L 24492-66 EWT(m)/EWP(j)/T IJP(c) WW/RM
ACC NR: AP6006977 (A) SOURCE CODE: UR/0190/66/008/002/0240/0246

AUTHORS: Kavalyunas, R. I.; Shershneva, G. D.; Livshits, R. M.; Rogovin, Z. A.

ORG: Moscow Textile Institute (Moskovskiy tekstil'nyy institut)

TITLE: Synthesis, characterization, and certain properties of cellulose acetates and poly-2-methyl-5-vinylpyridine graft copolymers (193rd report in the series "Study of the structure and properties of cellulose and its derivatives")

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 8, no. 2, 1966, 240-246

TOPIC TAGS: cellulose plastic, graft copolymer, redox reaction

ABSTRACT: Synthesis and properties of graft copolymers of secondary cellulose acetate (I) and cellulose triacetate (II) with poly-2-methyl-5-vinylpyridine (III) are described. The products are of interest because the presence of III (containing ionogenic groups) imparts to I and II such valuable properties as enhanced adhesion, ion exchangeability, and antistatic behavior. The graft copolymerization was performed according to the method described in an earlier paper by B. P. Morin, Yu. G. Kryazhev, and Z. A. Rogovin (Vysokomolek. soyed., 7, 1463, 1965). This method involves thermal decomposition of peroxides prepared by oxidation of

Card 1/3 UDC: 541.64+661.728.82+678.746

ACC NR: AP6006977 C

the polymers H_2O_2-Fe^{2+} (or Fe^{3+}) redox system. Content of III in the product is determined by the concentration of H_2O_2 and by the time of oxidation. Material containing up to 64% of grafted III was obtained. However, about 70% of cellulose acetates does not enter the reaction. Solubility of graft copolymer of I and III and solubilities of I, III, and the mechanical mixture of I and III, were investigated by turbidometric titration, and the results are summarized in Fig. 1.

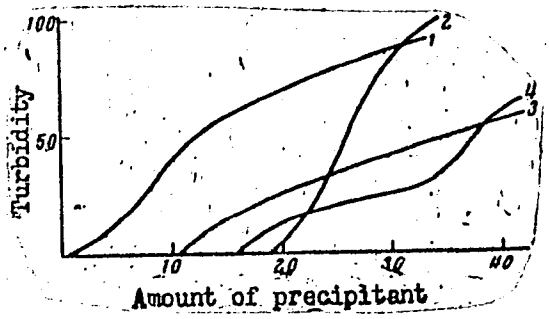


Fig. 1. Turbidity as a function of the amount of the precipitant. Precipitant - petroleum ether; concentration of the initial solution 0.005 g/ml; temperature 25C; feed-0.2 ml/1 cycle; operating cycle 170 sec. Amount of initial solution 50 ml. 1 - graft copolymer; 2 - III; 3 - I; 4 - mechanical mixture of I and III.

Viscosity of the graft copolymer exceeds that of either homopolymer. Addition of the graft copolymer to the mechanical mixture of I and II with III results in

stable solutions. The authors express their gratitude to G. I. Volkova of MTIMMP laboratory for performing turbidimetric titrations. Orig. art. has: 3 figures and 3 tables.

SUB CODE: 07/ SUBM DATE: 25Feb65/ ORIG REF: 006/ OTH REF: 003

L 36371-66 EWP(j)/EWT(m)/T RM/WW

ACC NR: AP6009879 (A) SOURCE CODE: UR/0413/66/000/004/0070/0070

INVENTOR: Gulina, A. A.; Domiteyeva, I. A.; Livshits, R. M.; Rogovin, Z. A. 30 B

ORG: none

TITLE: Preparation of graft copolymers. Class 39, No. 178987

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 4, 1966, 70

TOPIC TAGS: copolymer, graft copolymer, redox system, vinyl monomer

ABSTRACT: An Author Certificate has been issued describing a method of preparing graft copolymer in the presence of the redox system: metal of variable valence and oxidizer. To increase the reaction rate and lower the reaction modulus and temperature, the process is conducted in aqueous emulsions of the monomer in the presence of an emulsifier. [LD]

SUB CODE: 11/ SUBM DATE: 14Nov64

Card 1/1 UDC: 677.862.25

L [illegible] EWT(m)/EWP(j) IJP(c) WW/RM

ACC NR: AP6002209 (A) SOURCE CODE: UR/0153/65/008/005/0825/0828

AUTHOR: Morozov, V. A.; Sharova, V. V.; Livshits, R. M.; Malakhov, R. A.; Rogovin, Z. A.

ORG: Moscow Textile Institute, Department of Chemical Fibers (Moskovskiy tekstil'nyy institut, Kafedra khimicheskikh volokon)

TITLE: Synthesis of graft copolymers of polyvinyl alcohol and methylacrylate in the presence of tetravalent cerium salts

SOURCE: IVUZ. Khimiya i khimicheskaya tekhnologiya, v. 8, no. 5, 1965, 825-828

TOPIC TAGS: graft copolymer, polyvinyl alcohol, cerium compound, hydroquinone, acetone

ABSTRACT: The synthesis of graft polyvinyl alcohol copolymers is based on the fact that the oxidation of hydroxyl-containing polymers by Ce^{4+} passes through the formation of free macroradicals capable of initiating the graft copolymerization of monomers contacting vinyl. To avoid the formation of homopolymers, the synthesis time selected was smaller than the induction period of monomer homopolymerization. Polyvinyl alcohol, completely soluble in water, was used in the experiments. The necessary amount of monomer was poured into an aqueous solution of polyvinyl alcohol, and a homogeneous solution or emulsion of methylacrylate was obtained, after shaking, at monomer concentration > 0.446 mole/l. The mixture was thermostated at a definite temperature and

Card 1/2

L 08905-67

ACC NR: AP6002209

0.1 N solution of Ce ammonium nitrate in 1 N HNO_3, thermostated at the same temperatum, was poured into the mixture. The reaction was stopped by the addition of hydroquinone. The mixture was then poured into acetone, taken in 20-30-fold excess amount, and, after precipitation, filtered out and dried. The composition of the graft copolymer was determined from the saponification number. A complete conversion of the monomer occurred at the end of 1 hr at 20C and under the following conditions: concentration of 5.0×10^{-2} mole/l Ce^{4+}, 0.5575 mole/l methylacrylate, 0.1 mole/l HNO_3, and 5% polyvinyl alcohol. The copolymer contained 50.3% polyvinyl alcohol and 49.7% polymethylacrylate. The amount of graft polyvinyl alcohol copolymer increased with increased concentration of Ce^{4+} regardless of temperature (5, 10, and 20C) and the duration of the reaction (2 and 1 hr). An increase in the temperature and in the amount of methylacrylate increased the rate of graft copolymerization, but the amount of graft copolymer depended very little on the acid concentration. The properties of synthesized graft copolymers will be discussed in the next paper. Orig. art. has: 2 fig. and 3 tables.

SUB CODE: 07/ SUBM DATE: 16Nov63/ ORIG REF: 002/ OTH REF: 004

Card 2/2

ACC NR: AP7011817 SOURCE CODE: UR'0063'66/011'006'0657 0664

AUTHOR: Virnik, A. D. (Candidate of Technical Sciences); Gal'braykh, L. S. (Candidate of Technical Sciences); Livshits, R. M. (Candidate of Technical Sciences)

ORG: none

TITLE: Chimical Fibers with special properties

SOURCE: Vsesoyuznoye khimicheskoye obshchestvo, Zhurnal, v. 11, no. 6, 1966, 657-664

TOPIC TAGS: synthetic fiber, fire resistant material, textile

SUB CODE: 11

ABSTRACT: A review on special purpose chemical fibers covers chemical fibers having antibacterial and antimildew properties, flame resistant fibers, fibers and textiles having ion exchange properties, and fibers having complex properties and semiconductor properties. The review covers new methods of preparation, toxic and hygienic requirements, and treatment of fibrous materials to render them special properties. The review contains 131 references, most of which are western sources. [JPRS: 40,361]

Card 1/1 0732 UDC: 677.46.04:03

ACC NR: AP7005651 (A) SOURCE CODE: UR/0413/67/000/002/0100/0101

INVENTOR: Lobachev, M. V.; Sokol'skiy, M. N.; Stanevich, A. Ye; Yaroslavskiy, N. G.

ORG: None

TITLE: A double-beam spectrophotometer. Class 42, No. 190615 [announced by the Leningrad Opticomechanical Society (Leningradskoye optiko-mekhanicheskoye ob"yedineniye)]

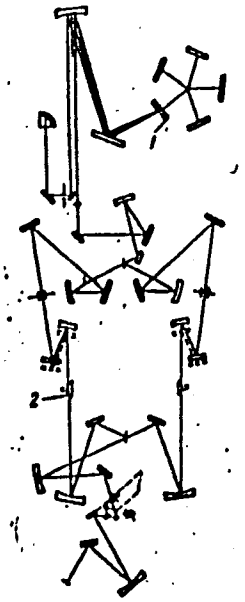
SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 2, 1967, 100-101

TOPIC TAGS: spectrophotometer, IR optic system, diffraction grating, optic instrument

ABSTRACT: This Author's Certificate introduces: 1. A double-beam spectrophotometer with diffraction (echelette) gratings for operation in the far infrared spectral region (50-1000 μ). The luminosity of the instrument is increased by making the gratings 1.5 times longer in the direction of the lines than in the direction of dispersion. 2. A modification of this spectrophotometer designed for measuring reflection spectra. A prism is mounted in the cell compartment with reflecting surfaces which break up the radiation flux with simultaneous displacement of the focusing elements.

