scientific and technical calculations, for automation of statistical and accounting calculations and for automatic control of production processes. They were also used with great success for orbit calculation of earth satellites, cosmic rockets and ICBMs. The calculation speed is much faster than the speed of these rockets. The dependability of Soviet military radioelectronic equipment was proven by radar spotting of the American U-2 espionage aircraft which was shot down by one single rocket from an altitude of 20 km. Soviet rocket units are equipped with most modern radar sets, computers and incitation systems. Radio engineering plays also a leading role in nuclear research and great success was achieved in this field by the Radioengineering Laboratory of the Soviet Academy of Science under the direction of A.L. Mints. The USSR developed highly effective "synchro-

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Remarkable Progress of Soviet Radio Electronics

fazotrons" for up to 10 BEV. These accelerators have enormous dimensions, their magnets are 60 m in diameter, their power input is 150,000 kva. An even larger accelerator for 50 BEV is being developed. The circular path of accelerated particles in this synchrofazotron will be 1.5 km long. Methods are being investigated for direct energy conversion of nuclear reactions into AC. The USSR was also successful in the field of controlled thermonuclear reactions which can be performed with the aid of electronics. The high temperatures of some 10 - 100 million degree required for thermonuclear reactions are produced by electrical impulse discharges in gases under the presence of a strong magnetic field. The application of electronics in nuclear power engineering will also be used to solve the problems of cosmic rockets with a range beyond the limits of our solar system. Projects of ion and photon rockets with a speed of 200 km/sec are being developed. In conclusion, the author states that these are only few of the progresses made by Soviet radio engineers and lists some future development tasks: propagation and amplification of millimeter and sub-millimeter waves for wide-band communication systems; the expansion of ultra-short-wave transmissions with the aid of tropospheric, ionospheric and meteoric radio-wave scattering; the improvement of electronic computers for various industrial purposes, translation, etc. There are 4 Soviet references.

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"APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7

MARUNA, Jaroslav

Radio relay links and their realization. Sdel tech 9 no.6: 212-214 Je '61.

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"APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7

MARUNA, Jaroslav

World development of cables and waveguides. Sdel tech 9 no.10:379-380 O '61.

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"APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7

MARUNA, Jiri

Transportation of mineral water in large containers. Kvasny prum 10 no.12:280-283 D '64.

1. Development Center of the Czechoslovak Mineral Water Springs, Karlovy Vary.

APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7"

"APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7

MARUNICH, G.R.

Ways of improving the work of sugar mills. Sakh.prom. 29 no.8: 25-26 '55. (MLRA 9:2)

1.Kamenogorskiy sakharnyy zavod.
(Sugar industry)

APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7"

"APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7

ZUBAREV, L.V.; MARUNICH, I.P.; AVDEYEV, A.N.

Experience in using automatic levels in railroad surveying. Transp. strei. 5 no.9:15-16 N '55. (MIRA 9:2)

1.Nachal'nik izyskatel'skikh partii Mosshelderproyekta.
(Railroads--Surveying)

APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7"

"APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7

MARUNICH, I.P., inzh.

Using nomograms in computing earthwork. Transp. stroi. 8 no.1:26-27 Ja '58. (MIRA 12:12)

(Railroads--Earthwork)

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"APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7

FOMIN, M.; KANANA, I.; MARUNICH, K., tokar'

Begin a new way of living and working. Sov.profsoiuzy 16 no.10:33-36 My '60. (MIRA 13:6)

1. Predsedatel' zavodskogo komiteta profsoyuza Stalingradskogo metallurgicheskogo zavoda (for Fomin). 2. Predsedatel' komissii po kul'turno-massovoy rabote Stalinskogo metallurcheskogo zavoda (for Kanana). 3. Rukovoditel' khudozhestvennoy samodeyatel'nosti Stalingskogo metallurgicheskogo zavoda (for Marunich).
(Hours of labor) (Labor and laboring classes)

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"APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7

ALEXANDROWICZ, S., prof. dr; BILSKI, E.; MARUNIEWICZ, W.; ZWOLINSKI, J.

Absolute weight as indicating the leanness of the bacon pig carcass. Rocz nauk roln zootechn 84 no.1:1-9 '64.

1. Department of Specific Animal Breeding of the School of Agriculture, Poznan. Head:prof. Alexandrowicz.

APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7"

"APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7

S/081/62/000/018/037/059
B166/B180

5 5 8 0

AUTHORS: Rozhkov, I. V., Marunin, M. P.

