

MARKOVA, G. B.

Chitosan for sizing. F. I. Sadov and G. B. Markova. *Tekstil. Prom.* 14, No. 10, 39 (1953). Chitosan (4% solution) in 18-20% yield by 5% HCl and 40% NaOH treatments of sea food shells is successfully used instead of edible starch in prepreg of size 1, easily sol. in 1-2% HOAc and diss. with H<sub>2</sub>O to a desired concn.; can be stored for long periods without coagulation. The wear resistance of articles thus sized was increased, probably because of the fact that this size is not washed out. Elizabeth Barabash

MARKOVA, G B

Investigation of conditions for dyeing knitted fabrics with vat dyes. S. A. Melikhov and G. B. Markova, Nauch-Issledovatel. Trudy Moskov Tekstil Inst. 13,24-32 (1954); Referat. Khim., Khim. 1955, No. 2878. -- Cotton and viscose knitted fabrics were successfully dyed in a mech. dye bath with vat dyes both by the suspension and reduction methods. The results of the expts. are evaluated and the best conditions for carrying out the process are outlined.

N. Hosen

Clipped Abstract

S/191/62/000/001/004/006  
B145/B110

AUTHORS: Nessonova, G. D., Pogosyants, Ye. K., Markova, G. B.,  
Grinevich, K. P.

TITLE: Sodium-ethyl and sodium-methyl siliconates and their applica-  
tion in the textile industry

PERIODICAL: Plasticheskiye massy, no. 1, 1962, 20-24

TEXT: The suitability of the hydrophobic organosilicon liquids TKX10  
(GKZh 10) and TKX11 (GKZh 11) for the impregnation of cotton fabrics was  
tested. GKZh 10 and GKZh 11 are strongly alkaline, aqueous-alcoholic  
solutions of ethyl and methyl siliconates, containing about 30% dry  
substance. According to the formula  $[R-Si(OH)_2ONa]_{1.5}$ , the siliconates  
are present as a monomer-dimer. Coarse cotton cloth, interlock fabrics  
and serge were used for the investigation. The impregnation time was  
5 min, and the optimum concentration of the silicate solutions amounted  
to 2-4% of the weight of dry substance. Impregnation increases water-  
proofness and its stability against the effect of weather, light and  
perspiration; the mechanical strength increases (breaking strength of the  
Card 1/2

Sodium-ethyl and sodium-methyl .

S/191/62/000/001/004/006  
B145/B110

interlock fabric increases from 27.3 to 33.0 kg), water absorption decreases, and the fabrics become soft, silky, and pleasant to the touch. A 10-min thermal treatment at 135°C after drying in air proved most suitable with respect to waterproofness stability against repeated washing with soap and soda. If the fabrics are first treated with 0.5-2.0% solutions of Cu, Sn, Zn, Ni, Pb, Cd, Ca, and other salts which form scarcely soluble compounds with siliconates in water, and afterward with 3% solution of GKZh 10 or GKZh 11, the adhesiveness of organosilicon compounds to the fabric surface is increased. In this case, the fabrics are dried at 70-80°C for 10-15 min after impregnation. Best results were obtained with Ni and Cu salts (water resistance 170-180 mm water after triple washing at 100°C). The type of the anion used is of no effect. There are 3 figures, 11 tables, and 4 Soviet references.

Card 2/2

ACC NR: AP6034032

(A)

SOURCE CODE: UR/0342/66/000/010/0052/0054

AUTHOR: Nessonova, G. D. (Docent); Gulinkina, I. R. (Assistant); Markova, G. B. (Docent); Grinevich, K. P. (Chief of laboratory)

ORG: [Nessonova and Gulinkina] Moscow Textile Institute (Moskovskiy tekstil'nyy institut)

TITLE: Hydropholing properties of polyalkyl- or polyaryl-siloxanes<sup>b</sup>

SOURCE: Tekstil'naya promyshlennost', no. 10, 1966, 52-54

TOPIC TAGS: hydropholing, silicone, cotton fabric, silicone emulsion, water repellency, FABRIC COATING, TEXTILE ENGINEERING

ABSTRACT: A study has been made of the hydropholing of cotton fabrics with aqueous emulsions of polymethyl-, polyethyl- or polyphenylsiloxane (GKzh94M)<sup>b</sup> GKzh94 or GKzh94P, respectively) stabilized with such emulsifiers as Sol'var [poly(vinyl alcohol) containing 10--15% acetate groups]. Alkamon )K-2, OP7-type compounds or gelatin. The silicones were used in the form of aqueous emulsions because their solutions in toxic and inflammable organic solvents cannot be used in the textile industry. The water-repellency of cotton fabric impregnated with silicone emulsions was equal to that of fabrics impregnated with silicone solutions. The best results were obtained in alkaine baths containing about 3% silicone. At 140--150C impregnation proceeded rapidly regardless of the nature of the radical. The maximum water-