Card 1/2 UDC: 53.853.36

ACC NR: AP7005651



1--grating; 2--prism

SUB CODE: 20 / SUBM DATE: 16Jul65

Card 2/2

ACC NR: AP7011817 SOURCE CODE: UR'0063'66/011'006'0657'0664

AUTHOR: Virnik, A. D. (Candidate of Technical Sciences); Gal'braykh, L. S. (Candidate of Technical Sciences); Livshits, R. M. (Candidate of Technical Sciences)

ORG: none

TITLE: Chimical Fibers with special properties

SOURCE: Vsesoyusnoye khimicheskoye obshchestvo, Zhurnal, v. 11, no. 6, 1966, 657-664

TOPIC TAGS: synthetic fiber, fire resistant material, textile

SUB CODE: 11

ABSTRACT: A review on special purpose chemical fibers covers chemical fibers having antibacterial and antimildew properties, flame resistant fibers, fibers and textiles having ion exchange properties, and fibers having complex properties and semiconductor properties. The review covers new methods of preparation, toxic and hygienic requirements, and treatment of fibrous materials to render them special properties. The review contains 131 references, most of which are western sources. [JPRS: 40,361]

Card 1/1 UDC: 677.46

LIVSHITS, R. O.

Mbr., Obstet. & Gynecological Clinic, Belorussian Med. Inst.,

-c1948-c49-.

"The Permeability of Penicillin through the Placenta Barrier,"

Akusher. i Ginekol., No. 6, 1948;

"Pencillin in the Prophylaxis against Puerperal Disease

and Postoperative Complications," Sov. Med., No. 3, 1949.

LIVSHITS, R. O.
CA

11 H

Concentration of penicillin in the blood with different dosages and methods of administration. L. I. Kasterovich and R. O. Livshits. Antibiot. Med. 18, No. 10, 28-9(1948). —Intramuscular administration of 12,000-100,000 units of penicillin leads to somewhat longer retention of higher doses (detectable after 3 hrs. with 100,000 unit dose, but only traces with 50-60,000 dose) and slightly higher concns. throughout the retention period. The Dorohoke method (injection of 10-15 ml. 10% NaCl just before and just after injection of 20-50,000 units of penicillin intramuscularly) gave a high blood level for 3 hrs., and detectable in 6 hrs. Preinjection of 10 ml. 10% Ca gluconate, followed by 100,000 units of penicillin, gave high blood level for 4-6 hrs., detectable even in 12-14 hrs. Penicillin suspension in bees oil (100,000-200,000 units) gave no detectable blood penicillin after injection; the use of penicillin-benzene-ointment oil preps. at 200,000 unit level gave max. level in the blood after 7-8 hrs. and was detectable even after 24 hrs. Injection of penicillin into a thoroughly chilled (by ice) muscle mass gave max. blood level after 5-6 hrs. but a sharp disappearance occurs after 7 hrs. Intraperitoneal injection (without other anesthesia) of 200,000 units gave max. blood level at 3 hrs. and detectable level for 4 hrs. G. M. Kanitopoff

LI/SHITS, R.O.;KANTOROVICH, L.I.

Method of combined application of penicillin and ether in surgery of the abdominal cavity. Khirurgiia, Moskva no.3:55-56 Mar 1952. (CLML 22:1)

1. Of the Obstetric-Gynecological Clinic (Director -- Honored Worker in Science Prof. M. L. Vydrin, deceased), Minsk Medical Institute.

LIVSHITS, R.O., kand.med.nauk

Ways of reducing gynecological morbidity among industrial workers. Zdrav. Belor. 6 no.4:39-41 Ap '60. (MIRA 14:5)

1. Iz Instituta okhrany materinstva i detstva BSSR.
(MINSK—WOMEN—DISEASES AND HYGIENE)
(INDUSTRIAL HYGIENE)

[illegible], LIVSHIT[illegible], [illegible]

Alkaloids

Isoquinoline compounds. Part 5. Synthesis of the natural alkaloid emetine.
Zhur. ob. khim. 22 no. 8, 1952.

9. Monthly List of Russian Accessions, Library of Congress, November 1953, Uncl.

Livshits, Raisa Salomonova

Ocherki po razmeshcheniyu promyshlennosti SSSR. Leningrad, Gospolitizdat, 1954.

358 p. tables. 21 cm.

At head of title: Akademiya Nauk SSSR. Institut Ekonomiki.

Bibliographical footnotes.

LIVSHITS, R. S.

Mbr., Moscow Inst. Fine Chem. Tech. im. M. V. Lomonosov, -1944-c48-.

"Synthetic Studies on Meroquinene," Zhur. Obshch. Khim., 15, Nos. 4-5, 1945;

"Studies in the Field of the Synthesis of the Alkaloid Emetine," ibid., Nos. 9-10, 1945;

"Investigating the Series of Isochinolic Unions: Synthesis of Iodo-n-Methyl-1-(4'-Metoxin-Benzyl)-6-Metoxin-1,2,3,4,-Tetrahydroisophenal Methane," ibid., 17, No. 9, 1947;

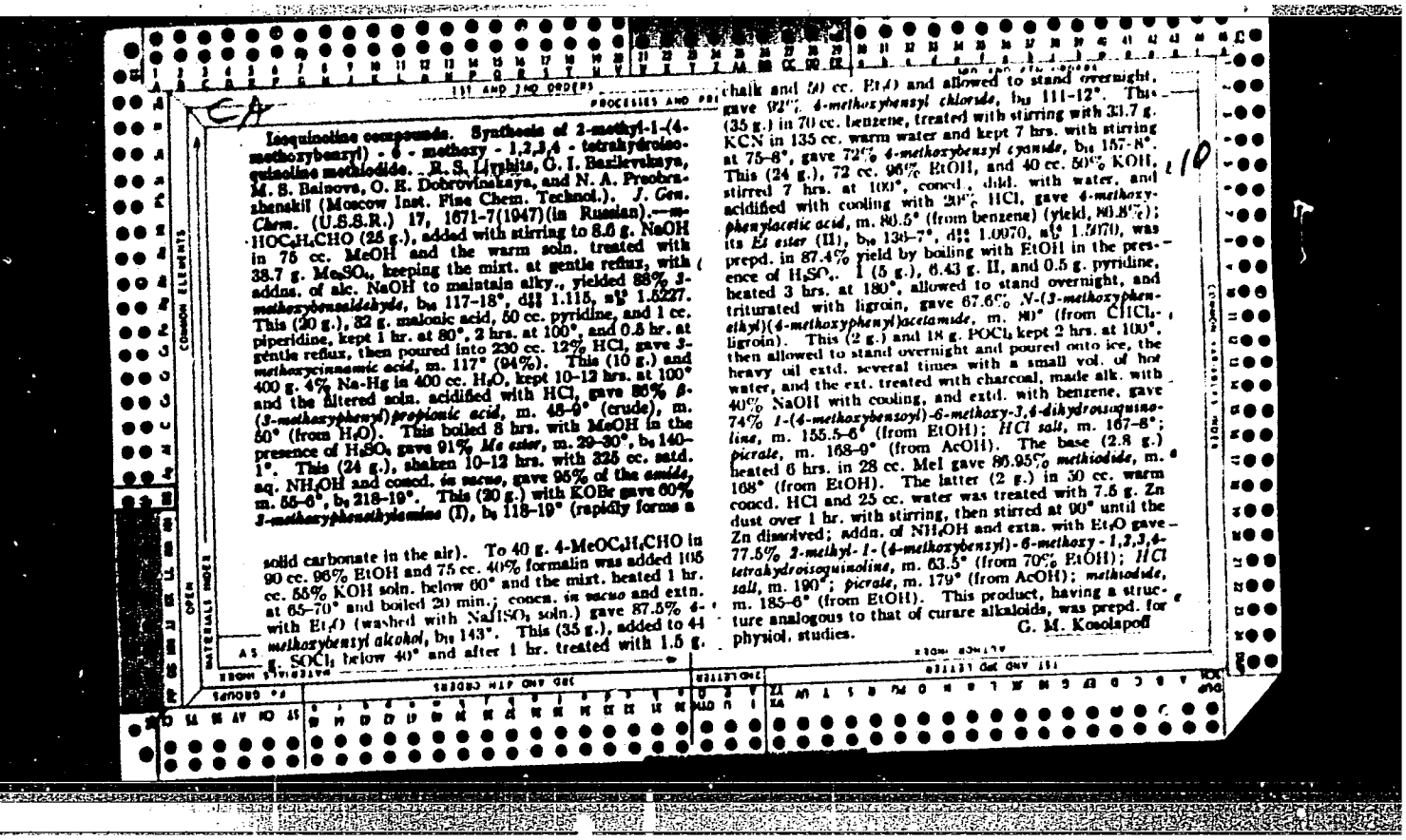
"Studies of a Series of Isoquinoline Compounds: Synthesis of Quaternary Derivatives of Hydrocotarnine," ibid., 18, No. 8, 1948;

"New Synthesis of the Alkaloid Emetine," Dok. AN, 75, No. 4, 1950.

Synthesis of the alkaloid emetine. I. Synthesis of α-methyl-δ-valerolactone-γ-carboxylic acid. R. S. Livshits, N. A. Preobrazhenskii, and M. S. Bardinskaya (Moscow Inst. Chem. Technol.). *J. Gen. Chem.* (U.S.S.R.) 15, 860-6(1945). When 2 moles MeCNa($CO_2Et)_2$ are condensed with 1 mole $Cl(CH_2)_2CO_2Et$, they give 78% *di-Et α-methyl-α-carbethoxyglutarate* (I), b_4 132°, n_D^{20} 1.4330, d_4^{20} 1.0735, MR_D calcd. 67.97, found 67.92. I, boiled 20 hrs. with HCl, gave 92% α-methylglutaric acid, b_{12} 195-6°, m. 78°, which on vacuum distn. partly decompd. to the anhydride. Esterification of this distn. mixt. gave 85% *di-Et α-methylglutarate* (II), b_8 78-80°, n_D^{20} 1.4285, d_4^{20} 1.0045, MR_D calcd. 51.44, found 51.52. II was treated with Na in abs. xylene and then with HCO_2Na; the mixt. was decompd. with ice, the H_2O layer extd. with Et_2O, and the ext. reduced with Al-Hg. During vacuum distn. the product lost EtOH and formed 60% *Et α-methyl-δ-valerolactone-γ-carboxylate*, b_3 161-2°, n_D^{20} 1.4508, d_4^{20} 1.1002, MR_D calcd. 44.66, found 45.54. Hydrolysis with HCl gave the free *acid*, b_3 185-90°, m. 104-6°. Heating with alkali opened the lactone ring.