TITLE: Instrument and methods for determining the stability of fuels and ethyl fluid

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 18, 1962, 453, abstract 18M208 (Novosti neft. i gaz. tekhn. Neftepererabotka i neftekhimiya, no. 1, 1962, 45-47)

TEXT: A device, ЛСАРТ (LSART), has been assembled for evaluating the stability of fuels and ethyl fluid; it consists of a thermostat with a metallic bath. The fuels are oxidized with atmospheric air in beakers placed in metal bombs in the thermostat. The determination takes 8 hours at a temperature of 110°C, and for a solution of ethyl fluid in n-heptane, 7 hours at 100°C. Evaluation of the stability of fuels in the ЛСА (LSA) instruments currently used for this purpose, and in the LSART instrument gives practically identical results; the discrepancies observed were within the accuracy range of the evaluation. The LSART instrument is operationally reliable and explosion-proof. A

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Instrument and methods for ...

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diagram of the instrument is given and a description of the methods of determination. [Abstracter's note: Complete translation.]

Card 2/2

APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7"

"APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7

MARUNINA, A. T.

USSR/Metals-Zinc Plating
Chemistry-Zinc, Determination

Jun 50

"Amperometric Determination of Zinc in Brasses and Zinc Plating Baths," A. A. Popel', A. T. Marunina

"Zavod Lab" Vol XVI, No 6, pp 658-661

Describes procedure for determining zinc in brasses and electrolytes of acid and alkaline zinc plating by method of amperometric titration with potassium ferrocyanide. Determination takes 15-25 min and accuracy of method is sufficient for routine proximate analysis.

PA 163T52

APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7"

"APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7

MARUNINA, A.T.

27

Amperometric determination of copper. A. M. Vasil'ev and A. T. Marunina. *Trudy Kazan. Khim.-Tekhnol. Inst. im. S. M. Kirova* 1954-55, No. 10-20, 39-47.—The quant. detn. of Cu by amperometric titration with soln. of thiocyanates (I) or with 5,7-dibromoquinolinol (II) was studied. The II method does not have a practical application. The I method was studied with the use of SeO_3^{--} for Cu reduction to the univalent state but it proved unsatisfactory. The use of SO_3^{--} for reduction of Cu gave good results, and a further titration of Cu with KSCN resulted in the detn. of Cu in SO_3^{--} soln. The pH before titration was 6-8. Detailed description of the method is given. The effect of Fe, Pb, Sn, Co, Ni, and others was studied. The further detn. of Zn in the same soln., after Cu titration with I, was described. Zn was titrated with quinolinol.

Alexis N. Pestoff

APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7"

"APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7

MAR'YNINA, A. T.

MAR'YNINA, A. T.- "Methods of Amperometric Determination of Copper, Lead, Nickel, and Zinc in Certain Alloys and Electrolytes." Min of Higher Education USSR, Kazan Chemico-technological Inst imeni S. M. Kirov, Kazan, 1955 (Dissertations for the Degree of Candidate of Chemical Sciences)

SO: Knizhnaya Letopis' No. 26, June 1956, Moscow

APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7"

"APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7

MARUNINA, A. T.

27 4 4E3d

370. Amperometric determination of copper. A. M. Vasil'ev and A. T. Marunina. *Trudy Kazansk. Khim.-Tekhnol. Inst.*, 1955, (19-20), 39-47; *Ref. Zhur., Khim.*, 1957, Abstr. No. 34,082.—A method is evolved for the determination of Cu in alloys by the amperometric titration of Cu with KSCN soln. after preliminary reduction with Na_2SO_3. Dissolve the sample of alloy (0·2 to 0·5 g) in HNO_3 (1:1) (10 to 20 ml), add H_2SO_4 (1:1) (3 to 5 ml), evaporate to fumes of SO_3, add water (20 to 30 ml) and after solution has taken place add NaOH soln. dropwise till a slowly disappearing ppt. forms. Make the soln. up to 100 ml. To a 5- or 10-ml aliquot add a soln. of Na_2SO_3 till the ppt. of copper sulphite first formed has dissolved, then add a phosphate buffer soln. of pH 7·5 (or neutralise to methyl red), and titrate amperometrically with a soln. of KSCN. The equivalence point is found graphically. The presence of Co, Zn, Ni, Pb, Sn or Al does not influence the results. Iron in concn. of about 30% of that of the Cu interferes. After removing the copper thiocyanate, Zn may be determined in the filtrate by titration with 8-hydroxyquinoline. It is established that the titration of Cu with 5:7-dibromohydroxyquinoline has no practical value. C. D. KOPKIN

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"APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7

A.T. MARUNINA

MARUNINA, A.T.