Card 1/2

UDC: 677.064.862.001.5

ACC NR: AP6034032

repellency of fabrics impregnated at 18--20C with polymethyl- or polyethylsiloxanes was obtained after 7--10 days, but that of fabrics impregnated with polyphenylsiloxane was attained after 50--60 days. Treatment of impregnated fabrics with soap and soda lowered their water-repellency. However, this process was shown to be reversible, and the initial properties were recovered by heating the treated fabrics to 130--150C for 10--20 min or by ironing for 2--3 min. Orig. art. has: 3 figures and 1 table.

SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 002/ OTH REF: 001/

Card 2/2

MIREV, I. F.

"MIREV", I. F. -- "The Spread of Bacterial Infections in the USSR -  
Statistics of Its Course during the War in Industry and Agriculture." *Trudy  
Vuzov, Akad. Nauk SSSR*. (Abstracts for the Journal of the  
Academy of Medical Sciences.)

SO: Legionnaires Moskva (Journal - 1943)

MANCHEVA, N., dots.; MARKOVA, G.

Combined therapy of habit scoliosis with physical methods associated with ultraviolet rays. Suvrem.med., Sofia 6 no.2:64-70 1955.

(SCOLIOSIS, therapy,

phys.ther.with ultraviolet rays)

(ULTRAVIOLET RAYS, therapeutic use,

scoliosis, with phys.ther.)

(PHYSICAL THERAPY, in various diseases,

scoliosis, with ultraviolet rays)



**MARKOVA, G.F.**

The effect of prolonged therapeutic sleep combined with therapeutic diet on the course of peptic ulcer. Vest.khir. 77 no.11:12-16 N '56.

(MLRA 10:1)

1. Iz gastroenterologicheskogo otdeleniya (sav. - prof. O.L.Gorden) Kliniki lechnogo pitaniya Instituta pitaniya ANU SSSR, Moskva.

(PEPTIC ULCER, ther.

diet & sleep)

(SLEEP, ther. use

peptic ulcer, with diet)

(DIETS, in various dis.

peptic ulcer, with sleep ther.)

MARKOVA, G.F.

GORDON, O.L., prof.; MARKOVA, G.F., kand.med.nauk

Effect of total gastric resection on certain functions of the organism.  
Sov.med. 21 no.8:39-50 Ag '57. (MIRA 10:12)

1. Iz kliniki lechebnogo pitaniya (dir. - prof. F.K.Men'shikov)  
Instituta pitaniya (dir. - zasluzhennyy deyatel' nauk, chlen-kor-  
respondent Akademii meditsinskikh nauk SSSR prof. O.P.Molchanova)  
Akademii meditsinskikh nauk SSSR.

(GASTRECTOMY

total, early & late sequelae (Rus))

ALIYEVA, Vera Ivanovna; MARKOVA, G.F.; NESTEROVA, A.P.

[Diet in chronic diseases of the digestive system] Pitaniye pri  
khronicheskikh zheludochno-kishechnykh bolezniakh. Moskva,  
Medgiz, 1958. 78 p. (MIRA 12:4)  
(DIET IN DISEASE) (DIGESTIVE ORGANS—DISEASES)

*MARKOVA G.F.*

GORDON, O.L.; MARKOVA, G.F.; OLENEVA, V.A.; TARNOPOL'SKAYA, P.D. (Moskva)

Role of penicillin in the combined therapy of peptic ulcer. Klin.  
med. 36 no.2:22-26 'P' '58. (MIRA 11:4)

1. Iz otdela lechebnogo pitaniya (zav. - prof. F.K.Men'shikov)  
Instituta pitaniya AMN SSSR (dir. - chlen-korrespondent AMN SSSR  
prof. O.P.Molchanova)

(PENICILLIN, ther. use

peptic ulcer, adjuvant in combined ther. (Rus))

(PEPTIC ULCER, ther.)

GORDON, O.L.; OLENEVA, V.A.; GOKHAR', L.G.; MARKOVA, G.F.