H. M. Leicester

A S B - S L A METALLURGICAL LITERATURE CLASSIFICATION



Isoquinoline compounds. Synthesis of 2-methyl-1-(4-methoxybenzyl) - 6 - methoxy - 1,2,3,4 - tetrahydroisoquinoline methiodide. R. S. Livshits, O. I. Bazilevskaya, M. S. Baisova, O. E. Dobrovinskaya, and N. A. Preobrazhenskii (Moscow Inst. Fine Chem. Technol.). *J. Gen. Chem.* (U.S.S.R.) 17, 1671-7(1947)(in Russian).—*m*-HOC_6H_4CHO (25 g.), added with stirring to 8.6 g. NaOH in 75 cc. MeOH and the warm soln. treated with 38.7 g. Me_2SO_4, keeping the mixt. at gentle reflux, with addns. of alc. NaOH to maintain alky., yielded 88% *3-methoxybenzaldehyde*, b_{16} 117–18°, d_4^{25} 1.115, n_D^{25} 1.5227. This (20 g.), 32 g. malonic acid, 50 cc. pyridine, and 1 cc. piperidine, kept 1 hr. at 80°, 2 hrs. at 100°, and 0.5 hr. at gentle reflux, then poured into 230 cc. 12% HCl, gave *3-methoxycinnamic acid*, m. 117° (94%). This (10 g.) and 400 g. 4% Na-Hg in 400 cc. H_2O, kept 10–12 hrs. at 100° and the filtered soln. acidified with HCl, gave 86% *β-(3-methoxyphenyl)propionic acid*, m. 48–9° (crude), m. 50° (from H_2O). This boiled 8 hrs. with MeOH in the presence of H_2SO_4 gave 91% *Me ester*, m. 29–30°, b_6 140–1°. This (24 g.), shaken 10–12 hrs. with 325 cc. satd. aq. NH_4OH and concd. *in vacuo*, gave 95% of the *amide*, m. 55–6°, b_6 218–19°. This (20 g.) with KOBr gave 60% *3-methoxyphenethylamine* (I), b_6 118–19° (rapidly forms a solid carbonate in the air). To 40 g. 4-$MeOC_6H_4CHO$ in 90 cc. 96% EtOH and 75 cc. 40% formalin was added 105 cc. 55% KOH soln. below 60° and the mixt. heated 1 hr. at 65–70° and boiled 20 min.; concn. *in vacuo* and extn. with Et_2O (washed with $NaHSO_3$ soln.) gave 87.5% *4-methoxybenzyl alcohol*, b_6 143°. This (35 g.), added to 44 g. $SOCl_2$ below 40° and after 1 hr. treated with 1.5 g. chalk and 50 cc. Et_2O and allowed to stand overnight, gave 92% *4-methoxybenzyl chloride*, b_{16} 111–12°. This (35 g.) in 70 cc. benzene, treated with stirring with 31.7 g. KCN in 135 cc. warm water and kept 7 hrs. with stirring at 75–8°, gave 72% *4-methoxybenzyl cyanide*, b_{16} 157–8°. This (24 g.), 72 cc. 96% EtOH, and 40 cc. 50% KOH, stirred 7 hrs. at 100°, concd., dild. with water, and acidified with cooling with 20% HCl, gave *4-methoxyphenylacetic acid*, m. 80.5° (from benzene) (yield, 80.8%); its *Et ester* (II), b_{16} 138–7°, d_4^{25} 1.0070, n_D^{25} 1.5070, was prepd. in 87.4% yield by boiling with EtOH in the presence of H_2SO_4. I (5 g.), 6.43 g. II, and 0.5 g. pyridine, heated 3 hrs. at 180°, allowed to stand overnight, and triturated with ligroin, gave 67.6% *N-(3-methoxyphenethyl)(4-methoxyphenyl)acetamide*, m. 80° (from $CHCl_3$-ligroin). This (2 g.) and 18 g. $POCl_3$ kept 2 hrs. at 100°, then allowed to stand overnight and poured onto ice, the heavy oil extd. several times with a small vol. of hot water, and the ext. treated with charcoal, made alk. with 40% NaOH with cooling, and extd. with benzene, gave 74% *1-(4-methoxybenzoyl)-6-methoxy-3,4-dihydroisoquinoline*, m. 155.5–6° (from EtOH); *HCl salt*, m. 167–8°; *picrate*, m. 168–9° (from AcOH). The base (2.8 g.) heated 6 hrs. in 28 cc. MeI gave 86.95% *methiodide*, m. 168° (from EtOH). The latter (2 g.) in 50 cc. warm concd. HCl and 25 cc. water was treated with 7.5 g. Zn dust over 1 hr. with stirring, then stirred at 90° until the Zn dissolved; addn. of NH_4OH and extn. with Et_2O gave 77.5% *2-methyl-1-(4-methoxybenzyl)-6-methoxy-1,2,3,4-tetrahydroisoquinoline*, m. 63.5° (from 70% EtOH); *HCl salt*, m. 190°; *picrate*, m. 179° (from AcOH); *methiodide, salt*, m. 190°; *picrate*, m. 185–6° (from EtOH). This product, having a structure analogous to that of curare alkaloids, was prepd. for physiol. studies.

G. M. Kosolapoff

LIVSHITS, R. S.

PA 19/49T22

USSR/Chemistry - Isoquinolene
Chemistry - Synthesis

Aug 48

"Studies of a Series of Isoquinoline Compounds: Synthesis of Quaternary Derivatives of Hydrocotarnine," R. S. Livshits, Yu. M. Agul'nik, N. A. Preobrazhenskiy, Moscow Inst of Fine Chem Tech imeni M. V. Lomonosov, 4 pp

"Zhur Obshch Khimii" Vol XVIII (LXXX), No 8

Describes synthesis of iodoalkyls of 1-alkoxy-hydrocotarnine: ethoxy- butoxy- (isoamyloxy-decyloxy, 1-alkyl-hydrocotarnine (isobutyl-, isoamyl-) and their toluene-sulfonates. Submitted 17 Jul 46.

19/49T22

USSR/Chemistry - Pharmaceuticals Dec 50
Medicine - Amoebic Dysentery

"New Synthesis of the Alkaloid Emetine," R. P. Yevstigneyeva, R. S. Livshits, L. I. Zakharkin, M. S. Baynova, N. A. Preobrazhenskiy

"Dok Ak Nauk SSSR" Vol LXXV, No 4, pp 539-542

In addn to being specific remedy against amoebic dysentery, emetine is effective against Trematodes and some bacteria which produce serious diseases in man and animals. Most probable formula for emetine, advanced by authors, corresponds to R. Robinson's

[redacted] 173T23

USSR/Chemistry - Pharmaceuticals (Contd) Dec 50

formula based on theory of phytochem synthesis under physiological conditions ("Nature," Vol CLXII, No 524, 155, 1948). Formula has now been confirmed by authors, who carried out complete synthesis of racemic emetine in several different ways. Two reaction schemes illustrate authors' complete synthesis.

[redacted] 173T23

191T31

USSR/Chemistry - Alkaloids Jul 51

"Investigation Into a Series of Isoquinoline Compounds. III. Synthesis of n-Methyl-1-(3',4'-Dimethoxybenzyl)-5,6-Dimethoxy-1,2,3,4-Tetrahydroisoquinoline," R. S. Livshits, M. S. Baynova, G. I. Basilevskaya, E. I. Genkin, N. A. Preobrazhenskiy, and Yu. M. Rozanova, Z. A. Baranova, Students, Moscow Inst Fine Chem Technol imeni M. V. Lomonosov

"Zhur Obshch Khim" Vol XXI, No 7, pp 1354-1360

Accomplished synthesis of n-methyl-1-(3', 4'-dimethoxybenzyl)-5,6-dimethoxy-1,2,3,4-tetrahydroisoquinoline by a procedure which is a model for the

191T31

LIVSHITS, R. S.

USSR/Chemistry - Alkaloids (Contd) Jul 51

synthesis of n-methyl-1-(3',4'-dimethoxybenzyl)-5,6-dimethoxy-7-dimethylamino-1,2,3,4,5,6,7,8-octahydroisoquinoline, the fundamental intermediate substance in the synthesis of morphine.

191T31

LIVSHITS, R. S.

Evstigneev, R. P., Livshits, R. S., Bainova, M. S., Zakharkin, L. I., Preobrazhenskii, N. A.- "Isoquinoline compounds. V. Synthesis of the natural alkaloid emetine." (p. 1467)

SO: Journal of General Chemistry, (Zhurnal Obshchei Khimii), 1952, Vol. 22, No. 8

LIVSHITS, R. S.

(6)

Isoquinoline compounds. V. Synthesis of the natural alkaloid, emetine. R. P. Evstigneeva, R. S. Livshits, N. S. Baĭnova, L. I. Zakharkin, and N. A. Preobrazhenskiĭ (Moscow Inst. Fine Chem. Technol.). *J. Gen. Chem. U.S.S.R.* 22, 1811–19(1952)(Engl. translation). See C.A. 47, 5049c. H.T.H

AH 7-27-54

Chemical Abst.
Vol. 48 No. 5
Mar. 10, 1954
Organic Chemistry

LIVSHITS, R. S.