5(0) PHASE I BOOK EXPLOITATION SOV/2019

Kazan. Khimiko-tekhnologicheskiy institut imeni S.M. Kirova

Trudy, vyp. 22, khimicheskiye nauki (Transactions of the Chemical and Technological Institute imeni S.M. Kirov, Kazan. No 22, Chemical Sciences) Kazan', 1958. 173 p. Errata slip inserted. 300 copies printed.

Editorial Board: K.N. Mochalov (Resp. Ed.) Professor, A.A. Trufanov, (Resp. Ed.) Professor, I. Ye. Moyzak (Deputy Resp. Ed.) Professor, G.S. Vosdvizhenskiy, Professor, A. Ye. Arbuzov, Academician, Kh. M. Mushtari, Professor, S.M. Kochergin, Professor, A.M. Grigor'yev, Professor, N.A. Kholevo, Professor, Dzh. A. Tarzimanov (Resp. Secretary) Docent; Ed.: Yu. Karev; Tech. Ed.: I. Kh. Zaymullin.

PURPOSE: This book is intended for industrial chemists, technologists, scientists, teachers, and research students in applied chemistry.

COVERAGE: The collection contains reports by faculty members of the sponsoring institute and also commemorates the 75th year of the birth and first anniversary of the death of Professor Aleksey Mikhaylovich Vasil'yev, Doctor of Chemical Sciences and Head of the Faculty. A review of Vasil'yev's scientific activities is given along with a chronological bibliography of his published works and that of members of the institute under his leadership. Articles of the collection deal mainly with electro-chemistry and the analysis of electrochemical processes, chemical analyses, and investigations of the prospective application of physicochemical phenomena in industrial processes, e.g., cleansing with ultrasound, enhancing the properties of building materials with additives, etc. References are given at the end of each article.

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Transactions of the Chemical (Cont.) SOV/2019

4. Vasil'yev, A.M. (Deceased), L.A. Vasil'yeva, and A.A. Vasil'yev. The Problem of Determining the Exchange Capacity of Sulfo Acids of Cation-Exchange Resins (First report) 33

5. Vasil'yev, A.M. (Deceased), L.A. Vasil'yeva, and A.A. Vasil'yev. The Problem of Determing the Exchange Capacity of Sulfo Acids of Cation-Exchange Resins (Second report) 42

6. Vasil'yev, A.M. (Deceased) and A.A. Vasil'yev. The Problem of Obtaining Amino Derivatives From High-Molecular Insoluble Sulfo Acids (Preliminary report) 49

7. Vasil'yev, A.M. (Deceased, and A.T. Marunina. Amperometric Titration of Copper in Pyridine Solut ons With Rhodanide 53

8. Gorokhovskaya, V.I. The Polarographic Behaviour of Lanthanum in Nitric Acid Solutions 61

9. Gorokhovskaya, V.I. Catalytic Hydrogen Waves 68

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APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7"

"APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7

MARUNINA, A.T.

Determination of cadmium by the pyridine-thiocyanate method. Trudy KKHTI no.30:193-197 '62. (MIRA 16:10)

APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7"

"APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7

MARUNINA, A. T.

Amperometric determination of zinc using the pyridine-thiocyanate method. Zav. lab. 28 no.1:25-26 '62. (MIRA 15:2)

1. Kazanskiy khimiko-tekhnologicheskiy institut.
(Zinc--Analysis) (Complex compounds)
(Conductometric analysis)

APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7"

"APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7

MARUNINA, A.T.

Amperometric determination of formaldehyde and urotropine.
Trudy Kom.anal.khim. 13:320-325 '63. (MIRA 16:5)

1. Kazanskiy khimiko-tekhnologicheskiy institut.
(Formaldehyde) (Hexamethylenetetramine) (Conductometric analysis)

APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7"

"APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7

5(2); 21(5) PHASE I BOOK EXPLOITATION SOV/1900

Akademiya nauk SSSR. Komissiya po analiticheskoy khimii

Primeneniye radioaktivnykh izotopov v analiticheskoy khimii (Use of Radioactive Isotopes in Analytical Chemistry) Moscow Izd-vo An SSSR, 1958. 366 p. [Series: Its: Trudy, t. 9 (12)] Errata slip inserted. 3,000 copies printed.

