

FRUMKIN, Ya.P., professor; ZAVILYANSKIY, I.Ya., dotsent

"Neural and psychic diseases" by V.V.Mikheev, T.A.Nevzorova.
Reviewed by IA.P.Frumkin, I.IA.Zavilianskii. Sov.med. 21 no.5:
148-149 My '57. (MIRA 10:7)

(NEUROLOGY) (PSYCHIATRY)
(MIKHEEV, V.V.) (NEVZOROVA, T.A.)

FRUMKIN, Ya.P., prof., doktor med.nauk; ZAVILYANSKIY, I.Ya., kand.med.nauk

Hypochondriac form of schizophrenia. Vop. klin. nevr. i psikh.
no.2:268-290 '58. (MIRA 14:10)
(SCHIZOPHRENIA) (HYPOCHONDRIA)

SHAROV, B.V., kand.med.nauk; VOROKOV, G.L.; AKALOVSKAYA, L.F.; BLEYKHER,
V.M.; FRUMKIN, Ya.P., prof.

Electroencephalographic studies of some psychical diseases. Vop.
klin. nevr. i psikh. no.2:235-267 '58. (MIRA 14:10)
(ELECTROENCEPHALOGRAPHY) (MENTAL ILLNESS)

FRUMKIN, Ya.P., prof., ZAVILYANSKIY, I.Ya., kand.med.nauk (Kiyev)

Vladimir Petrovich Serbskii; on the 100th anniversary of his
birth. Vrach.delo no.4:433-434 Ap '58 (MIRA 11:6)
(SERBSKII, VLADIMIR PETROVICH, 1858-1917)

ROKHLIN, L.L., prof. (Moskva); FRUMKIN, Ya.P., prof. (Kiyev)

S.S. Korsakov. Vrach.delo no.6:649-651 Je '60.

(MIRA 13:7)

(KORSAKOV, SERGEI SERGEEVICH, 1854-1900)

MAKARCHENKO, A.F., prof., otv. red.; KULIKOVSKIY, A.G., kand. med. nauk, red.; LITVAK, L.B., prof., red.; MIRTOVSKIY, N.V., prof., red. [deceased]; MINTS, A.Ya., kand med. nauk, red.; SLONIMSKAYA, V.M., prof., red.; SAVENKO, S.N., prof., red.; FRUMKIN, Ya.P., prof., red.; SHAROVSKIY, S.N., prof., red. [deceased]; BYKOV, N.M., tekhn. red.

[Problems in clinical neurology and psychiatry] Problemy klinicheskoi nevrologii i psikhiiatrii. Kiev, Gos.med.izd-vo USSR, 1961. 308 p.
(MIRA 14:12)

1. Ukrainskoye respublikanskoye obshchestvo nevropatologov i psikhiatrov.
(NERVOUS SYSTEM--DISEASES) (MENTAL ILLNESS)

FRUMKIN, Yakov Pavlovich, prof.; VORONKOV, Georgiy Leonidovich,
dots.; ABASHEV, A.L., red.; NARINSKAYA, A.L., tekhn. red.

[School atlas of psychiatry] Uchebnyi atlas psikhiatrii.
Kiev, Gosmedizdat USSR, 1962. 379 p. (MIRA 16:4)
(PSYCHIATRY)

FRUMKIN, Ya.P., prof.; ZAVILYANSKIY, I.Ya., dotsent

The ethics of psychoterapy; critical evaluation of Freudianism. Nek.
filos.vop.med.i est. no.2:140-149 '60. (MIRA 15:7)
(Psychoterapy)

FRUMKINA, G.D.

~~Effect of the extraction of the first permanent molar on the type of displacement of adjacent permanent teeth in children.~~ Stomatologia 36 no.2:50-54 Mr-Apr '57. (MLRA 10:6)

1. Iz Leningradskoy gorodskoy stomatologicheskoy polikliniki (glavnyy vrach L.M.Persashkevich, nauchnyy rukovoditel' - prof. I.S.Rubinov)

(TEETH ABNORMALITIES AND DEFORMITIES)

FRUMKINA, G.D., CandMed Sci -- (diss) "Effect in
children of extracting the ^{primary} ~~first~~ teeth and the
first permanent molars ^{on} ~~on~~ the formation, teething, and
the setting in the gums of permanent root teeth."

Len, 1958, 13 pp (Len State Order of Lenin Inst for
the Advanced Training of Physicians im S.M.Kirov)

200 copies (KL, 28-58, 111)

FRUMKINA, G.D.

Effect of extraction of milk teeth on the shape of the occlusal surface of the arches of permanent teeth. Stomatologiya 37 no.2:57-58 Mr-Apr '58. (MIRA 11:5)

1. Iz I gorodskoy stomatologicheskoy polikliniki (zav. I.M. Perzashkevich, nauchnyy rukovoditel'-prof. I.S. Rubinov) Leningradskogo gorodskogo otdela zdorvookhraneniya. (TEETH)

FRUMKINA, Gol'da Davydovna; TANFIL'YEV, D.Ye., red.; SAFRONOVA, I.M.,
tekh. red.

[Indications and contraindications for tooth extractions in pre-
school and school age children (from 2 1/2 - 3 to 16 years of age)]
Pokazaniia i protivopokazaniia k udaleniiu zubov u detei v do-
shkol'nom i shkol'nom vozrastakh (ot 2 1/2 - 3 do 16 let). Lenin-
grad, Medgiz, 1962. 46 p. (MIRA 15:5)

(~~TEETH~~-EXTRACTION)

FRUMKINA, G.D.

Effect of caries and the early loss of milk teeth on the time of
dentition of permanent teeth. Stomatologiya 39 no.6:14-16 N-D '60.
(MIRA 15:1)

1. Iz 1-y gorodskoy stomatologicheskoy polikliniki (glavnyy vrach
L.M.Perzashkevich) Leningradskogo gorodskogo otdela zdravookhraneniya.
(TEETH_DISEASES) (DENTITION)

FRUMKINA, G. Ye

CA

11C

PROCESSES AND PROPERTIES INDEX

Effect of ascorbic acid on the growth of anaerobes. G. E. Frumkina and I. S. Nigina (All-Union Inst. for Microbiol. and Epidemiol.). *Zhur. Mikrobiol., Epidemiol. Immunobiol.* 1941, No. 10/11, 37.—When 0.8-1 cc. of a 1:1000 diln. of ascorbic acid was added to cultures of various pathogenic and nonpathogenic anaerobes, it stimulated the growth in all of the 29 cultures tested. It did not stimulate toxin formation of *Clostridium tetani*.
I. Laanes

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

ABSTRACTS

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
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USSR/Diseases of Farm Animals - Diseases Caused by Bacteria
and Fungi.

R-2

Abs Jour : Ref Zhur - Biol., No 11, 1958, 50171
Author : Gromov, V.P., Frumkina, Kh.B.
Inst : Sverdlovsk Farm Institute.
Title : Antivirus Therapy of Bovine Brucellosis.
Orig Pub : Tr. Sverdl. s.-kh. in-ta, 1957, 1, 311-315.

Abstract : Experimental antivirus (AV) therapy was undertaken on 24 cows afflicted with brucellosis. AV was prepared from 3 brucelli strains according to the generally accepted method. The following doses were administered to the cows: for the first injection, 15 ml; then, 15 days later it was followed by a dose of 50 ml, and 30 days after the second injection the same dose was repeated, followed by 50 ml again 30 days after the third injection.

Card 1/2

FRUMKINA, N.

The mixed brigade is the leading form of labor organization in
construction. Sots.trud 4 no.11:77-81 N '59. (MIRA 13:4)
(Construction industry--Labor productivity)
(Wages)

BLANK, L.I., inzh.; FRUMKINA, E.F.

Improving the wage system for machinery operators in the
construction industry. Mekh. stroi. 10 no. 2:15-16 P '61.
(MIRA 14:2)

1. Glavmosstroy (for Blank).
2. Moskovskiy ordena Trudovogo
Znameni inzhenerno-stroitel'nyy institut im. V.V. Kuybysheva
(for Frumkina).
(Wages) (Construction industry)

Frumkina, H.S.

GEL'PERIN, N.I.; KROKHIN, N.G.; FRUMKINA, H.S.