Chemical Abst.
Vol. 48 No. 3
Feb. 10, 1954
Organic Chemistry

Isoquinoline compounds. VII. Synthesis of 3-[(1,1-diethoxymethyl)propyl]glutaric acid. M. S. Bainova, R. P. Evstigneeva, R. S. Livshits, K. K. Kuz'mina, and N. A. Preobrazhenskii (M. V. Lomonosov Inst. Fine Chem. Technol., Moscow). *Zhur. Obshchei Khim.* 23, 1@ 52 (1953); cf. C.A. 47, 7507*b*.—Heating 60 g. PrCHO, 87 g. $CH_2(CO_2H)_2$, 40 ml. pyridine, and a few drops piperidine 3 hrs. at 60-70° and 3 hrs. at 110° gave 79% *PrCH:CHCO₂H*, b_{8} 98-102°, m. 34-5°. Heated with EtOH and H_2SO_4 it gave 76% Et ester, b. 174-5°. This (80 g.) and 50 g. HCO_2Et added to 13 g. Na in 400 ml. MePh and allowed to stand 1 day gave a ppt. of *Na deriv.* of *EtCH(CHO)CH:CHCO₂Et*, which treated with ice, the aq. soln. extd. with C_6H_6 and the aq. layer acidified with H_3PO_4 to Congo red and extd. with Et_2O gave, on evapn. of Et_2O, 51% crude *EtCH(CHO)CH:CHCO₂Et* (I); this distd. in N atm. in the presence of a little urotropin, b_1 65-70°, d_4^{20} 1.0112, n_D^{20} 1.4618; the product gives violet color with $FeCl_3$ and its MR_D indicates that it is nearly all oxo form. The product tends to polymerize on repeated distn. The Na deriv. of the above ester (11 g.), 12 g. abs. EtOH, and 45 ml. Et_2O satd. with HCl (4.6 g. added) were stirred with cooling 2 hrs., then 14 hrs. at room temp., neutralized with $NaHCO_3$, filtered, and distd., yielding 30.5% *EtC(:CHOEt)CHCl-CH₂CO₂Et* (II), b_2 68-78°, d_4^{20} 0.9927, n_D^{20} 1.4459. I (5 g.) and 4.35 g. $HC(OEt)_3$ treated with 0.1 g. NH_4Cl in 2 ml. abs. EtOH and heated on steam bath 30 min., allowed to stand overnight, decanted and the soln. treated with 2 vol. Et_2O and washed with 5% NH_4OH gave on distn. of the org. layer 35.6% *EtCH[CH(OEt)₂]CH:CHCO₂Et* (III), b_{4} 78-83°. To EtONa from 4 ml. EtOH and 0.22 g. Na was added at 30-40° 3 g. $CH_2(CO_2Et)_2$, kept 30 min. and treated with 2 g. II and heated 5 hrs.; after concn. and treatment with H_2O the org. layer gave 55.7% *EtC(:CHOEt)-CH[CH(CO₂Et)₂]CH₂CO₂Et*, $b_{1.5}$ 148-9°. To 0.6 g. Na in 10 ml. EtOH was added 7.8 g. $CH_2(CO_2Et)_2$ and 6 g. III and heated on water bath 5 hrs.; after usual aq. treatment there was obtained 48.3% *EtCH[CH(OEt)₂]CH[CH(CO₂Et)₂]CH₂CO₂Et*, b_1 160-3°. This (5.5 g.) refluxed with 4.6 g. KOH, 45 ml. H_2O and 45 ml. MeOH 5 hrs., concd.,

(over)

chilled, acidified with HCl and extd. with Et_2O gave 37% *EtCH[CH(OEt)₂]CH(CH₂CO)₂O*, b₁ 150-7°. VIII. Condensation of substituted β-propylglutaric acids with homoveratrylamine. L. I. Zakharkin and N. A. Preobrazhenskii (M. B. Lomonosov Inst. Fine Chem. Technol., Moscow). *Ibid.* 153-5. Letting 1.5 g. *γ-ethyl-δ-valerolactone-β-acetic acid* (I) stand with 5 ml. $SOCl_2$ 2 hrs. gave the corresponding *acyl chloride*, b. 137-8°, in 47% yield. This (3.7 g.) in C_6H_6 added to 3.4 g. homoveratrylamine and 1.7 g. pyridine in C_6H_6 and stirred 1 hr., then treated with H_2O gave 88% *corresponding N-homoveratrylacetamide*, $C_{19}H_{27}O_5N$, a viscous oil. This (5 g.), 7.5 ml. $POCl_3$ and 50 ml. MePh refluxed 1 hr., decanted, the residue treated with 30 ml. dil. HCl, the soln. freed of tar and treated with NaI soln. and extd. with $CHCl_3$ gave 32% yellow *γ-ethyl-β-[(3,4-dihydro-6,7-dimethoxy-1-isoquinolyl)methyl]-δ-valerolactone-HI*, m. 199-201° (from EtOH); *picrate*, m. 181-2°. I in EtOH satd. with dry HBr at 0° gave after 1.5 days 72% *EtO₂CCH₂CH(CHEtCH₂Br)CH₂CO₂Et*, b₁ 140-1°, n_D^{20} 1.4628, which (5 g.) with 12 g. homoveratrylamine in MePh and reflux 2.5 hrs. gave 1a *N-homoveratryl-δ-ethyl-α-piperidone-γ-acetate*, b₂ 227-31°, 21.6%. Heating I (3 g.) with 8 g. homoveratrylamine 4 hrs. at 190-200° gave 68% *dihomoveratrylamide of β-(α'-hydroxymethyl)propylglutaric acid*, [illegible], a viscous oil. Heating *HO₂CCH₂CH(CHEtCH₂Br)CH₂CO₂H* with $SOCl_2$ 2 hrs. at 50° gave the *acyl chloride*, 77.5%, b₂ 141-3°, which added in C_6H_6 to homoveratrylamine with cooling gave 83% *dihomoveratrylamide of β-(α'-bromomethyl)propylglutaric acid*, a viscous oil (from EtOH-Et_2O). The products are intermediates for synthesis of *emetine*.

G. M. Kosolapoff

LIVSHITS, R. S.

"Isoquinoline compounds. Part 10. Synthesis of 1- (N-decyl) -3' -piperidyl -ethyl-6, 7-dinethoxy-1, 2, 3, 4-tetrahydro-isoquinoline." Livshits, R. S., Bainova, M.S., Kuprianova, S. N., Preobrazhenskii, N. A. (p. 522)

SO: Journal of General Chemistry (Zhurnal Obshchei Khimii) 1953, Volume 23, No.3.

FEYGIN, Ya.G., doktor ekon.nauk; VILENSKIY, M.A., kand.ekon.nauk; OMAROVSKIY, A.G., kand.ekon.nauk; LIVSHITS, R.S., doktor ekon.nauk; CHUGUNOV, B.I., kand.ekon.nauk; SHOKIN, N.A., kand.ekon.nauk; IOFFE, Ya.A.; VARANKIN, V.V., kand.ekon.nauk; ROZENFEL'D, Sh.L., kand.ekon.nauk; KORNEYEV, A.M., doktor ekon.nauk; OPATSKIY, L.V., doktor ekon.nauk; VASIL'YEV, N.V., doktor ekon.nauk; RUDENKO, M.A., kand.ekon.nauk; BYSTROZOROV, A.S., kand.geogr.nauk; POPOVA, Ye.I., kand.ekon.nauk; KRUTIKOV, I.P., kand.geogr.nauk; BAKOVETSKAYA, V.S., red.izd-va; SHEVCHENKO, G.N., tekhn.red.

[Special features and factors in the distribution of branches of the national economy of the U.S.S.R.] Osobennosti i faktory razmeshcheniia otraslei narodnogo khoziaistva SSSR. Moskva, 1960. 692 p. (MIRA 14:3)

1. Akademiya nauk SSSR. Institut ekonomiki.
(Economic zoning)

ROZHINA, R.R.; LIVSHITS, R.S.

Chemical composition of gas oils from coking and from catalytic cracking. Trudy MINKHiGP no.28:143-150 '60. (MIRA 14:4)
(Petroleum products) (Cracking process)

LIVSHITS, RAISA SOLOMONOVA

Sebestoimost' Produktsii V Tyazheloy Promyshlennosti SSSR. Moskva, Izd-vo Akademii Nauk SSSR. 1961.

200 p. Tables.

At head of title: Akademiya Nauk SSSR. Institut Ekonomiki.

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(Costs, Industrial)

KORNEYEV, A.M., doktor ekon. nauk; VILENSKIY, M.A., doktor ekon. nauk; SHOKIN, N.A., kand. ekon. nauk; LIVSHITS, R.S., doktor ekon. nauk; KOZLOV, Yu.K., kand. ekon. nauk; VARANKIN, V.V., kand. ekon. nauk; ROZENFEL'D, Sh.L., doktor ekon. nauk; OPATSKIY, L.V., doktor ekon. nauk; NAKOVETSKAYA, V.S., red.; GLIYAYEVA, A.N., red.

[Industry in the administrative complex of the economic regions of the U.S.S.R.] Promyshlennost' v khoziaistvennom komplekse ekonomicheskikh raionov SSSR. Moskva, Nauka, 1964. 566 p. (MIRA 18:1)

1. Akademiya nauk SSSR. Institut ekonomiki.

BASOV, V.A.; GLAGOLEVA, O.F.; LIVSHITS, R.S.; MELIK-AKHNAZAROV, T.Kh.; OROCHKO, D.I.

Chemical and technological macrokinetics of the cracking of petroleum distillates over powdered catalysts. Azerb. khim. zhur. no.5:55-64 '64. (MIRA 18:3)

PHASE I BOOK EXPLOITATION 1106

Livshits, Raisa Solomonovna

Razmeshcheniye chernoy metallurgii SSSR (Distribution of Ferrous Metallurgy in the USSR) Moscow, 1958. 374 p. 2,500 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Institut ekonomiki.

Resp. Ed.: Feygin, Ya. G., Corresponding Member, USSR Academy of Sciences, Professor; Ed. of Publishing House: Pirogov, A. I.; Tech. Ed.: Guseva, A.P.

PURPOSE: This book should be of interest to metallurgists, industrial personnel, and economists.

COVERAGE: The author surveys the geographical distribution of ferrous metallurgy in the USSR, points out shifts that have occurred in this branch of industry under the Soviet regime, and discusses the main problems of further development of the industry in the principal economic regions of the USSR. No personalities are mentioned. There are 115 references, of which 102 are Soviet, 8 English, and 5 German.

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Study of the process of catalytic cracking with recirculation.
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(Cracking process)

LIVSHITS, R.S.; SMIDOVICH, Ye.V.