Resp. Ed.: I.P. Alimarin, Corresponding Member, USSR Academy of Sciences; Ed. of Publishing House: A.N. Yermakov; Tech. Ed.: T.V. Polyakova.

PURPOSE: The book is intended for chemists and chemical engineers concerned with work in analytical chemistry.

COVERAGE: The book is a collection of the principal papers presented in Moscow at the Second Conference on the Use of Radioactive Isotopes. The problems discussed at the Conference included coprecipitation, aging, and solubility of precipitates, determination of the instability constants

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of complex compounds, separation of rare earth metals, and ion-exchange chromatography. No personalities are mentioned. There are 351 references, 175 of which are Soviet, 33 German, 19 French, 3 Swedish, 2 Hungarian, and 2 Czech.

TABLE OF CONTENTS:

Use of Radioactive Isotopes (Cont.) SOV/1900

Grizik, A.A., and I.I. Marunina. Methodology of Using Radioactive Indicators for the Process Control in the Production of Rare Metals 333

Starik, I. Ye., E.V. Sobotovich, G.P. Lovtsyus, and V.P. Nesterov. Pyrochemical Methods for the Quantitative Recovery of Lead from Rocks with the Aid of Radioactive Control 341

Karasev, K.I., and T.N. Mukhina. Use of the Tagged Atom Method for the Determination of the Efficiency of Fractionation of Gaseous Hydrocarbons 349

Krasnousov, L.A., Ye. V. Volkova, and P.V. Zimakov. Use of the Chlorine Isotope Cl^{36} for the Quantitative Determination of the Content of Hexachlorocyclohexane Isomers in Technical Grade Hexachloran 356

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APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7"

"APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7

MARUNINA, N. I., GRIZIK, A. A., and BYKOVSKAYA, Yu. I.

"Use and methodology of radioactive indicators."

report presented at The Use of Radioactive Isotopes in Analytical Chemistry, Conference in Moscow, 2-4 Dec 1957
Vestnik Ak Nauk SSSR, 1958, No. 2, (author Rodin, S. S.)

APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7"

"APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7

SOV/[illegible]

Translation from: Referativnyy zhurnal. Metallurgiya. 1959 Nr 2 p 247 (USSR)

AUTHORS: Grizik, A A Marunina, N I

TITLE: Methodological Problems in the Use of Radioactive Tracers for the Control of Processes of the Recovery of Rare Metals (Metodicheskie voprosy primeneniya radioaktivnykh indikatorov dlya kontrolya tekhnologii polucheniya redkikh metallov)

PERIODICAL: Tr. Komis. po analit khim., AN SSSR, 1958, Vol 9 (12) pp [illegible] 340

ABSTRACT: The authors examine some methodological problems that arise in the use of radioactive tracers (RT) for the control of processes of the recovery of rare metals and examine in detail the advantages and shortcomings connected with the application of RT. Recommendations are made for the selection of methods for the mass analysis of specimens for Ta and Nb with a view of decreasing the consumption of these materials. The design of a device for measuring the activity at different points of the ingot examined and the results of experiments conducted in the investigation of distribution of Sb along a Ge single crystal which was obtained by drawing from a melt are described. An exten-

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SOV/137-59-1-495

Methodological Problems in the Use of Radioactive Tracers for the Control (cont.)

application of the autoradiographic method is noted and the technique of the control of the homogeneity of alloys based on rare metals such as Be, Sb, Te, Ga and Ti is described. It is pointed out that the method of introduction of RT is very important for obtaining correct control results. The tracer and the admixture should be in the same chemical state in the feed substance. Therefore a specific method of introduction of RT is selected for each particular case. Examples are adduced of the introduction of RT into niobium pentoxide which is the raw material in preparation of metallic Nb.

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Card 2/2

APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7"

"APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7

VLASOVA, I.V.; DENISOV, A.F.; ZIMINA, G.V.; MARUNINA, N.I.; NALIMOV, V.V.; SUKHOV, G.V.