Adequate optic chronaximetry in patients with chronic stomach  
diseases. Vest.LGU 14 no.3:136-140 '59. (MIRA 12:5)  
(STOMACH--DISEASES) (VISION)

MARKOVA, G.F., kand.med.nauk

Diet in gastritis. Zdorov'ie 7 no. 2:26-27 P '61. (MIRA 14:2)  
(STOMACH—INFLAMMATION) (DIET IN DISEASE)

MARKOVA, G. F.

Problems in the clinical aspects and treatment of patients after  
gastrectomy. Khirurgiia no.2:71-77 '62. (MIRA 15:2)

1. Iz kliniki lechebnogo pitaniya (dir. - doktor meditsinskikh  
nauk L. M. Levitskiy) Instituta pitaniya AM SSSR.

(STOMACH—SURGERY)

MARKOVA, G.F.

Pathogenesis of some disorders arising after gastrectomy. Vest.AMN  
SSSR 17 no.6:58-67 '62. (M.I.A 15:8)

1. Institut eksperimental'noy i klinicheskoy onkologii AMN SSSR  
i Institut pitaniya AMN SSSR.  
(STOMACH—SURGERY) (DIGESTIVE ORGANS—DISEASES)



BORISOV, A.P.; MARKOVA, G.F.

Specific dynamic action of food after total resection of the stomach in man. Vop.pit. 21 no.3:32-37 My-Je '62. (MIRA 15:10)

1. Iz kliniki lechebnogo pitaniya (zav. L.M.Levitskiy) i laboratorii obmena veshchestv i energii (zav. - chlen-korrespondent AMN SSSR prof. A.P.Molchanova) Instituta pitaniya AMN SSSR, Moskva.  
(PROTEINS) (STOMACH--SURGERY) (METABOLISM)

MARKOVA, G.F., kand.med.nauk

Nutrition in cholecystitis. *Zdorov'e* 9 no.2:26-27 P '63.  
(MIRA 16:3)

(GALL BLADDER—DISEASES) (DIET IN DISEASE)

MARKOVA, G.F.

Reflex action of the digestive tract system after total  
gastrectomy. Vopr. Khim. i Biol. 6:116-118 (1967)

Institute of Physiology, USSR Academy of Sciences  
Institute of Physiology, USSR Academy of Sciences

DRIATSKIY, N.M., inzh.; IVANOVA, A.A., inzh.; MARKOVA, G.L., inzh.

High-frequency tandem apparatus for 12 and 60-channel groups  
of telephone channels. Vest. ~~svyazi~~ 21 no.6:3-5 Je '61.  
(MIRA 14:9)

(Telephone)

DRIATSKIY, N.M., inzh.; IVANOVA, A.A., inzh.; MARKOVA, G.L., inzh.

Apparatus for the separation of 60-channel telephone channel  
groups in multichannel high-frequency telephony systems.  
Vest. sviazi 24 no.12:3-6 D '64 (MIRA 18:2)

MEZHENNYI, V.I., inzh.; MARKOVA, G.N., inzh.

Design of a centralized control diagram for the parameters of  
a diesel electric power plant. Substrenie 30 no.9:52-54 1962.  
(MIRA 17:1)

TOVBIN, M.V.; POPOVA, V.V.; TOVBINA, Z.M.; RADOVSKIY, B.S.; MARKOVA, G.P.

Dynamics of the diffusion extraction of substances from alumina  
gel. Koll. zhur. 25 no.4:472-477 J1-Ag '63. (MIRA 17:2)

1. Kiyevskiy universitet, kafedra fizicheskoy i kolloidnoy  
khimii.

1ST AND 2ND CROSS

100 AND 10TH CROSS

AC

ABSTRACTS AND REPERIODICALS UNIT

**Acid catalysis in liquid ammonia. III. Catalysis of the reaction of ammonolysis of amides by acid amides, phenols, and other weak acids. G. S. MARROVA and A. I. SCHATTENSTEIN. IV. Kinetics of the ammonolysis of pilocarpine in liquid ammonia in the presence of ammonium salts. A. I. SCHATTENSTEIN and G. S. MARROVA**

(Acta Physicochim. U.R.S.S., 1959, 11, 117-131, 131-151; cf. A., 1957, I, 251).—III. The catalytic activity of  $NH_4$  salts of weak mineral and carboxylic acids, phenols, carboxyl-amides and -imides, derivatives of aquo- and ammono-carbonic acids, nitro-aniline,  $MeNO_2$ , and carbazole have been investigated and correlated with the acidic character of solutions of these compounds in liquid  $NH_3$ .