Effect of fluidized bed on the indices of catalytic cracking.
Trudy MNI no.23:84-94 '58. (MIRA 12:1)
(Cracking process) (Fluidization)

LIVSHITS, R.S.; SMIDOVICH, Ye.V.

Poisoning of cracking catalysts by heavy metals. Trudy MNI no.23:95-100 '58. (MIRA 12:1)
(Catalysts)

LIVSHITS, R. S.; SMIDOVICH, Ye.V.

Catalytic cracking of coking distillates. Izv. vys. ucheb. zav.; neft' i gaz 2 no.10:65-71 '59. (MIRA 13:2)

1. Moskovskiy institut neftekhimicheskoy i gazovoy promyshlennosti im. akad. I.M. Gubkina.
(Cracking process) (Coke)

LIVSHITS, R.S.; SMIDOVICH, Ye.V.

Comparative data on catalytic cracking of heavy fractions by straight distilation and coking. Izv.vys.ucheb.zav.; neft' i gaz 2 no.12:77-81 '59. (MIRA 13:5)

1. Moskovskiy institut neftekhimicheskoy i gazovoy promyshlennosti imeni akademima I.M. Gubkina.
(Cracking process)

LIVSHITS, R. S., Cand Tech Sci -- (diss) "Research into a catalytic process of cracking coke distillate." Moscow, 1960. 11 pp; (Ministry of Higher and Secondary Specialist Education RSFSR, Moscow Order of Labor Red Banner Inst of Petrochemical and Gas Industry im I. M. Gubkin, Chair of Petroleum and Gas Technology); 170 copies; price not given; (KL, 17-60, 155)

MALIK-AKHNAZAROV, T.Kh.; LIVSHITS, R.S.; OROCHKO, D.I.; SHNAYDER, G.S.

Effect of the sectionalization of the zone of reaction on the distribution and quality of end products in the catalytic cracking in a fluidized bed. Khim. i tekh. topl. i masel 10 no.12:32-35 D '65. (MIRA 19:1)

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KARAVAYEV, Valentin Valentinovich; KAFTANOVSKAYA, Aleksandra Mikhaylovna; LIVSHITS, Roman Zinov'yevich; BEDERSKOVA, N.N., red.; TIMOFEYEVA, N.V., tekhn. red.

[Settlement of labor disputes; a commentary] Razreshenie trudovykh sporov; kommentarii. Moskva, Gos.izd-vo iurid.lit-ry, 1960. 222 p. (Labor disputes) (MIRA 14:6)

LIVSHITS, S.

Determining the power and efficiency of an electric motor. (MIRA 10:10)
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Mechanized washing of chutes. Miss. ind. SSSR 29 no. 4:11-13 '58.
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1. Moskovskiy myasopererabatyvayushchiy zavod (for Maksimov, Livshits). 2. Moskovskiy tekhnologicheskiy institut myasnoy i molochnoy promyshlennosti (for Gorbatov).
(Packing houses--Equipment and supplies--Cleaning)

GORBATOV, A., inzh.; MAKSIMOV, A., inzh.; LIVSHITS, S., inzh.

Hydraulic conveying of intestine casings. Mias. ind. SSSR 29 no.6:46-47 '58. (MIRA 11:12)

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(Packing houses--Equipment and supplies)
(Sausage casings)

SENICHKIN, M.; LIVSHITS, S.; FILATOV, P. (Moskva)

Device for evaluating the ignition glow. Radio no. 11:22-23 N '60. (MIRA 14:1)

(Automobiles—Ignition)
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GUREYEV, A., kand.tekhn.nauk; LIVSHITS, S., inzh.

Effect of gasoline quality on scale formation. Avt. transp. 39 no.5:26-27 My '61. (MIRA 14:5)
(Motor vehicles--Engines) (Gasoline)

LIVSHITS, S., inzh.; MAKSIMOV, A., inzh.; GORBATOV, A., inzh.

Innovations in the mechanization of sausage manufacture.
Mias.ind.SSSR 30 no.2:8-11 '59. (MIRA 13:4)

1. Moskovskiy myasopererabatyvayushchiy zavod (for Livshits and Maksimov). 2. Moskovskiy tekhnologicheskiy institut myasnoy i molochnoy promyshlennosti (for Gorbatov).
(Sausages)

LIVSHITS, S.; PLUZHNIKOV, A.

Keep her so! Mor.flot 23 no.6:3-4 Je '63. (MIRA 16:9)

1. Kapitan teplokhoda "Amur" (for Livshits). 2. Pervyy pomoshchnik kapitana teplokhoda "Amur" (for Pluzhnikov).
(Merchant ships--Passenger accommodations)

OLENEV, Yu., kand.tekhn.nauk; LIVSHITS, S., inzh.

Cold storage of packaged continuous-process butter. Khol.tekh. 37 no.2:44-47 My-Ap '60. (MIRA 13:10)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut kholodil'noy promyshlennosti.
(Butter--Storage)

SOV/133-59-9-27/31

AUTHORS: Livshits, S.A. and Radchenko, I.A.

TITLE: Technico-Economical Comparison of the Production of Low Grade Ferrosilicon by the Blast Furnace and Electro-thermal Processes

PERIODICAL: Stal', 1959, Nr 9, pp 846-849 (USSR)

ABSTRACT: On the initiative of the Gosplan SSSR and Gosplan RSFSR it is planned to replace during 1959-1965 the production of blast furnace ferrosilicon by the production of 18% ferrosilicon by the electrothermal method. It was already decided to design a new ferroalloy plant for the Chelyabinsk Works, utilising a considerable proportion of its capacity for the production of low grade ferrosilicon, excluding the production of blast furnace ferrosilicon from the works. The authors consider that this decision is wrong and to prove their point they made a technico-economical comparison of producing low grade ferrosilicon by the above two methods in application to conditions existing on the Chelyabinsk Works. The basis for the comparison was as follows: The blast furnace process will be carried out with oxygen enriched blast (up to 32%), heated to 950°C, with

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Technico-Economical Comparison of the Production of Low Grade Ferrosilicon by the Blast Furnace and Electrothermal Processes

a high top pressure; one blast furnace producing 500,000 t/year of 12% ferrosilicon will be used. The electrothermal process will be carried out in electric-ferroalloy furnaces of the closed type with transformers of 16,500 kw; the content of silicon in the alloy will be 18% with the equivalent output in respect of silicon of 330,000 t/year. Comparison of the costs of production of ferrosilicon by the above two methods and the corresponding capital expenditure are given in tables 1 and 2 respectively. It is concluded that: the blast furnace method allows for the production of ferrosilicon from low grade silicious ores and scrap (not suitable for the open hearth process) while the electrothermal method requires steel shavings which can be used in steel making furnace. Under the conditions of the Chelyabinsk Works, the blast furnace method of producing ferrosilicon is more advantageous as the production cost of a unit weight of silicon and the capital expenditure are lower by 38 to 39% and by 100 to 110 million

Technico-Economical Comparison of the Production of Low Grade Ferrosilicon by the Blast Furnace and Electrothermal Processes

roubles respectively. In the comparison of the capital costs, the electrothermal method is additionally debited by the cost of production of the additional iron which is produced in the ferrosilicon blast furnace. There are 2 tables.

ASSOCIATION:Giprostal'

KAMINARSKAYA, A.K.; LIVSHITS, S.A.; OLENEV, Yu.A.; KOCHERGA, S.I., inzh., nauchn. red.; KAPLUN, M.S., red.; EL'KINA, E.M., tekhn. red.

[Drying of food products by sublimation; scientific information] Sublimatsionnaia sushka pishchevykh produktov; nauchnoe soobshchenie. Moskva, Gostorgizdat, 1963. 49 p. (MIRA 17:3)

OLENEV, Yu.A., kand.tekhn.nauk; LIVSHITS, S.A., inzh.

Meat drying by sublimation. Khol.tekh. 39 no.4:22-27 Jl-Ag '62.
(MIRA 17:2)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut kholodil'noy promyshlennosti.

OLENEV, Yu.A., kand.tekhn.nauk; LIVSHITS, S.A., inzh.

Inadequacy of packaging creamery butter in cold storages. Khol. tekh. 40 no.2:34-38 Mr-Ap '63. (MIRA 16:4)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut kholodil'noy promyshlennosti.

(Butter--Preservation)

ITIN, L.I., prof.,.doktor ekonom.nauk; CHERNYAVSKIY, V.O.; RADCHENKO, I.A.; LIVSHITS, S.A.

"Metal turnover in the national economy of the U.S.S.R." by L.L. Zusman. Reviewed by L.I. Itin and others. Stal' 22 no.10: 950-953 O'62. (MIRA 15:10)

1. Moskovskiy institut narodonogo khozyaystva im. G.V.Plekhanova (for Itin). 2. Gosudarstvennyy nauchno-ekonomicheskiy sovet Soveta Ministrov SSSR (for Chernyavskiy). 3. Gosudarstvennyy institut po proyektirovaniyu predpriyatiy po proizvodstvu stali (for Radchenko, Livshits).

(Zusman, L.L.) (Metals)

SIDOROV, N.Kh.; LIVSHITS, S.B.

Technical progress in the Leningrad Association of Optical and Mechanical Enterprises. Biul. tekh.-ekon. inform. Gos. nauch.-issl. inst. nauch. i tekh. inform. 17 no.12:56-58 D '64. (MIRA 18:3)

RONENSON, Gemukh Yerukhimovich; LIVSHITS, Solomon Borisovich, inzh.; NEYMARK, M.M., inzh., red.; SHILLING, V.A., red.izd-va; BELOGUROVA, I.A., tekhn. red.

[Scheduling lot production by group sets; practice of the OGPU Optical Mechanical Plant] Kalendarnoe planirovanie seriinogo proizvodstva po gruppovym komplektam; opyt Gosudarstvennogo optiko-mekhanicheskogo zavoda imeni OGPU. Leningrad, 1961. 11 p. (Leningradskii Dom nauchno-tekhnicheskoi propagandy. Obmen peredovym opytom. Seriia: Organizatsiia i ekonomika proizvodstva, no.3) (MIRA 14:7)

(Leningrad--Industrial management)

RONENSON, Gemukh Yerukhimovich; LIVSHITS, Solomon Borisovich; NEYMARK, M.M., inzh., red.; FOMICHEV, A.G., red. izd-va; BELOGUROVA, I.A., tekhn. red.