Application of consecutive analysis to radiometric measurements. Zav.lab. 27 no.10:1261-1264 '61. (MIRA 14:10)

1. Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut redkometallicheskoy promyshlennosti.
(Radioisotopes)

APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7"

"APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7

MARUNOV, Yu.

Foreign capital and Turkish oil. Vnesh. torg. 27 no.7:22-24 '57.
(Turkey--Petroleum industry) (MLRA 10:8)
(Turkey--Investments, Foreign)

APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7"

"APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7

L 23881-65 EWT(m)/EPF(n)-2/EPR/EWP(t)/EWP(b) Ps-4/Pu-4 IJP(c) JD/JG/MLK

ACCESSION NR: AT5002759 S/0000/64/000/000/0066/0070

AUTHOR: Bibikova, V.I., (Doctor of technical sciences); Marunova, K.V.; Karyakin, A.V.; Petrov, A.V.

TITLE: Extraction method of obtaining pure ammonium perrhenate

SOURCE: Vsesoyuznoye soveshchaniye po probleme reniya. 2d, Moscow, 1962. Reniy (Rhenium); trudy soveshchaniya. Moscow, Izd-vo Nauka, 1964, 66-70

TOPIC TAGS: rhenium, rhenium extraction, ammonium perrhenate, tributyl phosphate, potassium perrhenate, rhenium refining

ABSTRACT: The authors studied an extraction method for obtaining ammonium perrhenate from potassium perrhenate, which was found to be extracted best by tributyl phosphate from weakly acidic media (0.3 N HCl). The optimum conditions for this extraction were established, and a flow diagram of the process based on this extraction and resulting in ammonium perrhenate as the end product is given. The ammonium perrhenate obtained is sufficiently free of impurities to be used for the preparation of pure rhenium metal. The effectiveness of the purification of rhenium during extraction and reextraction was checked by using radioactive isotopes (K^{42}, Ni^{59}, ^{63}, Sn^{113}, ^{123}, Ca^{45}, S^{35}, Mo^{99},

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ACCESSION NR: AT5002759

$Fe^{55, 59}$, and Cu^{64}). From the results obtained, the coefficients of purification, distribution, and separation were calculated. Infrared spectra of tributyl phosphate saturated with 0.3 N HCl and of tributyl phosphate rhenium extracts were found to be similar and led the authors to the conclusion that the extraction of rhenium proceeds via a hydration - solvation mechanism with the formation of the hydroxyl ion, i.e., with the participation of water. Orig. art. has: 4 figures and 2 tables.

ASSOCIATION: none

SUBMITTED: 05Aug64 ENCL: 00 SUB CODE: MM

NO REF SOV: 003 OTHER: 002

Card 2/2

APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7"

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L 52977-65 EWT(m)/EWP(t)/EWP(b) IJP(c) JD/JG

ACCESSION NR: AP5009952 UR/0078/65/010/004/0986/0991

AUTHOR: Petrov, A. V.; Karyakin, A. V.; Marunova, K. V.

16
13
B

TITLE: Mechanism of extraction of rhenium by tributylphosphate

27

SOURCE: Zhurnal neorganicheskoy khimii, v. 10, no. 4, 1965, 986-991

TOPIC TAGS: tributylphosphate, rhenium, hydrochloric acid, extraction, spectrophotometry

ABSTRACT: Changes in the P-O-C and P=O groups were studied by absorption spectroscopy in the stretching vibration range. A VR-10 double beam spectrophotometer was used. O-H vibrations were studied in the region of the principal frequencies (3000-4000 cm^{-1}) as well as in the overtone region (6000-8000 cm^{-1}). The overtone absorption bands were found to be more sensitive to changes of the intermolecular interaction than the principal bands. For investigation in the overtone region a special high dispersion instrument was used, based on the ISP-51 spectrograph. It was found that the P=O group of tributylphosphate is strongly bound to water molecules through hydrogen bonds. When dry HCl or $HReO_4$ are introduced into dry

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ACCESSION NR: AP5009952

tributylphosphate the following complexes are formed: $(C_4H_9O)_3PO...HCl$ and $(C_4H_9O)_3PO...HReO_4$. When HCl or $HReO_4$ are introduced into tributylphosphate containing a small amount of water, hydration of the proton occurs at the expense of the destruction of bonds between water molecules and solvent, with production of $H_9O_4^+$ ion. This ion is joined to the P=O group of tributylphosphate. When HCl and $HReO_4$ are extracted from water, complexes of the following type are formed:

$[(C_4H_9O)_3PO...H_9O_4]^+Cl^-$ and $[(C_4H_9O)_3PO...H_9O_4]^+ReO_4^-$.