IV. The reaction of pilocarpine with liquid  $NH_3$  is accompanied by a lowering of sp. rotation. The rate of reaction has been studied polarimetrically at 0°, 10°, 20°, and 30° in the presence of a no. of  $NH_4$  salts. The reaction is pseudo-unimol. The influence of  $2N-NaBr$ ,  $-NaNO_3$ ,  $-NaI$ , and  $-NaClO_4$  on the reaction in presence of  $NH_4Cl$  and  $NH_4Br$  has been studied. The catalytic activity of the  $NH_4$  salts depends on the nature of the anions present. The anion activities are in the order  $Cl^- > Br^- > NO_3^- > I^- > ClO_4^-$ .

O. D. S.

ASB-516 METALLURGICAL LITERATURE CLASSIFICATION

FROM: 157012100

COLLECTOR:

FROM: 204179

RELEAS: 06/14/2000

100 AND 10TH CROSS



600

MARKOVA4G8S8

1. MARKOVA, G.S.; S. TEMPLEY, A.I.

2. USSR (600)

"The Physico-Chemical Properties of Solutions in Liquefied Gases" Part XVIII.  
"The Catalysis of the Reaction of Ammonia (ammonolize) of Cyanide by  
Acides of Acids, Alcohols, and other weak Acids," Zhur. Fiz. Khl , 13, No. 8,  
1939. Moscow, Physico-Chemical Institute imeni I. Ya. Kurnov, Laboratory of  
Compressed Gases. Received 7 March 1939.

Report U-1615, 3 Jan. 1952

REF ID: A64478

60

1. GATSONIDIS, A. I.; Chem. Phys. Lett.

2. 1968 (60)

"The Physico-Chemical Properties of Ammonia in Condensed Phase" Part IV.  
"The Kinetics of the Reaction of Ammonia with Hydrogen Peroxide in Liquid  
Ammonia in the Presence of Various Catalysts," Ann. N.Y. Acad. Sci., 1968, 157, 1-10.  
Moscov, Physico-Chemical Institute of the U.S.S.R. Academy of Sciences,  
Gauss. Div. 12, March 1968.

Robert U-1, 3 Jan. 1968

*H. y. Kuznetsov*

*Br. ibo.*

**Kinetics of oxidation of organic halides in liquid ammonia.** G. S. Markova and A. I. Schatenstein (*Compt. rend. Acad. Sci. U.R.S.S.*, 1962, 25, 68-70). Unimol. velocity coeffs. ( $k$ ) are recorded for reaction of liquid  $\text{NH}_3$  at 25° with a no. of  $\text{RCl}$ ,  $\text{RBr}$ , and  $\text{RI}$  at concn. 0-33 mol-%  $\text{RX}$ , where  $\text{R}$  is an alkyl radical up to  $\text{C}_{10}$ .  $k$  is increased by the presence of salts in the order  $\text{Li}^+ > \text{Na}^+, \text{Ca}^{2+} > \text{Sr}^{2+} > \text{Ba}^{2+}, \text{Br}^- > \text{NO}_3^- > \text{ClO}_4^-$ . [ ] ]



MARKOVA, G. S.

Chemical Abstracts  
Vol. 48 No. 5  
Mar. 10, 1954  
Synthetic Resins and Plastics

Electronographic investigation of crystalline polymers.  
I. Linear polymers. V. A. Kargin and G. S. Markova.  
~~U.S.S.R. Phys.-Chem. Inst., Moscow. J. Phys. Chem. U.S.S.R. 27, 1236-40 (1953); cf. C.A. 46, 3304k.~~  
Polyamides made by the condensation of diamines contg. 4-10 CH<sub>2</sub> groups with dicarboxylic acids contg. 4-8 CH<sub>2</sub> groups were studied by means of electron diffraction. Samples 100-1000 A. thick were examd. with 60-kv. electrons. The observed identity periods in A. are tabulated for 7 polyamides, a nylon copolymer, and 4 diamine salts of dicarboxylic acids. Polyamides have a highly regular structure, giving diffraction patterns similar in line width to those of cryst. org. compds. of low mol. wt. Diamine salts of dicarboxylic acids have a less regular structure. Polyamide diffraction patterns are very similar as regards the no. of reflexes and their intensities, differences in chain structure notwithstanding. J. W. Loweberg, Jr.

Chen  
③

7-27-54

MARKOVA, G. S.

U.S.S.R.