Studying the distillation of fatty-acid ethyl ester mixtures.
Trudy VNIISNDV no.2:134-138 '54. (MLPA 10:7)
(Distillation) (Fatty acids)

FRUMKINA, N.S.; ZELENETSKIY, N.N.; VOYTKEVICH, S.A.; GEL'PERIN, M.I.

Separation of macrocyclic lactones by the vacuum-rectification method. Zhur. VKHO 5 no. 5:595-596 '60. (MIRA 13:12)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut dushistykh veshchestv.

(Lactones)

FRUMKINA, N.S.; VOYTKEVICH, S.A.; GEL'PERIN, N.I.; OGORODNIKOVA, Ye.A.:
DUCHINSKAYA, Yu.I.

Separating C₁₃ - C₁₇ tetrachloroalkanes from telomer mixtures.
Trudy VNIISNDV no. 5:85-92 '61. (MIRA 14:10)
(Polymers) (Paraffins)

FRUMKINA, N.S.; ZELENETSKIY, N.N.; VOYTKEVICH, S.A.; GEL'PERIN, N.I.

Separation of macrocyclic lactones by vacuum rectification.
Trudy VNIISNDV no.5:93-98 '61. (MIRA 14:10)
(Lactones) (Rectification)

FRUMKINA, N.S.; ZELENETSKIY, N.N.

Separation of dl-menthol from a mixture of racemic isomeric menthols
by vacuum rectification. Trudy VNIISNDV no.6;146-150 '63.
(MIRA 17:4)

FRUMKINA, O. Ye.

Influence of removing the milk molars in children on the development,
eruption, and setting of the premolars in the dental arch. Trudy
LSGMI 63:121-127 '60. (MIRA 15:1)
(DENTITION) (TEETH EXTRACTION)

FRUMKINA, R. A.

DECEASED

1964

FLOTATION

c/1963

FRUMKINA, R., referent.

Treatment of fines in heavy suspension (from "The Mining Magazine" May 1956). TSvet. met. 30 no.4:93-94 Ap '57. (MLRA 10:6)
(United States--Ore dressing)

Frankina, R.M.:

GALDIN, N.Ye., [translator] DEMBO, T.M., [translator]; KANTSEL', B.A.,
[translator] KRASHENINNIKOV, V.A., [translator] ~~FRANKINA, R.M.~~
[translator]; SOKOLOV, G.A., redaktor; ZNAMENSKAYA, V.K.,
redaktor; IL'YIN, B.M., tekhnicheskii redaktor.

[World iron ore deposits; collection of articles] Zhelezorudnye
mestorozhdenia mira; sbornik statei. Perevod s angliiskogo,
frantsuzskogo i ispanskogo N.Ye.Galdina, i dr. Pod.Red. i s
predislovie G.A.Sokolova. Moskva, Izd-vo inostrannoi lit-ry.
Vol.1, 1955. 492 p. [Microfilm] (MLRA 9:1)

1. International Geological Congress. 19th, Algiers, 1952.
(Iron ores)

FRUMKINA, R. M.

Ore enrichment at the "Climax" plant. (From: Mining Engineering,
7, no. 8, 1955). TSvet.met. 29 no. 4:94-96 Ap '56. (MLRA 9:8)
(Ore dressing)

Prilozheniya, 1960

TABLE I BOOK EXPLANATION NOV/12/79

Problemy kibernetiki, vop. 7 (Problems of Cybernetics, no. 7) Moscow, Fizmatgiz, 1960. 257 p. 10,000 copies printed.

Compliers: G.V. Fabelovskiy, Y.I. Gertelov, A.Yu. Pivchal, Ye.I. Starobogotov, V.A. Strachan, and S.I. Vokhobovskiy; Eds.: G.V. Fabelovskiy, Ye.I. Starobogotov, and B.I. Fluhov; Tech. Ed.: S.M. Akhmetov; Chief Ed.: A.A. Kopylov.

PURPOSE: This book is intended for mathematicians and scientists interested in the problems of cybernetics and systems control.

COVERAGE: The book is a collection of articles on cybernetics, the theory of control systems, information theory, programming, computers, control processes in living organisms, and mathematical linguistics. The author thanks the following persons for their assistance: Y. Ye. Feinbortovskiy, A.P. Izrael, V.M. Kolotayev, V.K. Korobov, V.I. Levashov, O.B. Lapanov, B.A. Sennat'yev, and M.I. Tsalkin.

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VII. PROBLEMS OF MATHEMATICAL LINGUISTICS

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AVAILABLE: Library of Congress

Card 5/5

45/yr/moa
10-3-60

FRUMKINA, R.M.

Comprehension of a text in case of limited knowledge of the
vocabulary. NTI no.4:44-48 '65.

(MIRA 18:6)

UEL'SON, V.; USPENSKIY, V.; FRUMKINA, Yu.; TARANETS, N. (Kiyev);
PROSHIN, A.

The inspection of red corners is in progress. Sov. profsoiuzy
18 no.24:29-30 D '62. (MIRA 16:1)

1. Instruktor TSentral'nogo komiteta professional'nogo soyusa rabochikh lesnoy, bumazhnoy i derevoobrabatyvayushchey promyshlennosti (for Uel'son).
2. Instruktor TSentral'nogo komiteta professional'nogo soyusa rabochikh zheleznodorozhnogo transporta (for Uspenskiy).
3. Starshiy redaktor metodicheskogo otdela TSentral'nogo Doma rabotnikov zheleznodorozhnikov (for Frumkina).
4. Neftepereobrabatyvayushchiy zavod imeni XXII partiynogo s'yezda, g. Baku (for Proshin).

(Community centers)

FRUMKINA, YU. A.

S/131/62/000/005/001/004
3105/3138

AUTHORS: Aleksandrova, T. A., Prokhorova, I. Ya., Galushko, N. A.,
Shabashov, Ya. P., Frumkina, Yu. A.

TITLE: Carborundum-graphite crucibles for the melting of copper-
base alloys

PERIODICAL: Ogneupory, no. 5, 1962, 208-211

TEXT: A production process for crucibles suitable for producing copper-chromium master alloys and chromium bronze in the high-frequency furnace CKE-281 (OKB-281) has been developed at the Vsesoyuznyy institut ogneuporov (All-Union Institute of Refractory Materials). 500 kg crucibles were produced by hydrostatic pressing in the Luzhskiy zavod "Krasnyy tigel'" (Luga Plant "Krasnyy tigel'"). The charge consisted of carborundum, crucible graphite, elementary silicon, and Chasov-Yar clay, with sulfite-alcohol waste liquor, density 1.27 g/cc., as binder. During the burning, β -SiC is formed from the elementary silicon and graphite: $\text{Si} + \text{C} \rightarrow \beta\text{-SiC}$. Si_{el} and SiC were determined in the analytical chemistry laboratory of the VIO by K. E. Kolobova's method. After burning the
Card 1/3

Carborundum-graphite crucibles for ... S/131/62/000/005/001/004
B105/B138

crucibles showed the following properties: apparent porosity 19.8%, compressive strength 145 kg/cm², electrical volume resistivity 0.0044 ohm · mm²/m, permeability to gas 0.02 l·m/m²·hr·mm water column, depth of cavity in a sandblast wearability test 4.9 mm, coefficient of thermal conductivity at 800°C = 8.5 kcal/m·hr·degree. Microscopic examination showed that the crucibles contained no metal after use in the OKB-281 furnace. 500 kg carborundum-graphite crucibles have a life of 35-40 copper-chromium melts, and up to 75 for the EX-08 (BKH-08) bronze. Because of the low resistivity of the crucibles, the furnace could be finely adjusted, the metal melted more rapidly and, besides this, the electro corundum crucible bedding was well fritted. These crucibles are suitable for the producing copper-base alloys with a permissible silicon content of up to 0.02 - 0.03%. There are 2 figures and 5 tables.

Card 2/3

Carborundum-graphite crucibles for ...

S/131/62/000/005/001/004
B105/B138

ASSOCIATION: Vsesoyuznyy institut огнеупоров (All-Union Institute of Refractory Materials) (Aleksandrova, T. A., Prokhorova, I. Ya.); Zavod "Krasnyy Tigel'" (Plant "Krasnyy Tigel'") (Galushko, N. A.); Zavod "Krasnyy Vyborzhets" (Plant "Krasnyy Vyborzhets") (Shabashov, Ya. F., Frumkina, Yu. A.).