[Computing a schedule of planned norms is the basis of comprehensive planning of assembly-line production] Raschety kalendarno-planovykh normativov - osnova komplektnogo planirovaniia seriinogo proizvodstva. Leningrad, 1961. 19 p. (Leningradskii dom nauchno-tekhnicheskoi propagandy. Obmen peredovym opytom. Seriia: Ekonomika i organizatsiia proizvodstva, no.1) (MIRA 15:4)

(Leningrad--Machinery industry--Production standards)

SKRIPCHENKO, Ye., kandidat tekhnicheskikh nauk.; RABINOVICH, A., inshener.; LIVSHITS, S., inshener.

Use of synthetic, surface-active washing and wetting substances for cleaning the tanker fleet. Mor. flot 16 no.7:21-22 Jl '56. (MLRA 9:11)
(Tank vessels--Cleaning) (Cleaning compounds)

LIVSHITS, S.G., inzh.

New method for the actual measurement of ship hull outlines. (from "Journal of the American Society of Naval Engineers" no.2, 1958). Sudostroenie 25 no.8:64-65 Ag '59. (MIRA 13:2)
(Yugoslavia--Shipbuilding) (Pantograph)

LIVSHITS, S.G.

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(BIBLIOGRAPHY--TUMORS)

LIVSHITS, S.I.

AUTHOR: Chetyerikov, A.V., Engineer and Livshits, S.I., Engineer (ORGRES)

TITLE: Experience of adapting a boiler type TП-230-2 to feed water of high salt content. (Opyt prisposobleniya kotla TП-230-2 k pitaniyu vodoy povyshennogo solesoderzhaniya)

PERIODICAL: "Teploenergetika" (Thermal Power), 1957, Vol. 4, No. 6, pp. 25 - 31 (U.S.S.R.)

ABSTRACT: Operating experience and thermal-chemical tests on boilers types TП-170 and TП-230 showed that they were not adapted to operation in the actual conditions of a heat and electric power station in which the quantity of purified make-up water reaches 50-80%. To improve the design of these boilers use was made of experience of constructing devices within boilers with removable salty sections in medium and high pressure boilers. Devices were worked out in principle for installation inside the boilers TП-230, TП-170 and ПК-10. According to data of Teploenergoproyekt the salt content of the feed water for the station was 150 mg/l which was taken as a basis for the design. A three-stage evaporation system was designed, the manufacturer's fittings were retained in the first stage, cyclones were provided within the drum of the second stage and extraction cyclone in the third stage. Details of boiler design are given and the salt content of the boiler water in different stages of evaporation is given. The principal data relating to the operation of the cyclone are tabulated.

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Experience of adapting a boiler type TП-230-2 to feed water of high salt content. (Cont.)

A detailed description is given with diagrams of the arrangement of the different parts of the boiler.

After the boiler had been started up the first series of thermal-chemical observations were made and showed that there was a considerable divergence from the design data. The salt content of the water in the first stage was much higher than it should have been. This was traced to a number of defects of erection. Further tests were then run and the boiler operated satisfactorily with three-stage evaporation. However, a serious abnormality was found in the operation of the third stage in that there was a considerable difference between the projected and actual loads on the sections of this stage. To put matters right the rate of rotation of the water in the cyclones was reduced. Data are tabulated on the composition of the boiler feed water, which contains a large quantity of iron oxides. To reduce this concentration boiler blow down was increased beyond the amount necessary to ensure the necessary quality of steam.

Further thermo-chemical testing of the boiler was carried out in two series of tests, each of seven tests. The second series allowed of more accurate determination of the salt content of the steam. The first series was run with much reduced blowdown. An interesting test in that series was one which was carried out to determine the quality of steam as a function of the steam load on the boiler and the water level

Experience of adapting a boiler type TП-230-2 to feed water of high salt content. (Cont.)

in the drum. The results of the tests are plotted on a graph, and neither increase in boiler output, nor raising the water level had any appreciable influence on the quality of the steam.

Data on the second series of tests are given in Table 6 and Fig. 4. Tests 5, 6, and 7 were particularly interesting. Test 5 was carried out with the low output of 110 tons/h. The low rate of flow of the steam-water mixture in the cyclones and the high water level in them impaired the quality of steam of the third stage. In Test No. 6, the quantity of silicic acid in the feed water was raised to 0.9 to 1.0 mg/l. This increased the silica content of the boiler. The total salt content of the steam remained satisfactory but the content of silicic acid increased somewhat and at times on the boiler side it reached 0.07 to 0.09 mg/kg SiO_3^{2-}. Test No. 7 was carried out at the high output of 234 tons/h. The content of silicic acid in the feed water was 0.4 to 0.6 mg/l SiO_3^{2-}, the quality of steam remained satisfactory. In all the tests the salt content of the superheated steam from the righthand side of the boiler was considerably higher than from the left and in some tests even exceeded the permitted limits. Thes tests have shown that when the boiler TП-230 is converted to three-stage evaporation the feed water may contain considerable quantities of chemically

Experience of adapting a boiler type TP-230-2 to feed water of high salt content. (Cont.)

purified water desilicated by the magnesium method. It is necessary to ensure normal quality of the feed water in respect of silicic acid content. The manufacturer's separation devices in the first stage of evaporation with the addition of a perforated steam receiving ceiling ensure the generation of steam of normal quality in conditions of reduced salt and silica content. A most important point in correcting the water conditions of the boiler is the reduction of iron oxide content of the feed water. Two years have passed since the boiler was started up and on the basis of this experience designs have been worked out for new devices for installation inside standard boilers types TP-230 and TP-170. The station at which the new system was first tested has since reconstructed a further three boilers.

5 figures, 2 literature references (Russian).

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L 17191-63 EWP(q)/EWT(m)/BDS AFFTC JD
ACCESSION NR: AR3004189 S/0081/63/000/009/0423/0423

SOURCE: RZh. Khimiya, Abs. 9L67

57

AUTHOR: Talanov, N.D.; Mikhaylin, A.D.; Yezhova, A.M.; Livshits, S.I.; Loktyukhina, T.A.

14

TITLE: Production of high-purity phosphorus 21

CITED SOURCE: Tr. po khimii i khim. tekhnol., (Gor'kiy), vy*p. 1, 1962, 159-164

TOPIC TAGS: red phosphorus, yellow phosphorus, purity, vacuum distillation, phorphorus

TRANSLATION: The process of purification of technical commercial red phosphorus from impurities of mineral acids in small concentrations was studied. The non-equivalent action of 3 and 5% HNO_3, H_2SO_4, and HCl or their mixtures, taken in equal amounts, was demonstrated at 70-95°. Two treatments of red phosphorus with acid for periods of 12 hours, followed by washing with distilled water and drying, successfully purify phosphorus from a total content of the impurities to be determined up to $2 \cdot 10^{-2}$-$5 \cdot 10^{-3}$%. The process of vacuum distillation of

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L 17191-63
ACCESSION NR: AR3004189

technical yellow phosphorus, preliminarily purified of acid, in glass apparatus at a residual pressure of $1 \cdot 10^{-2}$-$1 \cdot 10^{-4}$ mm of mercury, followed by its polymerization to the red modification was studied. Phosphorus containing a sum of the impurities to be determined equal to $5 \cdot 10^{-4}$% and lower is obtained by the method of two to three distillations. Spectrally pure phosphorus is obtained by the method of four distillations. No influence of the depth of the vacuum in the range $1 \cdot 10^{-2}$-$1 \cdot 10^{-4}$ mm of mercury or of the variety of glass on the quality of the final product was noted. From the authors' summary.

DATE ACQ: 19Jun63 SUB CODE: CH, EL ENCL: 00

Card 2/2

PHASE I BOOK EXPLOITATION SOV/4018

Akademiya nauk Belorusskoy SSR. Fiziko-tekhnicheskiy institut

Sbornik nauchnykh trudov, vyp. 5 (Collected Scientific Papers of the Institute of Engineering Physics, Academy of Sciences Belorusskaya SSR, No. 5) Minsk, Izd-vo AN BSSR, 1959. 235 p. Errata slip inserted. 1,100 copies printed.

Ed. of Publishing House: L. Mariks; Tech. Ed.: I. Volokhanovich; Editorial Board: V.P. Severdenko, Academician, Academy of Sciences BSSR (Chief Ed.), K.V. Gorev, Academician, Academy of Sciences BSSR, M.N. Bodyako, Candidate of Technical Sciences, and P.A. Parkhutik, Candidate of Technical Sciences.

PURPOSE: This book is intended for technical personnel and scientific workers.

COVERAGE: This collection of 23 articles covers the following subjects: small draft rolling analysis of wire-drawing, design of drop-forging dies, impact upsetting, examination of the effect of temperature on plastic deformation, sulphidation and carburizing processes, the phenomena of pulse-discharge, etc. ~~No personalities~~

GOREV, K.V.; LIVSHITS, S.L.

Sulfidation in pyrite. Dokl.AN BSSR 3 no.12:496-499
D '59. (MIRA 13:4)
(Pyrites)

GOREU, K.V.; LIUSHYTS, S.L.

Some problems in the sulfidization of iron-carbon alloys. Vestsi AN BSSR.Ser.fiz.-tekh.nav. no.3:5-11 '56. (MLRA 10:1)
(Iron alloys--Metallography) (Sulfides)(Metallurgy)

LIVSHITS, S. M. Cand Med Sci -- (diss) "Retrograde amnesia and its forensic-psychiatric ~~importance~~ significance." Kiev, 1958. 14 pp (Min of Health UkSSR. Kiev Order of Labor Red Banner Med Inst im Academician A. A. Bogomolets), 200 copies (KL, 14-58, 117)

S/065/60/000/012/006/007
E194/E484

AUTHORS: Papok, K.K. and Livshits, S.M.