Electronographic study of crystalline polymers. II. Polychloroethylene chloride and a series of its copolymers. V. A. Kargin and G. S. Markova (*U. S. S. R. Phys. Chem. Inst. Moscow*, *Khim.*, 27, 1525-9 (1973); *cf. C.A.* 48, 3061). The interplanar distances of polymers of vinyl chloride (I) and vinylidene chloride (II), as well as 7 copolymers of mixts. of I and II contg. 10-85% II, were detd. by electron diffraction. Data are tabulated for as many as 16 planes. The regularity of polymer chains is correlated with polar groups. The diffraction patterns of all samples contg. 75% or more of II are identical. The lack of dependence of the diffraction patterns on order in the chain or on its parameters indicates that polymer crystals consist of planes passing through polar groups in the different chains; they are defect crystals, completely ill-ordered in the 3rd dimension. J. W. Lowenberg, Jr.

71-11-100-1-A, 6-3

Electronographic study of polymers. III. A study of structure changes in crystalline and amorphous polymers with the temperature. V. A. Kargin and G. S. Markov, (I. Ya. Kurnov Inst. Phys. Chem., Moscow, *Zh. Fiz. Khim.* 29, 1273-7 (1955); *cf. C.A.* 49, 8020k. — Samples of polyethylene, gutta-percha, polyamide (from hexamethylenediamine and adipic acid), poly(methyl methacrylate), polystyrene, and poly(vinyl chloride) were studied electronographically at different temps. A phase transformation was observed in all the cryst. polymers studied; but the absence of phase transformation was confirmed in poly(methyl methacrylate), polystyrene, and poly(vinyl chloride) at temps. above the softening point of the polymers. An accentuation of many reflections on the diffraction diagrams was observed at temps. close to the fusion of the polymer crystals, and the reversibility of the structure in the subsequent cooling. The results point to the specificity of the polymer crystal structure. — W. M. Sternberg.

71-11-100-1-A, 6-3

71-11-100-1-A, 6-3

**MARKOVA G.S.**

USSR/Chemistry - Physical chemistry

Card 1/1 Pub. 22 - 33/52

Authors : Kargin, V. A., Academician; Karpov, V. L.; Lipatov, Yu. S.;  
Markova, G. S.; and Koretskaya, T. A.

Title : About the phase condition of hydrate cellulose films

Periodical : Dok. AN SSSR 101/4, 707-709, Apr 1, 1955

Abstract : The phase condition of hydrate cellulose compounds obtained through three different methods was investigated by means of electrons with an energy of 90 kev. The existence of foreign crystalline inclusions in the cellulose films even after 3 days of thorough washing was established electromicroscopically. A study of the entire conversion process - from isotropic, swollen hydrate cellulose into highly orderly arranged fibers - showed that the phase conversions do not affect the complete conversion process. The fact that cellulose compounds are amorphous was confirmed. Thirteen references: 10 USSR, 2 German and 1 USA (1917-1953). Table; illustrations.

Institution : .....

Submitted : November 11, 1954



1 MARKOVA G.S.

Category : USSR/Optics - Spectroscopy

K-6

Abs Jour : Ref Zhur - Fizika, No 2, 1957, No 5117

Author : Markova, G.S., Sadovskaya, G.K., Kargin, V.A.

Inst : Physicochemical Institute, Moscow

Title : Change in Infrared Absorption Spectra Upon Softening and Hardening of Crystalline and Amorphous Polymers.

Orig Pub : Zh. fiz. khimii, 1956, 30, No 2, 437-441

Abstract : An investigation was made of gutta-percha polytrifluor-chlorethylene, polystyrol, polydichlorostyrol, polyvinyl chloride, and polymethylmetacrylate. A sharp change in the spectra in the vicinity of the melting temperatures of polymers was established for crystalline polymers. The spectra of the amorphous polymers do not experience any changes all the way to temperatures that are known to exceed the softening temperature of the substances. Spectra of the investigated substances at various temperatures are shown. A method is described for preparing the specimen. It is shown that the melting of polymer crystals exhibits no specific difference from the melting of crystals of low-molecular substances.

Card : 1/1

MARKOVA, G. S., and KARGIN, V. A.

"Crystallization and Grafting," a paper presented at the 21st Congress on the Chemistry and Physics of High Polymers, 21 Jan.-2 Feb. 1971, Moscow. Inst. for Physical Chemistry, Acad. Sci. (Karpov Inst)

B-3,074,395.

*M. MARKOVA*  
MARKOVA, G.S.