Card 3/3

BUTOMO, D.G.; VAYZHLIA, N.M.; ZVONKINA, V.F.; KOSHURIN, A.V.; SERGEYEV, L.N.;
FRUMKINA, Yu. A.

Concerning the "Handbook on the processing of nonferrous metals and
alloys" TSvet.met. 35 no.12:60 D '62. (MIRA 16:2)

1. Sovet Nauchno-tehnicheskogo obshchestva zavoda "Krasnyy
Vyborzhets".

(Nonferrous metals)

FRUMKIS, I.F., inzh; MININZON, V.I.

Traction force of tractors with hydrostatic transmission. Mekh.
i elek. sots. sel'khoz. 19 no.3:14-18'61. (MIRA 14:5)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut mekhanizatsii
sel'skogo khozyaystva.
(Tractors--Transmission devices)

CRISTOVICI, M., ing.; FRUMOSU, B., ing.; APOSTOLESU, M., ing.; SIVRIU,
M., ing.; MARIN, I., ing.; POPESCU, M., ing.

Application joint flotation of lead and zinc of nonferrous ores
in order to apply a new metallurgic method. Rev min 15 no.11:
582-585 N '64.

KATSALAPENKO, V.I., inzh., retsenzent; LEONOV, A.A., inzh., retsenzent;
MIRSKIY, A.G., inzh., retsenzent; POGODIN, A.M., inzh.,
retsenzent; SHARSKIY, A.A., kand. tekhn.nauk, retsenzent;
FRUMSON, A.N., inzh., retsenzent; SIMYREV, A.G., inzh.,
retsenzent; YURTSEV, I.I., inzh., retsenzent; BUNINA, D.A., inzh.,
red.; MEDVEDEVA, M.A., tekhn. red.

[Automatic control, remote control, and communications on a.c.
railroads] Avtomatika, telemekhanika i sviaz' na zheleznykh
dorogakh s elektrotiaagai peremennogo toka; sbornik statei. Pod
obshchei red. D.A.Bunina. Moskva, Vses. izdatel'sko-poligr.
ob"edinenie M-va putei soobshchenia, 1961. 201 p.

(MIRA 15:2)

(Electric railroads--Electronic equipment)
(Automatic control) (Remote control)

KOSHELEV, V.A. (Moskva); FRUMSON, V.I. (Moskva)

In search of the "devil" of Lake Labyntyr. Priroda 52 no.3:
83-89 '63. (MIRA 16:4)
(Sordongnokh region--Freshwater fauna)

FRUMOSU, B.

The Petrila Preparation Plant. Revista Minelor (Mining Journal), #8:256: Aug 55

STEPANOV, N.G.; PRUMON, Yu.V.

Using electric analog net models in calculating the pressure
distribution in a gas pool. Gaz. prox. 9 no.11:9-13 '64.
(MIRA 17:12)

HUTTMANN, A.; PASZTOR, P.; COJOCARU, L.; TAFFET, E.; UIARIU, I.; ENYEDI, C.;
FRUMUZACHE, A.; IANCU, I.; MOSOIU, G.; STEFANESCU, C.

Correlations between the degenerative changes in the cervical spine and arterial hypertension. Probl. reumat., Bucur. no.6: 99-108 '59.

(HYPERTENSION, etiology)

(SPINE, diseases)

(OSTEOCHONDRITIS, complications)

(ARTHRITIS RHEUMATOID, complications)

FRUNDER, H.; MITTEFF, I.

Observations on the glycolysis and tricarboxylic acid cycle
in liver tissue in connection with disturbance of the cell structure.
Acta physiol. hung. 9 no.1-3:53-59 1956.

1. Physiologisch-chemisches Institut der Karl-Marx-Universität
Leipzig, und Hoheres medizinisches Institut Iwan Petrowitsch Pawlow,
biochemische abteilung, Plowdiw.

(LIVER, metab.

glycogen, -keto-glutaric acid, lactic acid & pyruvic acid,
comparison of concentration balance in homogenate to
concentration in vivo (Ger))

(GLYCOGEN, metab.

liver, comparison of concentration in homogenate to
concentration in vivo (Ger))

(LACTIC ACID, metab.

same)

(PYRUVATES, metab.

same)

(KETONE ACIDS, metab.

-keto-glutaric acid, comparison of concentration in liver
homogenate to concentration in vivo (Ger))

VOYUTSKIY, S.S.; YAGNYATINSKAYA, S.M.; FRUNKIN, L.S.; YEPITSEYEVA, S.N.;
RAYEVSKIY, V.G.

Method for determining polymer adhesion + powdered fillers. Zav.
lab. 30 no.10:1222-1223 '64. (MIRA 18:4)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni
Lomonosova.

EKONOMU, T.; FRUNZA, A.; GAVRILITA, N.; TEZHA, Zhorzhen

Pseudarthrosis of the graft following arthrodesis in Pott's disease in children. Khirurgia 15 no.2/3:242-246 '62.

1. Iz Detska klinika po khirurgia i ortopedia, Meditsinski institut - IAsh.

(TUBERCULOSIS SPINAL surg)
(PSEUDARTHROSIS etiol)

L 39136-66 EWP(j)/T IJF(c) RM

ACC NR: AP6030343

SOURCE CODE: RU/0003/65/016/003/0134/0138

AUTHOR: Frunza, Gh.; Matache, S.

31
B

ORG: none

TITLE: Production of pure acrylonitrile¹² for the manufacturing of synthetic fibers

SOURCE: Revista de chimie, v. 16, no. 3, 1965, 134-138

TOPIC TAGS: synthetic fiber, acrylonitrile, acetylene, monomer

ABSTRACT: After a general discussion of the purification methods for acrylonitrile used in most existing plants, the authors describe a simplified purification method for the monomer obtained by the direct method from acetylene and hydrocyanic acid. Some data are presented showing the efficacy of the method in laboratory tests. This work was carried out at the Synthetic Fibre Plant, Savinesti. Orig. art. has: 5 figures and 8 tables. [Based on authors' Eng. abst.] [JPRS]

SUB CODE: 07, 11 / SUBM DATE: none / ORIG REF: 001 / OTH REF: 006

Card 1/1

L 47280-66 EWF(1) RM
ACC NR: AI6034660

SOURCE CODE: RU/0003/66/017/003/0131/0135

FRUNZA, Gh. of the Factory of Synthetic Fibers, Savinesti (Uzina de fibre sintetica)

"Contributions to the Study of the Reaction Mechanism in the
Synthesis of Acrylonitrile by Catalytic Addition in Liquid Phase." ¹⁹ B

Bucharest, Revista de Chimie, Vol 17, No 3, Mar 66, pp 131-135.

Abstract [Author's English summary modified]: After a critical analysis of some suggested reaction mechanisms for the synthesis of acrylonitrile by direct catalytic addition in the liquid phase, the author suggests a new reaction mechanism on the basis of experimental and theoretical considerations. The proposed mechanism involves several successive main stages with the formation of active intermediate products by reversible reactions, and accounts for the formation of numerous by-products. Orig. art. has: 11 formulas and 2 tables. [JPRS: 36,862]

TOPIC TAGS: acrylonitrile, organic synthetic process

SUB CODE: 07 / SUBM DATE: none / ORIG REF: 004 / OTH REF: 002

Card

1/1 *pld*

UDC: 546.339.211.07

0921 1286

FRUNZA, V.

"TU-114 the greatest airplane of the world; 220 passengers, 1000 kilometers per hour."

p. 21 (Viata Militara) Vol. 11, no. 11, Nov. 1957
Bucharest, Rumania

SO: Monthly Index of East European Accessions (EEAI) LC. Vol. 7, no. 4,
= April 1958

FRUNZE, G. M.

B. B. Korshak, G. M. Frunze, E. V. Kukharskaya and D. I. Andreyeva, "The Synthesis of Polyamides from Silicon-containing Dicarboxylic Acids."

Report presented at the Second All-Union Conference on the Chemistry and Practical Application of Silicon-Organic Compounds held in Leningrad from 25-27 September 1958
Zhurnal prikladnoy khimii, 1959, Nr 1, pp 238-240 (USSR)

FRUNZE, Mikhail Vasil'yevich; MOZZHUKHEN, Ye.P.; KUZNETSOV, V.B.