TITLE: Assessment of the Tendency of Fuels and Lubricants to Form Deposits in Engines

PERIODICAL: Khimiya i tekhnologiya topliv i masel, 1960, No.12, pp.58-63

TEXT: Deposit formation has very undesirable consequences in piston engines. The process is usually studied by prolonged engine tests after which the engine is dismantled, the results are very variable and it is difficult to study the influence of various factors on deposit formation. This article describes a rapid method of assessing the deposit forming tendencies of fuels and lubricants based on inserting test plugs into the cylinder head of an automobile engine which is not dismantled. Special seatings are provided in the cylinder head, as illustrated diagrammatically in Fig.1, and into them are inserted aluminium plugs, as shown in Fig.2, which are of large surface area. The plugs are weighed before and after the test and deposit formation is assessed by the increase in weight. There may be more than one plug in the cylinder head. In the tests described, the plugs were inserted

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Assessment of the Tendency of Fuels and Lubricants to Form Deposits in Engines

only above the exhaust valves. The method may be considered reliable because it gives results which are in accordance with deposit forming tendencies assessed by other methods. For instance, giving a richer fuel mixture (Fig.3) , reducing the cooling water temperature (Fig.4) or increasing the content of ethyl fluid Р-9 (R-9) in the fuel (Fig.5) or increasing the content of aromatic-hydrocarbons (Fig.6) increases the deposit forming tendency. The method was used to study the influence of engine operating conditions on deposit formation using a gasoline automobile engine type ЗИЛ -120 (ZIL-120). Deposit measuring plugs could be installed in the first, second, fourth and sixth cylinders. Whilst the engine was being warmed up, the test plugs were replaced by plain plugs. The test results are briefly described. Thus, increasing the output of the engine at constant speed reduced the deposit forming tendency, see Fig.7. Increasing the speed from 700 to 1600 rpm at constant load reduced the deposits, see Fig.7. Similar results are quoted

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E194/E484

Assessment of the Tendency of Fuels and Lubricants to Form Deposits in Engines

from alterations in load, oil level in the crank case, oil temperature in the crank case and angle of advance of ignition. Tests were also made to assess the deposit forming tendencies of fuels and lubricants. In fuel testing a reference fuel was used on which the tests were repeated from time to time. A simple formula is given for measurement of the deposit-forming tendency and the results are quoted for a number of automotive and aviation gasolines with additions of benzol, toluol and ionol. Thermally cracked, catalytically cracked and straight run gasolines were also tested. Straight run gasoline was found to have the least deposit forming tendency and thermally cracked gasoline the worst. The deposit forming tendency of these fuels and of blends of them are plotted in Fig.8. The addition of anti-oxidants such as ionol had no measurable influence on the deposit forming tendency. To assess the deposit forming tendency of lubricants, they were added directly to the gasoline in amounts up to 5%, the results, plotted in Fig.10, show the advantages of low viscosity oils

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Assessment of the Tendency of Fuels and Lubricants to Form Deposits in Engines

thickened with polymers as compared with heavier distillates and residual oils. There are 10 figures, 2 tables and 13 references: 2 Soviet and 11 non-Soviet.

Card 4/4

GUREYEV, A.A.; LIVSHITS, S.M.; ZARUBIN, A.P.; SUBBOTIN, A.P.; SOBOLEV, Ye.P.

Effect of tars on the operational properties of automobile gasolines. Khim. i tekh. topl. i masel 9 no.9:57-62 S '64. (MIRA 17:10)

LAVRENOV, V.Z.; TSEKHMEYSTER, V.Ya.; LIVSHITS, S.M.

Car for the transportation of sintered dolomite. Metallurg 6 no.7:40 Jl '61. (MIRA 14:6)

1. Makeyevskiy metallurgicheskiy zavod.
(Dolomite) (Materials handling)

LIVSHITS, S.M.

Posttraumatic retrograde amnesia and its forensic-psychiatric meaning. (MIRA 14:10)
Vop. klin. nevr. i psikh. no.2:357-362 '58.
(AMNESIA) (FORENSIC PSYCHIATRY)

SEMENIDO, Ye.G., prof., doktor tekhn. nauk; ENGLIN, B.A.; PAPOK, K.K., prof. doktor tekhn. nauk; ZARUBIN, A.P.; RAGOZIN, N.A.; SHIMONAYEV, ?.S.; CHERTKOV, Ya.B.; LIVSHITS, S.M.; BESSMERTNYY, K.I.; LOSIKOV, B.V.; SABLINA, Z.A.; ROZHKOV, I.V.; GUREYEV, A.A.; FAT'YANOV, A.D.; ZRELOV, V.N.; ZARUDNYY, P.P.; BRATKOV, A.A.; BARON, I.G.; LEVINA, Ye.S., ved. red.; TITSKAYA, B.F., ved. red.; FEDOTOVA, I.G., tekhn. red.

[Motor, jet, and rocket fuels] Motornye, reaktivnye i raketnye topliva. 4., perer. i dop. izd. Moskva, Gos. nauchno-tekhn. izd-vo neftianoi i gorno-toplivnoi lit-ry, 1962. 741 p. (MIRA 15:2)

(Rockets (Aeronautics))—Fuel)
(Jet propulsion)
(Motor fuels)

L 42019-66 EWT(m)/T DJ/ME

ACC NR: AP6011222 (A) SOURCE CODE: UR/0413/66/000/006/0057/0057

INVENTOR: Gureyev, A. A.; Sobolev, Ye. P.; Shchegolev, N. V.; Alekseyev, A. I.; Kornitskiy, V. V.; Minkin, M. L.; Senichkin, M. A.; Livshits S.M., Englin, B.A., Mikulin, Yu.V.

ORG: none

51
B

TITLE: Starter fluid for engines with carburetors. Class 23, No. 179870

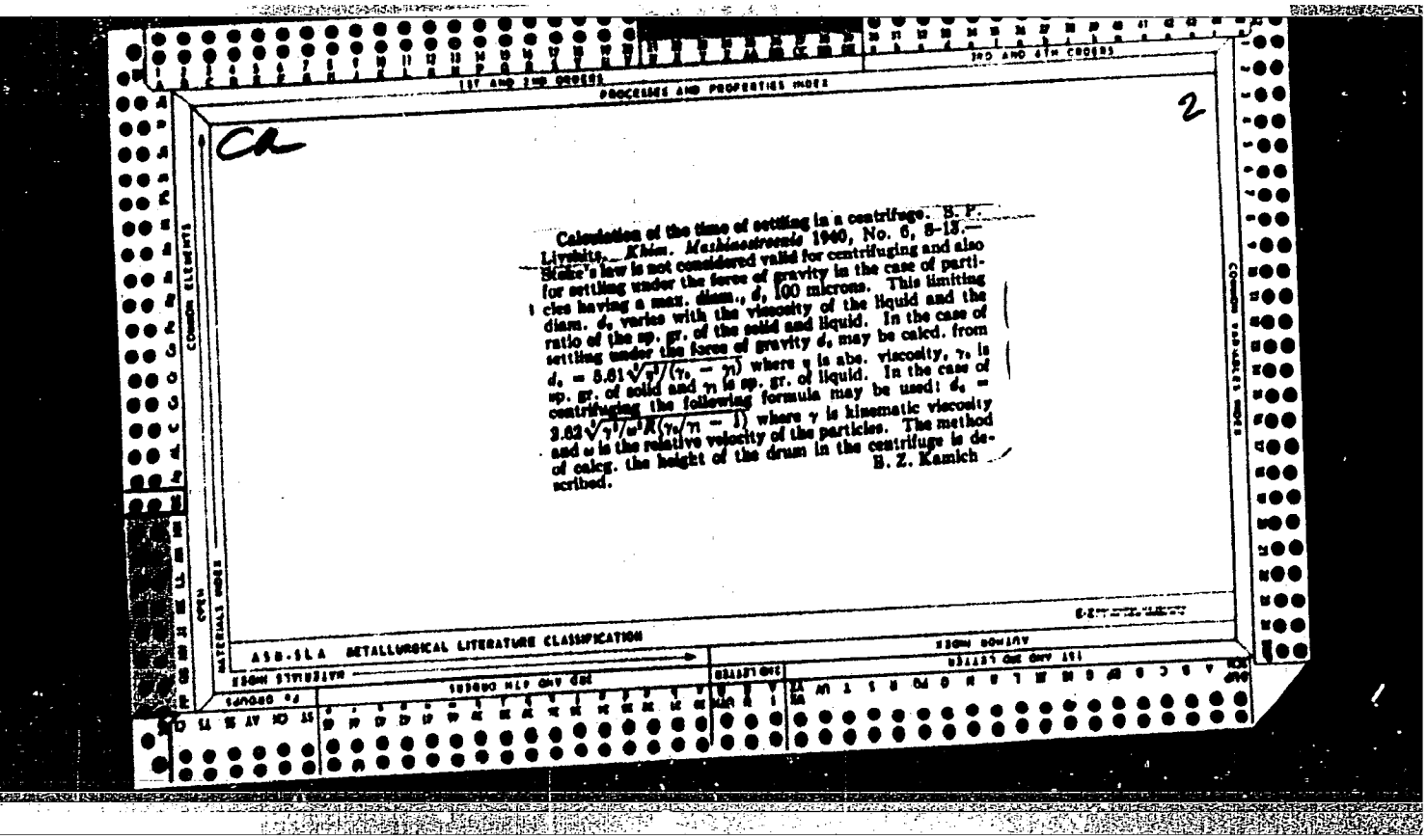
SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 6, 1966, 57

TOPIC TAGS: carburetor engine, starter fluid, engine starter fluid, antioxidant additive, antiwear additive

ABSTRACT: An Author Certificate has been issued describing a starter fluid for engines with carburetors. The fluid has a base of sulfuric ether and a mixture of low-boiling hydrocarbons with an antioxidant additive. It is suggested that to improve the functioning properties of the fluid, isopropyl nitrate or oxidation products of hydrocarbons plus an antiwear compound be added. [Translation] [NT]

SUB CODE: 21/ SUBM DATE: 13Nov64/

Card 1/1 UDC: 661.17:621.434.019-632



Calculation of the time of settling in a centrifuge. B. P. Livshits. *Khim. Mashinostroenie* 1940, No. 6, 8-13.—Stoke's law is not considered valid for centrifuging and also for settling under the force of gravity in the case of particles having a max. diam., d, 100 microns. This limiting diam. d, varies with the viscosity of the liquid and the ratio of the sp. gr. of the solid and liquid. In the case of settling under the force of gravity d, may be calcd. from $d_1 = 5.61\sqrt{\eta^2/(\gamma_0 - \gamma_1)}$ where η is abs. viscosity, γ_0 is sp. gr. of solid and γ_1 is sp. gr. of liquid. In the case of centrifuging the following formula may be used: $d_1 = 2.62\sqrt{\gamma^2/\omega^2 R(\gamma_0/\gamma_1 - 1)}$ where γ is kinematic viscosity and ω is the relative velocity of the particles. The method of calcg. the height of the drum in the centrifuge is described.