Electronmicroscopic analysis of polymers. Usp. khim. i tekhn. polim.  
no.2:223-236 '57. (MIRA 11:1)  
(Polymers--Analysis) (Electronmicroscopy)

MARKOVA, G.S.

YERMOLINA, A.V.; MARKOVA, G.S.; KARGIN, V.A.

Electron diffraction examination of polymers. Part 4: Analysis of changes in the structure of polychlorotrifluoroethylene in the temperature range of crystal melting. Kristallografiya 2 no. 5: 623-627 '57. (MIRA 11:1)

1. Fiziko-khimicheskiy institut im. L. Ya Karpova.  
(Ethylene) (Polymers)  
(Electron diffraction examination)

MARKOVA, G. S., and KARGIN, V. A., (Acad.)

"On the Orientation and Crystallization of Polymeric Chains and their Disposition."

Inter-vuz Scientific conference (Mezhvuzovskiy nauchnyye Konferentsii)

Vestnik Vysshey Shkoly, 1957, # 2, pp. 73-76 (USSR)

Abst: In January 1957, the Second All-Union Conference on Photosynthesis took place, organized by the Institute of Plant Physiology of the Academy of Sciences, USSR, and by the Faculty of Soil-Biology of the Moskva University. About 700 representatives of 130 scientific-research institutes, vuzes and ministries were present. The introductory report was made by Academician A. L. Kursanov who described the development of photosynthesis during the last ten years and invited the scientists to concentrate their work on the application of radioactive and stable isotopes. Nearly 100 reports were read: 13 on photochemistry, 5 on the investigation of chloroplast structure, 19 on the investigation of pigments, 9 on the photosynthesis of water plants, bacteria, etc.

*Markova, G. S.*

20-3-19/52

**AUTHORS:** Kargin, V. A. , Academician, and Markova, G. S.

**TITLE:** Comparative Study of **Order** Regulations in Polymers During Their Crystallization or Orientation of Chain Molecules ( Sravni-tel'noye issledovaniye uporyadochennosti, vznikayushchey v poli-merakh pri ikh kristallizatsii ili oriyentatsii tsepykh molekul)

**PERIODICAL:** Doklady AN SSSR, 1957, Vol. 117, Nr 3, pp. 427 - 429 (USSR)

**ABSTRACT:** Because of the structure of polymeric chain molecules, consisting of equal, more or less regularly arranged molecular groups, the polymeric systems are considered as a special group. For the dif-ference from the low molecular compounds, the main source of the order of which is formed by the spatial distribution of the atom groups, the high degree of ordering in polymeric systems also may be a result of the mutual position of the polymeric chain molecules. Therefore the order within polymeric substances may be obtained by the mutual orientation of the chain molecules, independent from the crystallization. In order to avoid an error often occurring, the elements of the order regulations are to be separated rigorous-ly because of the mutual position of the chains and the order by crystallization. This can be proved on two ways: a) by the investi-

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20-3-19/52

Comparative Study of Order Regulations in Polymers During Their Crystallization or Orientation of Chain Molecules

gation of the polymeres being in crystallization by means of direct structure methods at temperatures above and below the melting point, b) by the regarding of the structure of highly-orientated samples, not varying the orientation of the investigated polymere during its melting and crystallization. The electronographic investigation according to a) was carried out at terylene and poly-trifluor-chlorine-ethylene. Thereby it was shown that the interference-figures of their crystals above and below the melting point have many things in common. It may be assumed that the polymeres form ordered systems also in an amorphous state. At the construction of the radial-distribution-curves ("krivyye radial'nogo raspredeleniya") it really was shown that the first maxima of the curves correspond to the distances between the atoms in the polymeric molecules, and that they are the result of the regular structure of the chain molecules. The last maxima in both investigated polymeres correspond to the mutual order of the polymeric molecules (figure 1, 2) So, it was shown that the order regulations of the polymeres in the amorphous state is approximated to that one in the crystalline state. In this latter case it only differs by additional elements of order. Apparently, the order in the mutual chain arrangement