[Selected works] Izbrannye proizvedeniia. Moskva,
Voenizdat, 1965. 526 p. (MIRA 18:8)

L 44578-66 EWT(m)/EWP(j)/T IJP(c) WW/RM

ACC NR: AP6015660 (A) SOURCE CODE: UR/0413/66/000/009/0073/0073

INVENTOR: Frunze, N. K.; Berlin, A. A.; Braynes, M. Ya.; Shaydurova, N. K.

ORG: none

TITLE: Method of obtaining compositions suitable for photopolymerization.
Class 39, No. 181280 15

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 9, 1966, 73

TOPIC TAGS: photopolymerization, copolymer, polymerization initiator, photosensitivity, oligoether

ABSTRACT: An Author Certificate has been issued for a method of obtaining compositions suitable for photopolymerization using the acrylic copolymer series, an oligorhythmic compound, a polymerization initiator, and a sensitizer. To expand the variety of photosensitive compositions, a butylmethacrylate/copolymer/with methacrylamide is used as the copolymer, and an oligoether such as dimethacrylate-

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Card 1/2

UDC: 771. 531. 678. 744. 32-134. 548. 3:66. 095. 265

Card 2/2 287

FRUMKIS, I.V.

Seminar on the electrification of agriculture. Mekh. i elek.sots.
sel'khoz. no.5:58-59 '56. (MIRA 12:4)
(Electricity in agriculture)

FRUMKIS, I.V.

Scientific and technical conference. Mekh.i elek.sots.sel'.khoz.
no.6:57-59 '57. (MIRA 10:12)
(Minsk--Agricultural machinery--Congresses)

BELINSKAYA, Ye.A.; FRUMKIS, I.V.

Mechanized loading and unloading on livestock farms of the U.S.A.
Mekh. i elek. sots. sel'khoz. 15 no.1:52-56 '58. (MIRA 11:3)
(United States--Farm mechanization)
(Loading and unloading)

FRUMKIS, I.V., inzh.

New tractors (from the tractor exhibition). Mekh. 1 elek. sots.
sel'khoz. 16 no.4:49-52 '58. (MIRA 11:10)
(Tractors)

TREPENENKOV, Igor' Isidorovich, kand.tekhn.nauk; CHUDAKOV, D.A., prof.,
doktor tekhn.nauk, retsenzent; PRUMKIS, I.V., inzh., red.;
AVSHAROVA, Ye.G., red.isd-va; MODEL', B.I., tekhn.red.

[Operational indices of agricultural tractors] Ekspluatatsionnye
pokazateli sel'skokhoziaistvennykh traktorov. Moskva, Gos.nauchno-
tekhn.isd-vo mashinostroit.lit-ry, 1959. 191 p. (MIRA 12:3)
(Tractors)

FRUMKIS, I.V.

In the Scientific Technical Council of the Ministry of Agriculture
of the U.S.S.R. Mekh. i elek. sots. sel'khoz. 17 no.2:58-59 '59.
(MIRA 12:6)

(Agricultural machinery) (Tractors)

FRUMKIS, I.V., inzh.

Exhibition of tractors. Mekh.i elek.sots.sel'khoz. 17
no.5:47-51 '59. (MIRA 12:12)
(Tractors--Exhibitions)

FRUMKIS, I.V., inzh.; MININZON, V.I., kand.tekhn.nauk

Systems and parameters of the hydrostatic transmission systems
of agricultural tractors. Mekh. i elek. sots. sel'khoz. 20
no.3:21-25 '62. (MIRA 15:7)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut mekhanizatsii
sel'skogo khozyaystva.

(Tractors)

FRUMKIS, I.V., inzh.; MININZON, V.I., kand. tekhn. nauk

Some trends in the development of foreign tractor hydraulic systems. Mekh. i elek. sots. sel'khoz. 21 no.5:59-62 '63.
(MIRA 17:1)

FRUMKIS, I.V., inzh.; MININZON, V.I., kand.tekhn.nauk

Investigating the traction component of the hydraulic motor in tractors. Trakt. i sel'khoz mash. 33 no.8:9-12 Ag '63. (MIRA 16:11)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut mekhanizatsii sel'skogo khozyaystva.

FRUNZE, T. M.

USSR/Chemistry

Card 1/1

Authors : Korshak, V. V., Memb. Corres. of Acad. of Sc. USSR.; and Frunze, T. M.

Title : Connection between the structure of a ring and the properties of heterocyclic polyamides

Periodical : Dokl. AN SSSR, 97, Ed. 2, 261 - 264, July 1954

Abstract : The connection between the structure of a ring and the properties of heterocyclic polyamides is explained. Table is given showing the melting points of heterocyclic polyamides derived from dicarboxylic acids or amino acids with even number of methylene groups. This table also contains data on the amount of amide groups in the chain and the number of macro-molecules measured in molar percentages. An increase in the number of amide groups by 1 mol. % leads to an increase in the melting point of polyamides by 7. The possibility of formation of hydrogen bonds is determined by the stereo chemistry of the macro-molecules. One reference. Tables graph.

Institution : Acad. of Sc. USSR, Institute of Elementary-Organic Compound

Submitted : March 22, 1954

USSR/Chemistry - Reaction processes

Card 1/1 : Pub. 22 - 27/46

Authors : Korshak, V. V., Memb. Corresp. of AN-USSR.; and Frunze, T. M.

Title : About interchange reactions between polyamide macro-molecules

Periodical : Dok. AN SSSR 97/ 4, 675-678, Aug 1, 1954

Abstract : The phenomenon of interchange reactions between macro-molecules of polyamides (di- and tri-component polyamides), was investigated. Data on the preparation of polyamides are included. It was established that the interchange reactions between polyamide macro-molecules are an integral part of the polycondensation equilibrium and apparently take place with the participation of end macro-molecule groups. The products obtained from reactions between polyamide macro-molecules, are described. Twelve USSR references (1944-1953).

Institution : Acad. of Sc. USSR, Institute of Elementary-Organic Compounds

Submitted : March 22, 1954

Frunze, T. M.

USSR/ Chemistry - High-molecular compounds

Card 1/2 Pub. 40 - 21/27

Authors : Korshak, V. V., and Frunze, T. M.

Title : High-molecular compounds. Part 69. The dependence of polyamide properties upon the number of hydrogen bonds.

Periodical : Izv. AN SSSR. Otd. khim. nauk 1, 163-171, Jan-Feb 1955

Abstract : Experiments were conducted to determine the effect of change in the number of hydrogen bonds on the properties of polyamides. It was found that because of the existing spatial hindrances a majority of the amide bonds cannot react and form hydrogen bonds which, of course, is reflected on the entire complex of physical properties of the polymer.

Institution : Acad. of Sc., USSR, The N. D. Zelinskiy Inst. of Org. Chem.

Submitted : December 12, 1953

Card 2/2 Pub. 40 - 21/27

Periodical : Izv. AN SSSR. Otd. khim. nauk 1, 163-171, Jan-Feb 1955

Abstract : Results also showed that the melting point of dicarboxylic acid polyamides with an even number of carbon atoms in the molecule varies depending upon the number of carbon atoms in the molecule varies depending upon the number of amide or hydrogen bonds. A graphical method is introduced for the determination of the number of hydrogen bonds between the molecules in mixed polyamides. Twenty-five references: 6 USA, 1 German and 18 USSR (1936-1954). Tables; graphs; drawing.

FRUNZE, T. M.

USER/ Chemistry - Organic chemistry

Card 1/1 Pub. 40 - 25/26

Authors : Korshak, V. V., and Frunze, T. M.

Title : From the field of high molecular compounds. Part 73. About certain di-component mixed polyamides

Periodical : Izv. AN SSSR. Otd. khim. nauk 2, 372 - 379, Mar-Apr 1955

Abstract : Investigation was conducted to determine the physico-chemical properties of certain binary mixed polyamide systems synthesized from caprolactam and salts of hexamethylenediamine mixed with adipic, azelamino or sebacic acids. At a ϵ -caprolactam content of 80 mol/% the systems investigated appeared to have a very low melting point. The mechanism of the reaction leading to the formation of mixed polyamides for systems containing ϵ -caprolactam is explained. Thirty-one references: 21 USSR, 7 German, 2 USA and 1 French (1896-1954). Table; graphs.