The presence of HCl in the aqueous phase is necessary for the creation of the cationic part of the extracted complex, however, since the extraction mechanism for HCl and $HReO_4$ is the same, the presence of excess HCl in water hinders the extraction of Re due to competition for the place in the anionic part of the extracted complex. An optimum value of the concentration of HCl in the solution was determined (3M), which is in agreement with the previously obtained experimental data. The increase of ReO_4^- concentration in the solution decreases the solubility of water in the organic phase. Orig. art. has: 2 tables and 5 figures.

Card 2/3

APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7"

"APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7

L 52977-65

ACCESSION NR: AP5009952

ASSOCIATION: Institut geokhimii i analiticheskoy khimii im. V. I. Vernadskogo AN SSSR (Institute of Geochemistry and Analytical Chemistry, AN SSSR); Volgogradskiy politekhnicheskiy institut (Volgograd Polytechnic Institute); Gosudarstvennyy institut redkikh metallov (State Institute of Rare Metals)

SUBMITTED: 19May64 ENCL: 00 SUB CODE: GC, OP

NO REF SOV: 006 OTHER: 005

APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7"

"APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7

PETROV, A.V.; KARYAKIN, A.V.; MARUNOVA, K.V.

Mechanism of rhenium extraction with tributyl phosphate. Zhur. neorg.khim. 10 no.4:986-991 Ap '65. (MIRA 18:6)

1. Institut geokhimii i analiticheskoy khimii imeni Vernadskogo AN SSSR, Volgogradskiy politekhnicheskiy institut i Gosudarstvennyy institut redkikh metallov.

APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7"

"APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7

ACC NR: AT6034482 (A) SOURCE CODE: UR/0000/66/000/000/0157/0163

AUTHOR: Pikunov, M. V.; Koroleva, N. P.; Marunova, K. V.; Pavlova, Ye. I.

ORG: GIREDMET

TITLE: Growing single crystals of rhenium by zone melting with an electron beam

SOURCE: Rost i nesovershenstva metallicheskikh kristallov (Growth and defects of metal crystals). Kiev, Naukova dumka, 1966, 157-163

TOPIC TAGS: rhenium, metal zone refining, single crystal growth, x ray diffraction study, crystal impurity

ABSTRACT: The authors studied the effect of composition of the starting material, and of the speed and number of passes on the quality and purity of single crystals of rhenium obtained by zone melting with an electron beam. The total amount of impurities (some 26 elements), originally about $2 \times 10^{-2}\%$, was reduced after three or four passes to about $3 \times 10^{-3}\%$, the limit of detectability. The atmosphere (vacuum or hydrogen) had little effect on purification. Surprisingly, no direct connection was found between the degree of purification and the vapor pressure of the impurities. For instance, iron and molybdenum were removed at about the same rate, although their vapor pressures, at the temperature of rhenium melting, differ by a factor of 1000. After two or three passes, the rhenium rods became single crystals. Their

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ACC NR: AT6034482

microstructure and preferential direction of growth was investigated by electropolishing and subsequent x ray diffraction. The microhardness in different planes was also investigated. Orig. art. has: 5 figures and 3 tables.

SUB CODE: 11,13/ SUBM DATE: 22Jun66/ ORIG REF: 002/ OTH REF: 007

Card 2/2

APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7"

"APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7

MARUPOV, M.

Marupov, M.

"Seeking Possibilities for Improving the Quality of Tow Fiber of Flax Varieties of Stem Embari Temp in Primary Processing." Min Higher Education USSR. Moscow Textile Inst. Moscow, 1955. (Dissertation for the Degree of Candidate in Technical Science)

SO: Knizhnaya Letopis' No. 22, 2 July 1955

APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7"

"APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7

68895

S/051/60/008/02/022/036

E201/E391

AUTHORS: Al'perovich, L.I., Sherbal, I.D. and Marupov, R.