B. Z. Kamich

LIVSHITS, S. P.

"Hydraulic Type Packingglass Sealing Apparatus,"
Kotloturbostroy., No. 3, 1948. Cand. Tech. Sci.,
Cen. Sci. Res. Boiler Turbine Inst. im. I. I.
Polzunov, -c1948-.

LIVSHITS, S. P.

AID P - 2871

Subject : USSR/Engineering

Card 1/1 Pub. 110-a - 4/16

Author : Livshits, S. P., Kand. Tech. Sci.

Title : Some problems of operating a centrifugal compressor wheel

Periodical : Teploenergetika, 10, 21-26, O 1955

Abstract : Some experimental results on non-homogenous flow are discussed. The rated and factual data of the flow in the compressor wheel as well as characteristics of the wheel are presented. Further study on causes of uneven velocities of the flow is strongly recommended. Fifteen diagrams. One Russian reference, 1951.

Institution : Central Boiler and Turbine Institute

Submitted : No date

LIVSHITS, S.P., kandidat tekhnicheskikh nauk.

Effect of radial clearance on the performance of axial-flow compressors. Energomashinostroenie no.1:14-18 Ja '56.(MLRA 9:5)
(Air compressors)

LIVSHITS, S.P., kand.tekhn.nauk.

Operation of the nonmovable parts of a centrifugal compressor stage. Energomashinostroenie 3 no.12:11-16 D '57. (MIRA 11:1)
(Gas turbines)

LIVSHITS, S.P.

LIVSHITS, S.P., kandidat tekhnicheskikh nauk.

Centrifugal compressing stage designed by the Central Scientific Research Institute for Boilers and Turbines [with summary in English]. Teploenergetika 4 no.8:23-27 Ag '57. (MLRA 10:9)

1. TSentral'nyy kotloturbinnyy institut.
(Gas turbines)

LIVSHITS, S.P.

LIVSHITS, S.P., kandidat tekhnicheskikh nauk.

On designing a wide range, high economy turbine compressor [with summary in English]. Teploenergetika 4 no.10:65-69 O '57. (MLRA 10:9)

1. TSentral'nyy kotloturbinnyy institut.
(Gas turbines)

LIVSHITS, S.P., kand.tekhn.nauk

Effect of flow twisting and incidence at the inlet of a centrifugal compressor impeller. Energomashinostroenie 4 no.12:15-20 D '58. (MIRA 11:12)

(Compressors)

SOV/96-58-9-9/21

AUTHOR: Livshits, S.P., Candidate of Technical Sciences

TITLE: On the Selection of Axial Dimensions of a Centrifugal Compressor Runner (K voprosu o vybore osevykh razmerov tsentrobezhnogo kompressornogo kolesa)

PERIODICAL: Teploenergetika, 1958, Nr 9, pp 51 - 57 (USSR)

ABSTRACT: The factors that govern the characteristics of a centrifugal compressor runner are closely related to the changes in the mean relative velocities in the runner ducts. To a first approximation, the changes in the relative velocities are determined by the changes in the cross-sections of the ducts. Accordingly, the performance of the runner depends very much on a correct choice of the axial dimensions of the runner. Not much work has been published on this subject, and work done on static diffusers is not applicable to the design of rotating wheels. Therefore, an investigation of the influence of changes in channel sections and axial dimensions of wheels is of immediate interest. First a mathematical analysis is made of the influence of the axial dimensions of a runner on its main characteristics. Expressions are derived for the static head and for the degree of reaction

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On the Selection of Axial Dimensions of a Centrifugal Compressor Runner

of the runner. It is found that if the blades are curved forward or are radial an increase in the ratio of the width at outlet to the width at inlet reduces the head. The opposite effect is observed if the blades curve back. Other theoretical conclusions about runner design are derived. Experiments were made with three groups of wheels of the same type having outlet angles of 32 degrees, 48 degrees, and 90 degrees (radial blades). Each group consisted of four or five wheels differing only in the axial width on the outlet periphery, all the other dimensions being uniform. The tests, made on a single-stage centrifugal compressor as described in Teploenergetika Nr 10, 1955, comprised two series: one with a bladeless diffusor; and another with rotatable inlet blades on the diffusor, as described in Teploenergetika Nr 8, 1957. The changes in the flow structure beyond the wheel as affected by the ratio of axial dimensions can be seen from the curves given in Fig 3. These are curves of change of direction of flow beyond the wheels in stages with bladeless diffusors for wheels with an angle of 32 degrees. It will be noticed that for each wheel

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On the Selection of Axial Dimensions of a Centrifugal Compressor Runner

there is a critical condition at which there is a marked change in the nature of the curves. The reasons for this are discussed. The effect of the breadth ratio on the head, the output and the velocity factor are plotted in Figs 4 and 5. Curves of the head developed with different breadth ratios under different operating conditions are given in Fig 6. Curves of wheel reaction as a function of the ratio of outlet to inlet area are given in Fig 8.

There are 8 figures, 3 literature references (Soviet)

ASSOCIATION: Tsentral'nyy kotloturbinnyy Institut (Central Boiler Turbine Institute)

1. Compressors--Design 2. Rotating structures--Analysis

Card 3/3

86417
S/114/60/000/012/001/009
E194/E484

26.2120

AUTHOR: Livshits, S.P., Candidate of Technical Sciences

TITLE: Certain Problems in Modelling of Centrifugal Compressor Type Machines

PERIODICAL: Energomashinostroyeniye, 1960, No.12, pp.16-19

TEXT: This is a theoretical mathematical article on the problems of modelling centrifugal compressors operating on different gases. Recommendations are made concerning the selection of characteristic parameters and of the ratios in the axial dimensions which are required to ensure aerodynamic similarity of flows in corresponding sections and coincidence between the characteristics of the model and the machine. The use of modelling for compressor design is extending because of the ever-increasing use of compressors. Typical cases of modelling are bricfly reviewed and the problem has been worked out most fully for the case when the initial and the model machine work on a single gas with speed conditions given by Eq.(1). A number of difficulties arise when, as is often the case, it is necessary to make the model operate on a different gas from the original. If the gases are different, complete geometrical similarity combined with aerodynamic similarity of flows occurs only

Card 1/3

Certain Problems in Modelling of Centrifugal Compressor Type Machines

in a single pair of corresponding sections. Eq.(20) is derived for the degree of change of volume of gas in the compressor runner and this equation is applied to the model machine to obtain Eq.(21) and (22). Examination of these equations shows that the commonly recommended method of constructing characteristics of centrifugal compressors in the form of pressure as function of output can ensure coincidence of the characteristics of the modelled machines only in the simplest cases. Dimensionless characteristics are recommended for use in the formulae with which the characteristics of the modelled machines may be made to coincide much more closely. When these criteria are used, the criterion of compressibility need be equalled only when the compressibility is very high and it influences the efficiency. In the general case, the modelling ratio is different in different parts of the compressor and in designing the model machine it is advisable to take this into account. Because of the need for improved methods of modelling

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86417
S/114/60/000/012/001/009
E194/E484

Certain Problems in Modelling of Centrifugal Compressor Type Machines

compressors, the approximate method of modelling recommended in this article urgently requires experimental verification. There are 6 Soviet references.

Card 3/3

S/096/61/000/003/002/012
E194/E155

26.2120

AUTHOR: Livshits, S.P., Candidate of Technical Sciences

TITLE: Interaction Between the Diffuser and the Spiral Chamber in a Centrifugal Compressor Stage of the End Type

PERIODICAL: Teploenergetika, 1961, No. 3, pp. 22-28

TEXT: A special feature of the aerodynamics of a centrifugal compressor stage of the end-entry type is that, except under the designed conditions, the distribution of speed and pressure around the outside of the wheel are not uniform, because the asymmetry of the spiral casing affects the flow. If there are no guide vanes between the runner and the spiral casing the flow in the latter depends mainly on the ratio of the radial to peripheral components of velocity at discharge from the runner; this ratio and the direction of flow in the spiral casing alter as the conditions change. Thus there is uniform distribution of pressure round the runner only under one set of conditions. In centrifugal pumps allowance is usually made for this effect because there is a resultant radial force on the shaft due to the unequal pressure distribution on the runner. In compressors, however, this

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88232

S/096/61/000/003/002/012
E194/E155

Interaction Between the Diffuser and the Spiral Chamber in a Centrifugal Compressor Stage of the End Type

question of shaft strain does not usually arise because the density of the medium is much less. Nevertheless the uneven pressure distribution can cause a number of undesirable effects in the actual runner, including additional losses and vibration. It is accordingly important to equalise the pressure distribution round the runner. A bladed diffuser fitted between the runner and the spiral casing is very useful for this purpose. The direction of flow in the spiral chamber naturally depends on the direction of the outlet edges of the diffuser blades. Particularly good results are obtained if the guide vanes can be rotated, preferably altering the direction of the inlet edges without altering the discharge angles. Tests were made on two variants of an end-entry type stage, one with a bladeless space between the runner and the spiral casing and the other with a rotating vane device designed by the Central Boiler and Turbine Institute. The main design data are given and a sectional diagram of the experimental stage is shown in Fig.1.

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