Institution : Acad. of Sc., USSR, The N. D. Zelinskiy Inst. of Organ. Chem.

Submitted : February 10, 1954

FRANZ T M

KORSHAK, V.V.; FRUNZE, T.M.

From the field of high molecular weight compounds. Report no.74. Effect of aromatic components on the properties of mixed polyamides. Izv.AN SSSR. Otd.khim.nauk no.3:551-557 My-Je '55. (MLRA 8:9)

1. Institut organicheskoy khimii Akademii nauk SSSR.
(Amides)

KORSHAK, V.V.; FRUNZE, T.M.

From the field of high molecular weight compounds. Report no.76,
Pole of exchange reactions in polyamidation. Izv. AN SSSR Otd.
khim.nauk no.3:563-566 My-Je'55. (MLRA 8:9)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.
(Asidation) (Ion exchange)

Funke, T.M.

High molecular compounds *Oct 77*
V. Korshak and T.M. Funke

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Inst. Org. Chem. in N.D. Zelinsky, Acad. Sci. USSR

Frunze, T.M.

KORSHAK, V.V.; FRUNZE, T.M.

High molecular weight compounds. Report no.78. Relation of properties of aliphatic polyamides with odd rings to the ring structure. Izv. AN SSSR. Otd.khim.nauk no.4:762-765 JI-Ag '55. (MIRA 9:1)

1. Institut organicheskoy khimii imeni N.D.Zelinskogo Akademii nauk SSSR. (Amides)

FRUNZE, T.M.

11

✓ High molecular weight compounds. LXXIX. Products
 of polycondensation of dialdehydes and diketones with di-
 amines and glycols. V. V. Korshak and S. V. Vinogradova.
 Bull. Acad. Sci. U.S.S.R., Div. Chem. Sci. 1955, 811-4
 (Engl. translation). LXXX. A case of migrational copoly-
 merization. Ibid. 815-7. LXXXI. Mixed polyamides
 containing glutaric and phthalic acids. V. V. Korshak and
 T. M. Frunze. Ibid. 840-61. LXXXII. 2,4,5-Trisopropyl-
 α-methylstyrene. V. V. Korshak and N. G. Matveeva.
 Ibid. 855-6. — See C.A. 50, 6325f. B. M. H.

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Frank, J.M.

KORSHAK, V.V.; FRUZE, T.M.

High molecular weight compounds. Part 81. Mixed polyamides derived from glutaric and pimelic acids. Izv.AN SSSR.Otd.khim.nauk no.5: 934-941 S-0 '55. (MLRA 9:1)

1. Institut elementoorganicheskikh soedineniy Akademii nauk SSSR.
(Amides)

FRUNZE-T.M.

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Chem

✓ (a) Properties of mixed polyamides obtained by polycondensation of binary systems. (b) Multicomponent mixed polyamides. V. V. Korshak and T. M. Frunze (*Dokl. Akad. Nauk SSSR*, 1955, 103, 623-626, 843-846). (A) The m.p. of polyamides prepared from binary mixtures of the acids $(CH_2)_n(CO_2H)_2$ (n is 2-8) with $(CH_2)_m(NH_2)_2$ pass through a min. when the mixtures contain 60 mol.-% of the acid with higher n ; the min. are lower for acids of odd than of even n . For polyamides prepared from amino-acids $NH_2(CH_2)_nCO_2H$ (n is 5, 6, 8, and 11), alone or with a dicarboxylic acid-diamine system, min. m.p. are encountered with 40-80 mol.-% of amino-acid, and for dicarboxylic acid-aromatic diamine systems min. m.p. are at 60-80 mol.-% of diamine [2 : 4-diaminotoluene or *o*-, *m*-, and *p*-phenylenediamine].

(b) The polyamides prepared from the ternary systems (a) mixtures of $NH_2(CH_2)_nNH_2 \cdot CO(CH_2)_mCO_2H$, where n is 4, 7, and 8, (b) mixtures of $NH_2(CH_2)_nNH_2 \cdot CO(CH_2)_mCO_2H$ (I) where n is 4 and 7 with $NH_2(CH_2)_5CO_2H$ (II) (n is 5), (c) mixtures of I (n is 7 and 8) with II (n is 10), and (d) mixtures of $NH_2(CH_2)_5NH_2 \cdot CO(CH_2)_mCO_2H$ with $NH_2(CH_2)_nCO_2H$ (n is 5 and 6), have the lowest m.p. when the constituents are mixed in about equimol. proportions.

R. TRUSCOE.

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M.H. YOUTZ

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FRUMZE, T.M.

High-molecular weight compounds. LXXXVII. Mixed polyamides containing in their composition the residues of some amino acids. V. V. Korshak and T. M. Frumze (Inst. Heteroorg. Compds., Acad. Sci. U.S.S.R., Moscow). *Zest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1956, 93-102; *Bull. Acad. Sci. U.S.S.R., Div. Chem. Sci.* 1956, 93-6 (Engl. translation); cf. C.A. 49, 12373i; 50, 11282g. Binary systems were examd. which were prepd. from mixed polyamides formed from ω -aminoacanthic, ω -aminopelargonic, or ω -acetylmaleamic acids and from hexamethylenediamine salts of adipic, azelaic, and sebacic acids. The substances are colorless horny solids, which readily form fibers and are sol. in PhOH and mineral acids; the soly. and m.p. are directly related in this group. The m.ps. of the products are min. at about 0.0-0.8 mole fraction of the amino acid in the compn. The m.p.-compn. curves are shown graphically. Generally the m.ps. decline in accordance with the number of methylene groups in the chain of the starting materials. LXXXVIII. Polyamides containing ether links in the macromolecular chain. V. V. Korshak and G. N. Chelnokova. *Zest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1956, 103-7; *Bull. Acad. Sci. U.S.S.R., Div. Chem. Sci.*, 1956, 97-100 (Engl. translation). $-(CH_2CO_2H)_n$ and $(CH_2)_m(NH_2)_2$ form a salt, m. 165-6°. A similar salt was prepd. from p - $C_6H_4(CO_2H)_2$ and $(CH_2OCH_2CH_2)_nNH_2$, m. 208-9°; the corresponding salts were made from: adipic acid (1), m. 119-20°; azelaic acid, m. 114-15°; sebacic acid, m. 147-8°. These salts were converted by heating into polyamides, whose m.ps., resp., were: 75-8°, 236-40°, 175-80°, 127-30°, and 157-60°. The 1st was sol. in cresol and HCl and hot EtOH; the 2nd was sol. in HCl and cresol; the remaining ones were sol. in hot EtOH and slightly

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KORSHAK, V.V., FRUNZE, T.M., ...

in hot H_2O . Thus the ether link lowers the m.p. of the polyamide and raises the soly. The ether link is more effective in this manner when it is located in the acid residue rather than in the diamine. Copolymers were prepd. from caprolactam and I in various proportions; these solid horny substances also can form fibers on stretching in the cold state; the m.p. of the mixed product shows a min. at about 40 mole-% caprolactam. Mixed polyamides from I and hexamethylenediamine adipate were also studied; in this binary system the min. m.p. results at about 10% (mole) I. LXXXIX. Three-component systems of mixed polyamides including amino

acids. V. V. Korshak, T. M. Frunze, and T. A. Ilikareva. *Izv. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1956, 108-13; *Bull. Acad. Sci. U.S.S.R., Div. Chem. Sci.* 1956, 101-105 (Engl. translation).—Ternary system diagrams are presented for mixed polyamides prepd. from combinations of ω -aminocaproic, ω -aminopelargonic, or ω -aminoundecanoic acids, and hexamethylenediamine salts of adipic, azelaic, or sebacic acids or caprolactam. The lowest m.p.s. and highest soly. are found in products near the centers of the ternary diagrams. XC. Polycondensation of 1,2-dichloroethane with Tetralin. G. S. Kolesnikov, V. V. Korshak, M. A. Andreeva, and A. I. Kitigorodskii. *Izv. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1956, 114-19; *Bull. Acad. Sci. U.S.S.R., Div. Chem. Sci.* 1956, 107-111 (Engl. translation).—Polycondensation of $(CH_2Cl)_2$ with tetrahydronaphthalene in the presence of $AlCl_3$ was studied in mixts. of various compns. treated 4 hrs. at 100° . With excess Tetralin the yield of polymeric product is const. and independent of the proportion of other reactants; with excess $(CH_2Cl)_2$, the polymer yield declines. The polymer of max.