TITLE: On the Origin of Luminescence of Liquids Under the Action of Hard Radiations

PERIODICAL: Optika i spektroskopiya, 1960, Vol 8, Nr 2, pp 259 - 261 (USSR)

ABSTRACT: The authors compared intensities of luminescence of certain aromatic and non-aromatic solvents and solutions excited with X-rays from a tube across which voltage was varied from 30 to 200 kV (at these voltages Vavilov-Cherenkov radiation is not emitted). The same samples were subjected also to excitation with γ-rays from Co 60 (10 millicuries), using a technique described by Kallman and Furst (Ref 1). The intensity of luminescence was measured with a photomultiplier FEU-19M. In measurements using X-rays the effect of secondary and scattered radiation was allowed for. The authors measur the concentration dependences of the intensity of luminescence of solutions of anthracene, naphthalene, β-naphthylamine, phenanthrene and stilbene in xylene,

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"APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7

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E201/E391

On the Origin of Luminescence of Liquids Under the Action of Hard Radiations

benzene, toluene and dioxane. Some of these dependences are shown in a figure on p 260. The results obtained indicate a considerable similarity of luminescence of solutions excited with X-rays and γ-rays. The authors studied also X- and γ-excited luminescence of pure solvents: xylene, toluene, benzene, dioxane, CCl_4, methyl alcohol and water (the results are given in a table on p 261). It was found that pure non-aromatic liquids emit practically no luminescence when irradiated with X-rays and their luminescence excited with γ-rays is to Vavilov-Cherenkov radiation. In pure aromatic liquids both luminescence and Vavilov-Cherenkov radiation are produced together. Acknowledgment is made to M.D. Galanin for discussion of the results. There are 1 figure, 1 table and 5 references, 4 of which are Soviet and 1 English.

SUBMITTED: July 24, 1959

Card 2/2

APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7"

"APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001032620019-7

STEPANOV, B.I.; ZHBANKOV, R.G.; MARUPOV, R.

Structure of cellulose hydrate. Vysokom.soed. 3 no.11:1633-1640 N '61. (MIRA 14:11)

1. Institut fiziki AN SSSR.

(Cellulose)

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STEPANOV, B.I.; JBANKOV, R.G. [Zhbankov, R.G.]; MARUPOV, R.

Structure of cellulose hydrate. Analele chimie 17 no.2: 34-41 Ap-Je '62.

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ZHBANKOV, R.G. [Zhbankou, R.H.]; MARUPOV, R. [Marupau, R.]; BALA[illegible]YEVA, M.D.; TYUGANOVA, M.A. [TSiuhanava, M.A.]; LISHEVSKAYA, M.O. [Lisheuskaia, M.A.

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MARUPOV, R.

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1. Institut fiziki AN BSSR i Moskovskiy tekstil'nyy institut.

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Infrared spectra of cellulloses of different origin and age. Part 1. Annuals. Vestsi AN BSSR. Ser. fiz.-tekh. nav. no.: 65-70 '63. (MIRA [illegible])

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L 49769-65 EWT(m) RM
ACCESSION NR: AR5012250 UR/0058/65/000/003/D032/D032

SOURCE: Ref. zh. Fizika, Abs. 3D231

AUTHORS: Zhbankov, R. G.; Marupov, R.; Ivanova, N. V.; Prima, A. M.

TITLE: Features of infrared spectra of hydrocarbons

CITED SOURCE: Tr. Komis. po spektroskopii. AN SSSR, vyp. 1, 1964, 337-348

TOPIC TAGS: infrared spectrum, hydrocarbon, saccharide, cellulose

TRANSLATION: The spectra of a large number of hydrocarbons, namely mono-, di-, and polysaccharides and their substitutes, are compared. It is shown that changes in the structure have a strong effect on the infrared spectra of this class of compounds. The interpretation of a series of fundamental frequencies is made more precise. It is concluded that account must be taken of the confirmational factors in the analysis of infrared spectra of hydrocarbons. Considerable attention is paid to an investigation of the spectra of the most important natural high polymer - cellulose in different structural modifications.

SUB CODE: QP, QC ENCL: 00

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PRIMA, [illegible] M.; ZUBANKOV [illegible]

Study [illegible] charides. [illegible]

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1. Moskovskiy tekstil'nyy institut i Institut fiziki AN BSSR.

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(CYSTS) (JAWS--TUMORS) (DIAGNOSIS, RADIOSCOPIC)

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MARUS, V.A., assis[illegible]

X-ray diag[illegible] [illegible] (MIRA [illegible])
chel.[illegible]

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Praha, Czechoslovakia

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