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20-3-19/52

Comparative Study of Order Regulations in Polymers During Their Crystallization or Orientation of Chain Molecules

already occurs in the amorphous state. In the course of the crystallization additional bindings arise, without varying the consisting order. It was much more difficult to carry out the experiment according to b). Hereto polyethylene-(100 - 150  $\mu$ ) and gutta percha (0,02 - 0,05  $\mu$  thick) films were used. Expanded strips of polyethylene were irradiated by fast electrons, whereas gutta percha was vulcanized. Figure 3 shows electronograms of polyethylene. Therefrom the similarity of the interference-figures of a number of reflexes at crystallized and amorphous polyethylene have been stated. Consequently, the separation of the reflexes of the interference-figure was rendered possible, arising according to the orientation of the polymeric chains. Furthermore, it was cleared which share in this figure is conditioned by the homogeneous, monoaxial orientation of the chain molecules of the polymere and which one by the arising of a more rigorous order according to the polymerization. Figure 4 shows electronograms of the gutta percha films at 20 and 70°. From the obtained experimental results is to be seen that the mutual ordering of the polymeric molecules already may arise in the amorphous state. The ordered state, apparently,

Card 3/4



20-3-19/52

Comparative Study of Order Regulations in Polymers During Their Crystallization or Orientation of Chain Molecules

is a necessary, however, not sufficient condition of the following crystallization. There are 4 figures.

**ASSOCIATION:** Physical-Chemical Institute imeni L. Ya. Karpov  
(Fiziko-khimicheskiy institut im. L. Ya. Karpova)

**SUBMITTED:** July 15, 1957

**AVAILABLE:** Library of Congress

Card 4/4

MARKOVA, G.S., kand. khim. nauk.

International symposium on the chemistry of macromolecules.  
Khim. nauka i prom. 3 no.2:268-269 '58. (MIRA, 11:6)  
(Prague—Macromolecular compounds—Congresses)

SELIKOVA, V.I.; MARKOVA, G.S.; KARGIN, V.A.

Comparative study of highly oriented crystalline and  
amorphous polymers. Vysokom.soed. 1 no.8:1214-1226  
Ag '59. (MIRA 13:2)

1. Fiziko-khimicheskiy institut im. L.Ya.Karpova.  
(Polymers--Spectra)

SELIKOVA, V.I.; MARKOVA, G.S.; KARGIN, V.A.

Structural changes in oriented crystalline and amorphous  
polymers in the region of softening temperatures. Vysokom.  
soed. 1 no.8:1236-1241 Ag '59. (MIRA 13:2)

1. Fiziko-khimicheskiy institut im. L.Ya.Karpova.  
(Polymers--Thermal properties)  
(Polymers--Spectra)

83481

S/190/60/002/009/013/019  
B004/B060

15.9110 also 2109, 2209

AUTHORS:

Selikhova, V. I., Markova, G. S., Kargin, V. A.

TITLE:

X-Ray Investigation of Oriented Gutta-percha Films in the Range of Melting Temperatures

PERIODICAL:

Vysokomolekulyarnyye soyedineniya, 1960, Vol. 2, No. 9, pp. 1398-1401

TEXT: The authors wanted to determine the temperature ranges for the three modifications ( $\alpha$ ,  $\beta$ ,  $\gamma$ ) of gutta-percha. The sample used was gutta-percha obtained from Euonymus, with a molecular weight of about 30,000. The films were prepared from a gutta-percha solution in  $CCl_4$  at room temperature. Likewise at room temperature, the films were stretched by 400%. The X-ray structural analysis was made by a camera described in Ref. 7 for high temperatures, and by a YPC-70 (URS-70) universal apparatus for X-ray structural analyses at temperatures between room temperature and  $80^\circ C$ . Figs. 1-6 show the X-ray diffraction pictures obtained. Furthermore, the authors examined the fusion of films irradiated with  $Co^{60}$  in vacuum. The following results were obtained: The  $\beta$ -modification is stable up to  $56^\circ C$ .  
Card 1/2

X

83481

X-Ray Investigation of Oriented Gutta-percha S/190/60/002/009/013/019  
Films in the Range of Melting Temperatures B004/B060

At higher temperatures, fusion sets in along with transition to the  $\alpha$ -modification which melts at  $64^{\circ}\text{C}$ . The  $\gamma$ -modification is stable at still higher temperatures, and melts only at  $76-78^{\circ}\text{C}$ . The  $\alpha$ - and  $\beta$ -modifications exhibit a better orientation of chains than the  $\gamma$ -modification. Radiation doses of  $75 \cdot 10^6 - 100 \cdot 10^6$  roentgens do not bear any influence on the crystal structure; there occurs, however, a change in the melting processes. At  $75 \cdot 10^6$  r, the transition of the  $\beta$ - into the  $\alpha$ -modification takes place unchangedly at  $55^{\circ}\text{C}$ . The  $\alpha$ -modification melts at  $63^{\circ}\text{C}$ , but no more  $\gamma$ -modification forms on cooling. At  $100 \cdot 10^6$  r, a complete transition of the  $\beta$ -modification into the  $\alpha$ -modification does not even take place at  $78^{\circ}\text{C}$ . Evidently, this radiation dose gives rise to a cross-linking which renders the relaxation of chains and the transition to the  $\alpha$ -modification impossible. There are 6 figures and 7 references: 2 Soviet, 3 US, and 2 British. X