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KORSHAK, V.V., FRUNZE, T.M., ...

mol. wt. is formed with 1.1/1.0 ratio of Tetralin to (C₆H₅Cl)₂. The low mol. wt. product is 1,2-bis(2-tetrahydrophenyl)ethane, m. 99-100°, b. 190-210° (crude). X-ray analysis of the material gave the following unit cell dimensions: a 13.35 Å., b 8.01 Å., c 7.97 Å., λ 101.12°; space group P2₁/c, Z = 2 per unit cell. No tridimensional polymer forms in this reaction. The polymeric product does not show osmotic pressure in CCl₄ until the soln. reaches about 10% concn. XCI. Transarylation of 1,2-diphenylethane at various temperatures. G. S. Kolesnikov and V. V. Korshak. *Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1956, 232-8; *Bull. Acad. Sci. U.S.S.R., Div. Chem. Sci.* 1956, 223-7 (Engl. translation); cf. *C.A.* 46, 7617d.—Specimens of (PhC₆H₄)₂ were heated at const. temp. with AlCl₃, with stirring in N₂ atm. and the amt. of evolved C₆H₆ detd. vs. time. The residual polyphenylethyl was isolated as usual. The results shown graphically indicate that in the temp. range 80-105° the transarylation reaction is 2nd-order with activation energy 11,400 cal. per mole. The chain growth of the polymer results both from interaction of the polymer mols. and from reaction of the monomer with a growing chain. The mol. wt. of the polymer increases with rising temp. as does the amt. of tridimensional product formed; the latter shows max. mol. wt. of about 15,000 at 150°. XCII. Effect of catalyst concentration on transarylation of 1,2-diphenylethane. *Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1956, 239-42; *Bull. Acad. Sci. U.S.S.R., Div. Chem. Sci.* 1956, 229-31 (Engl. translation).—Increase of concn. of AlCl₃ used in the reaction (cf. part XCI) results in gradually increasing yield of the polymer up to 13.6 mole-% AlCl₃; the rate of reaction rises linearly with concn. of AlCl₃. The yield of tridimensional polymer rises with increased AlCl₃ concn. in

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KORSHAK, V.V. FRUNZE, T.M., ...

a series of expts. run at 140°. The mol. wt. of the polymer tends to rise with increased concn. of the catalyst. The tri-dimensional polymer forms primarily from the highest mol. wt. chains. XCIII. Properties of polyesters of tetramethylene glycol and 1,3-butanediol. V. V. Korshak and S. V. Anisimovskaya. *Zhur. Obshchei Khim.* 26, 630-44(1952); cf. *C.A.* 50, 252af. — Polyesters were prepd. from tetramethylene glycol or 1,3-butanediol with oxalic, malonic, succinic, adipic, glutaric, pimelic, azelaic, sebacic, and decanedicarboxylic acids. The polyesters from tetramethylene glycol were solids whose r.i.ps. showed the saw-tooth alternation; the oxalate, m. 103-5°, malonate, m. -20° to -24°, succinate, m. 113-14°, glutarate, m. 26-3°, adipate, m. 68-69°, azelate, m. 311-41°, pimelate, m. 49-51°, sebacate, m. 64-7°. The polyesters of 1,3-butanediol were liquids with solidification temps. in the -1° to -48° range which also showed a similar alternation but which was less pronounced. The m.ps. of the polyester fractions from tetramethylene glycol do not show any appreciable variation with changed mol. wt. XCIV. Polyesters of trimethylene and pentamethylene glycols. *Ibid.* 544-8. — Polyesters of $(\text{CH}_2)_3(\text{OH})_2$ and $(\text{CH}_2)_5(\text{OH})_2$ were prepd. with dicarboxylic acids from oxalic to decanedicarboxylic. These were low-melting solids, generally showing a rising m.p. past succinic acid ester; the esters with malonic acid were liquids, m. about -25°, which represented a singular min. The succinates melted above the glutarates. The polyesters from glycols with an odd no. of C atoms destroy the factor of even-odd sequence, beginning with glutarates, i.e. alternation of melting temp. and fluidity and soly. no longer exists.

G. M. Kosolapoff

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FRUNZE, T. M.

USSR/ Chemistry - Molecular compounds

Card 1/1 Pub. 40 - 19/25

Authors : Korshak, V. V.; Frünze, T. M.; and Dikareva, T. A.

Title : High molecular compounds. Part 89. Tri-component mixed polyamide systems containing amino acids

Periodical : Izv. AN SSSR, Otd. khim. nauk 1, 108-113, Jan 1956

Abstract : Ternary mixed polyamide systems containing ω -aminoanthric, ω -aminopelargonic or ω -aminoundecane acids and salts of hexamethylenediamine with adipic, azelaic or sebacic acids as well as ϵ -carbolactam in various combinations, were investigated. It was found that products with lowest melting points and maximum solubility have average compositions and are oriented in the central part of the diagram. The products containing carbolactam in addition to the amino base acids were found to be different from the carbolactamless products. Three USSR references (1955). Tables; diagrams.

Institution : Acad. of Sc., USSR, Inst. of Organoelemental Compounds

Submitted : August 18, 1954

FRONZE, T. M.

Chem / Synthetic heterocyclic polyamides. V. V. Korshak, T. M. Fronze and N. G. Matveeva (*U.S.P. Khim.*, 1956, 25, 419-485). ~~Synthetic~~ polyamide chemistry is comprehensively reviewed from 1881 to the present time. The 690 references and patents appended are cross-indexed in tabular form with correlated data relating to prep. from the following: (a) diamine with dicarboxylic acid, (b) amino acid, (c) cyclic lactam (or deriv.), (d) N-carboanhydride of amino acid, (e) polyurethane and polyurea (prepared from diisocyanate with glycol or diamine), and (f) bis-oxazolone. Concluding sections discuss general applications, crystallization, mechanical properties and also prep. of mixed polyamides. A. L. B.

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KORSHAK, V.V.; FRUNZE, T.M.

High molecular weight compounds. Part 98. Relation of the properties of mixed polyamides to the amount of hydrogen bonds. Zhur.ob. khim. 26 no.4:1212-1216 Ap '56. (MLRA 9:8)

1. Institut elementoorganicheskikh sovedineniy Akademii nauk SSSR.
(Amides)

FRUTZE, T. M., KORSHAK, V. V., MAKARKIN, V. A., and KRASHYANSKAYA, E. A.

"Properties of co-polyamides as a function of their composition," a paper presented at the 9th Congress on The Chemistry and Physics of High Polymers, 28 Jan-2 Feb 57, Moscow, P⁰lymer, Research Inst.

B-3,084,395

FRUNZE, T. M.

Heterochain polyamides. I. Effect of substituents at the nitrogen on the properties of polyamides from p,p'-diaminodiphenylmethane. V. V. Korshak, T. M. Frunze, and E. A. Krasnyanina (Inst. Heteroorg. Compds., Moscow). Izvest. Akad. Nauk S.S.S.R., *Chem. Khim. Nauk* 1957, 628-30. — Polyamides were prepd. conventionally from adipic, azelaic, or sebacic acids and also from (p-H₂NCH₂)₂CH₂, (p-MeNHCH₂)₂CH₂, or (p-RtNHCH₂)₂CH₂. Substitution at the N atoms lowers the softening and m.p.s. of the polyamides, the effect being greater with the larger substituent. The polyamides with a given aniline also show a decline of softening temp. with increased mol. wt. of the dibasic acid used, and the odd-even sequence is not apparent. It is suggested that properties of the polyamides are dictd. largely by H bonds between the amide groups and that interaction of the aryl rings is but of secondary importance.

G. M. Kosolapov

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Frünze, T. M.

7 Distr: 4E1j/4E2c(j)
 Heterochain polyamides. II. Kinetic peculiarities of
 polycondensation of diamines with dicarboxylic acids. V.
 M. Kharitonov, T. M. Frünze, and V. V. Korshak (Inst.
 Heterochain Polyamides, Moscow). *Dokl. Akad. Nauk
 S.S.S.R., Old. Russ. Nov. 1957, 1002-4; cf. C.A. 43,
 4347c; 51, 15464f.* Kinetic curves are shown for polyamide
 formation on heating salts of hexamethylenediamine with
 adipic and azelaic acids in cresol under N at 195-205°.
 The yield of polyamide from either salt rises steadily with
 time and the mean mol. wt. also rises, the rates being com-
 parable for both examples studied. The reaction follows
 2nd order kinetics. Activation energy for the deriv. of
 adipic acid is 16,800 cal./mole and that for the azelaic deriv.
 is 20,900 cal./mole. G. M. Kosolapoff

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FRUNZE, T.M.

Distr: 4E2c(j)

✓ Hetero-chain polyamides. III. Kinetics of polymerization of ϵ -caprolactam in the presence of hexamethylenediammonium salts. V. M. Kharitonov, T. M. Frunze, and V. V. Korshak. *Int. Heteroorg. Compds. Acad. Sci. U.S.S.R. Moscow*. *Izvest. Akad. Nauk S.S.S.R., Divid. Khim. Nauk* 1957, 1134-6; cf. C.A. 52, 4657e. Kinetic data (tabular) for polymerization of caprolactam indicate that the mechanism of chain growth changes during the process, but that the polymerization *per se* follows the bimol. process. In the 1st stages the amt. and mol. wt. of polymer rise rapidly, after which the no. of moles of polyamide reaches a plateau. The last stages appear to be influenced by the liberated H_2O , which is involved in hydrolysis, aminolysis, and acidolysis side reactions. From data collected at 191°, 205°, and 215° the activation energy of the polymerization process is estd. at 24,150 cal./mole. IV. Study of kinetics of formation of mixed polyamides from hexamethylenediamine salts. *Ibid.* 1138-8. Kinetics of polycondensation of hexamethylenediamine salts with adipic and azelic acids show that the adipate enters the reaction first, being more reactive, and only in latter stages does the system come to a form of equil. as to compn. of the mixed polyamide being formed. The compn. of such polyamides in the final stages is detd. by the proportions of reactants used rather than by kinetics of individual steps. G. M. Kosolapoff.

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FRUNZE, T. M.

Distr: 4E2c(j)/4E4j

High-molecular weight compounds. Dependence of softening temperatures of polyamides and polyesters on the structure of the links. V. I. Korshak, S. V. Vinogradova, and T. M. Frunze (Inst. Heteroorg. Compds., Acad. Sci. U.S.S.R., Moscow). *Zhur Obshchei Khim.* 27, 1600-11 (1957); cf. C.A. 49, 8879c; 50, 13813g. -- The previous collection of data on softening points of polyamides and polyesters is examd. in relation to their structures. In general the more readily packed links yield poly deriva. with higher softening points; ether, sulfoxide, side-chain, and m- or o-groups hinder packing and lower the softening points.

G. M. Kostapoff

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FRUNZE, T. M.

AUTHORS: Kharitonov, V. M., Frunze, T. M., Korshak, V. V. 62-1-26/29

TITLE: From the Field of Heterochain Polyamides (Iz oblasti getero-tsepykh poliamidov). Report 5: The Investigation of the Kinetics of the Formation of Combined Polyamides From Hexamethylenediammonium-azelainate and ξ -caprolactame (Soobshcheniye 5. Issledovaniye kinetiki obrazovaniya smeshannykh poliamidov iz geksametilendiammoniy-azolainata i ξ -kaprolaktama).

PERIODICAL: Izvestiya AN SSSR Otdeleniye Khimicheskikh Nauk, 1958, Nr 1, pp 115-117 (USSR)

ABSTRACT: Before this paper the results of the investigation of the kinetics of the polycondensation of hexamethylenediammonium-adipinate and of the hexamethylenediammoniumazelainate (references 1-5) were communicated by the authors. As to the present report (5): The reaction was carried out according to the already earlier described method. It was found that in the common polycondensation of the hexamethylenediammoniumazelainate and ξ -caprolactame in the first place the more active component (hexamethylenediammoniumazelainate) enters the polyamidation reaction and only in the last stages of the reaction the composition of the initial reaction mixture (and of the forming polyamides) becomes equal. Furthermore it was shown

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From the Field of Heterochair Polyamides. Report 5: The 62-1-26/29
Investigation of the Kinetics of the Formation of Combined Polyamides
From Hexamethylenediammonium-azelaate and ϵ -caprolactame.

that in the formation processes of the combined polyamides the structures of the forming polymers is determined only in the last stages by the correlation of the initial substances (and not by the kinetics). There are 3 figures and 5 references, 5 of which are Slavic.

ASSOCIATION: Institute of Elemental-Organic Compounds, AS USSR and the All-Union Scientific Research Institute for Synthetic Fibers (Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR i Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo volokna)

SUBMITTED: August 8, 1957

AVAILABLE: Library of Congress

1. Amides-Synthesis
2. Hexamethylenediammoniumazelaate-Condensation reactions
3. ϵ -Caprolactame-Condensation reactions

Card 2/2

Frunze, T. M.

AUTHORS: Korshak, V. V., Frunze, T. M., Petrova, V. F. 62-2-14/28

TITLE: From the Field of Heterogeneous Chain Polyamides (Iz oblasti geterotsepykh poliamidov). Information 6: The Production of Polyamides and Polyamide Esters by Means of an Aminolysis of Polyesters (Soobshcheniye 6. Polucheniye poliamidov i poli-amidoefirov putem aminoliza poliefirov).

PERIODICAL: Izvestiya AN SSSR Otdelentye Khimicheskikh Nauk, 1958, Nr 2, pp. 217-220 (USSR).

ABSTRACT: The suitability of the above-mentioned high-molecular compounds for diverse exchange reactions under the influence of low-molecular initial substances was already shown by some examples. The acydlolysis of the polyesters by the action of adipic acid as well as the alcoholysis of polyesters were examined. The aminolysis of polyesters is a reaction of this type which has hitherto not been described in publications. It is of interest because it may be considered a way toward the production of polyamide esters and polyamides. In the present paper the authors deal with the reaction of the aminolysis of polyethylensebacinate with hexamethylendiamine (table 1). It was found that in the final result an exchange of the ethylene-

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From the Field of Heterogeneous Chain Polyamides. Information 6: 62-2-14/28
The Production of Polyamides and Polyamide Esters by Means of
an Aminolysis of Polyesters.

-glycol residues and the residues of the hexamethylen-di-
amine takes place, where polyamide esters or polyamides (in
dependence on the common behavior of the initial substances)
formed. There are 2 tables and 4 references, 4 of which are
Slavic.

ASSOCIATION: Institute for Element-Organic Compounds AN USSR (Institut
elementoorganicheskikh soyedineniy Akademii nauk SSSR).

SUBMITTED: August 9, 1956

AVAILABLE: Library of Congress

1. Polyesters-Exchange reactions
2. Polyamides-Production
3. Polyamide esters-Production

Card 2/2

AUTHORS: Frunze, T. M., Korshak, V. V. 62-58-3-15/30

TITLE: From the Field of Heterogeneous Chain Polyamides (Iz oblasti geterotsepnnykh poliamidov)
Communication 8. On the Solubility of Mixed Polyamides (Soobshcheniye 8. O rastvorimosti smeshannykh poliamidov)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Otdeleniye Khimicheskikh Nauk, 1958, Nr 3, pp. 344-352 (USSR)

ABSTRACT: In this work special attention was paid to ethyl alcohol, for it is the most favorable solvent for many types of mixed polyamides. The authors investigated the inter-dependence between the solubility and the composition of mixed polyamides of diverse structure. They showed that the solubility of mixed polyamides was considerably improved, especially of those which were obtained from a polyamide-forming component. For this see table 1. The influence exerted by the composition upon the melting temperature is greater than upon the solubility. It was found that for the investigated series of polyamides the solvents are according to their dissolving ability divided into phenols, alcohols,

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From the Field of Heterogeneous Chain Polyamides.
Communication 8. On the Solubility of Mixed Polyamides

62-58-3-15/30

methyl- and ethyl-cellosolve. In that series in which the polyamides show the lowest melting temperature their solubility is the best. It was further found that the introduction of aromatic components into the composition of the mixed polyamide leads to a deterioration of the solubility of the obtained products. There are 4 figures, 8 tables, and 6 references, all of which are Soviet.

ASSOCIATION: Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR (Institute for Elemental-organic Compounds, AS, USSR)

SUBMITTED: September 10, 1956

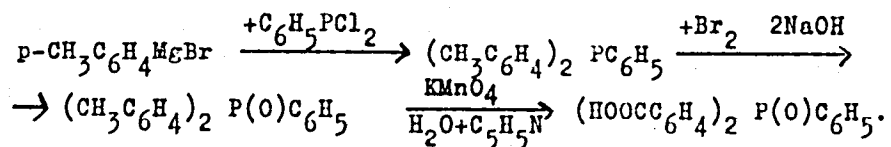
Card 2/2

AUTHORS: Frunze, T. M., Korshak, V. V., SOI/62-58-6-26/37
Kurashev, V.V., Kolesnikov, G. S., Zhubanov, B. A.

TITLE: On Some Phosphorus-Containing Polyamides (O nekotorykh fosforsoderzhashchikh poliamidakh)

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye khimicheskikh nauk, 1958, Nr 6, pp. 783 - 785 (USSR)

ABSTRACT: In order to explain the influence exercised by the phosphorus atom upon the properties of polyamides a number of polymers was obtained by the polycondensation of bis-(p-carboxyphenyl) phenylphosphin oxides with various aliphatic and aromatic diamines. The initial acid was obtained by the authors according to the following scheme:



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Polycondensation took place under the usual conditions (Ref 1).
 From the results mentioned (Tables 1,2) it may be seen that

On Some Phosphorus-Containing Polyamides

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with the lengthening of the carbon chain of diamine from tetramethylene to decamethylene diamine softening-temperatures are reduced. At the same time, fluctuation becomes weaker. There are 2 tables and 6 references, 4 of which are Soviet.

ASSOCIATION: Institut elementoorganicheskikh sovedineniy Akademii nauk SSSR (Institute of Elemental-organic Compounds AS USSR)

SUBMITTED: January 27, 1958

1. Amides--Chemical properties
2. Phosphorus--Chemical effects
3. Condensation reactions

Card 2/2

AUTHORS: Korshak, V. V., Frunze, ~~I. M.~~ SOV/79-28-7-62/64
Andreyev, D. N., Kukharskaya, E. V.

TITLE: Letter to the Editor (Pis'mo v redaktsiyu), On the Properties of Polyamides With Siloxane Groupings (O svoystvakh poliamidov s siloksanovymi gruppirovkami)

PERIODICAL: Zhurnal obshchey khimii, 1958, Vol 28, Nr 7, pp 1997 - 1998 (USSR)

ABSTRACT: The general interest prevailing in organosilicon compounds caused the authors to deal with the problem of whether the siloxane groupings in the chain of the initial dicarboxylic acid could exert an influence on the properties of the polyamides. For this purpose they synthesized polyamides from three dicarboxylic acids of the structure $\text{HOOC}-(\text{CH}_2)_2-\text{Si}(\text{R}_1, \text{R}_2)-\text{O}-\text{Si}(\text{R}_1, \text{R}_2)-(\text{CH}_2)_2-\text{COOH}$, where 1) $\text{R}_1 = \text{R}_2 = \text{CH}_3$, 2) $\text{R}_1 = \text{R}_2 = \text{C}_2\text{H}_5$, 3) $\text{R}_1 = \text{CH}_3$, $\text{R}_2 = \text{C}_2\text{H}_5$. From these acids polyamides were obtained by polycondensation with aliphatic and aromatic diamines, and from the mixtures of these acids as well as from the adipinic

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Letter to the Editor. On the Properties of Poly-
amides With Siloxane Groupings

SOV/79-28-7-62/64

acid with hexamethylene diamine mixed polyamides were produced. It turned out that the introduction of siloxane compounds leads to the formation of polymers. They are of a rubber-like nature and have low melting points as compared to those produced from azelaic acid, which fact obviously depends on the influence of the siloxane grouping as well as on the presence of the side substituents at the silicon atom; also the lower melting point and other properties in the substitution of the methyl- by the ethylradical at the silicon atom tend to show this dependence.

ASSOCIATION: Institut elementarnooorganicheskikh sovedineniy Akademii nauk SSSR i Institut khimii silikatov Akademii nauk SSSR (Institute of ~~Elemental-organic~~ Compounds, AS USSR, and Institute of the Chemistry of Silicates, AS USSR)

SUBMITTED: April 10, 1958

Card ~~2/3~~

SOV/20-121-3-19/47

AUTHORS:

Koushak, V. V., Corresponding Member, Academy of Sciences,
JOHN: Franze, F. H.

TITLE:

Some Regularities of Melting Temperature Variations in
Homologous Series of Metro Chain Polymers (O nekotorykh
zakonychnosti izmeneniya temperatury pлавleniya v
omologicheskikh ryadakh geterotsennykh polimarov)

REFERENCE:

Zhurnal Obshchey nauk SSSR, 1958, Vol. 121, Nr 3, pp.459-461
(RUS)

ABSTRACT:

The very interesting problem of the relation between the structure of the polymers and their properties was frequently investigated. (Refs 1-5). Later on more detailed investigations showed that there is a linear dependence not only in the case of the straight polyamide series but also in other series of the compounds mentioned in the title. Therefore the authors investigated the homological series of polyureas, polyamides, polyurethanes, polyethers and polyanhydrides. It turned out that in all these series there is a certain dependence between the number of methylene groups in the member and the

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SOV/20-121-3-18/47

Some Regularities of Melting Temperature Variations in Homological Series of Hetero Chain Polymers

melting temperatures of the polymers (Ref 4, polyamides). The conformity of the mentioned polymer types proved to be so complete that in the case of a graphical representation of the dependence between the melting temperature and the characteristic features of hetero chains all lines on the diagram intersect the axis of ordinates in one point. The ratio between the number of hetero bindings in the member and the number of methylene groups in δ forms the characteristic feature of hetero chains (Ref 5). According to figure 1a the line plotted through the experimentally obtained points is close to the straight line. Hence, in each polyamide series of the same structure a linear dependence of the mentioned properties exists. Thus, the angle of inclination of the lines concerned is changed according to the structure of the member. In the case of polyamides obtained from acids and diamines with an even number of methylene groups in the molecule this angle is largest. It makes a difference whether the odd number of these groups is in the diamine or in the dicarboxylic acid. The inclination of the angle depends on that. An equation was derived for each of the mentioned groups

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Some Regularities of Melting Temperature Variations in Homological Series
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of compounds (Table 1). According to figures 1a - v the line plotted through the experimentally obtained points is close enough to the straight line constructed according to equations. The angle of inclination of the straight line varies according to the structure of hetero compounds. It is largest in the case of polyureas followed by polyamides with an even number of methylene groups then with various combinations of odd members. They are followed by polyurethanes and finally by polyamides with sulfide sulfur and a mono ether binding in the macromolecular chain. There are 1 figure, 1 table, and 8 references, 4 of which are Soviet.

ASSOCIATION: Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR
(Institute of ~~Elemental~~-Organic Compounds AS USSR)

SUBMITTED: April 14, 1958

Card 3/3

FRUNZE, T.M.; KORSHAK, V.V.; v vypolnenii eksperimental'noy raboty
prinimali uchastiye; KRASNYANSKAYA, E.A.; MAKARKIN, V.A.;
ZHIROVA, L.V.

Heterochain polyamides. Part 12: Isomorphism of polymers in the
polyamide group. Vysokom.soed. 1 no.2:287-292 F '59.
(MIRA 12:10)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.
(Amides) (Polymers)

FRUNZE, T.M.; KORSHAK, V.V.; v provedeni eksperimental'noy raboty prinimala uchast'ye, Zhirova, L.V.

Heterochain polyamides. Part 13: Mixed polyamides containing sulphur atoms in the main chain. Vysokom.socd. 1 no.2:293-300 F '59. (MIRA 12:10)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.
(Amides)

~~FRUNZE, T.M.~~; KORSHAK, V.V.; MAKARKIN, V.A.

Heterochain polyamides. Part 14: Amorphous structures
in polyamides. Vysokom. soed. 1 no.3:342-348 Mr '59.
(MIRA 12:10)

1. Institut elementoorganicheskikh soedineniy AN SSSR.
(Amides) (Polymers)