ASSOCIATION: Fiziko-khimicheskiy institut im. L. Ya. Karpova  
(Physico-chemical Institute imeni L. Ya. Karpov)

SUBMITTED: April 13, 1960

Card 2/2

88540

5-3831

S/190/60/002/010/013/026  
B004/B054

AUTHORS: Kargin, V. A., Markova, G. S., and Kovaleva, V. P.  
TITLE: A Study of the Structure and Properties of Copolymers of Ethylene With Propylene  
PERIODICAL: Vysokomolekulyarnyye soyedineniya, 1960, Vol. 2, No. 10, pp. 1531-1534

TEXT: The authors made comparative studies of regular polyethylene and polypropylene, and of copolymers containing 4, 8, 10, 20, 54, and 73.6% of propylene. The electron diffraction was taken by means of an ЭМ-4 (EM-4) electron diffraction camera of the ГОН(GOI) system, and the ring diameter was measured by an ИЗА-2 (IZA-2) comparator. The electron diffraction pictures (edp) for polyethylene and polypropylene corresponded to published data (Ref. 1). In the copolymers with 4-54% of propylene, the edp corresponded to those of polyethylene. Only at a content of 73.6% of propylene, the polyethylene edp is superposed by polypropylene edp. The edp of the copolymers had the same structure as those of the individual components. Neither intermediate structures nor changes of the lattice parameters have been observed that might indicate a stress in the crystals. X  
Card 1/2

A Study of the Structure and Properties of  
Copolymers of Ethylene With Propylene

88540  
S/190/60/002/010/013/026  
B004/B054

The spectrum analysis showed that the intensity of the  $1372\text{ cm}^{-1}$  absorption band of the  $\text{CH}_2$  group increased almost proportionally with the propylene content. The dynamometric investigations showed that the copolymer becomes amorphous with increasing irregularity of the chains. Fig. 1 shows that the copolymer with 4% of propylene exhibits a curve, corresponding to regular polyethylene, for the elongation as a function of load, whereas the copolymer with 73.6% of propylene yielded a curve typical of amorphous polymers. With increasing irregularity of the chain, the recrystallization stress decreases (Fig. 2), the minimum lying at 73.6% of propylene. Further, the temperature of the transition from the vitreous into the crystalline state decreases. There are 2 figures and 3 Soviet references. ✓

ASSOCIATION: Fiziko-khimicheskiy institut im. L. Ya. Karpova  
(Institute of Physical Chemistry imeni L. Ya. Karpov)

SUBMITTED: May 17, 1960

Card 2/2



S/C20/61/141/001/020/021  
B119/B108

AUTHORS: Razikov, K. Kh., Markova, G. S., and Kargin, V. A.,  
Academician

TITLE: Secondary structures in caprone fibers

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 141, no. 1, 1961, 157-160

TEXT: The authors studied the formation of secondary structures during crystallization of condensed-phase polyamides. Approximately 1-mm thick caprone threads stretched to the fivefold length were investigated.

Recrystallization was caused by annealing for 1-1.5 hr at 205°C, and subsequent slow cooling to room temperature. Approximately 200-Å thick fiber cross sections were studied by a УЭМБ-100 (UEMB-100) electron microscope. The preparations were obtained by means of a Söstrand Ultra-microtome LKB-Producter. Results: The oriented, but not pretreated fibers show only a slight secondary structure (microfibrils ~100 Å thick and a few μ long). During recrystallization a considerable increase of the existing secondary structures occurs. The microfibrils start branching until they finally turn into little crystals. The secondary structures  
Card 1/2

Secondary structures in caprone ...

S/020/61/141/001/020/021  
B119/B108

are formed by aggregation of these little crystals which form irregular structures with diameters of from 1 to 10 $\mu$ . The space between the crystalline microfibrils is filled out by amorphous polymeric substance. There are 3 figures and 3 references to English-language publications which read as follows: A. Keller, J. Polymer Sci., 36, 361 (1959); P. H. Geil, J. Polymer Sci., 44, 449 (1960); W. O. Statton, P. H. Geil, J. Appl. Polymer Sci., 3, 9, 357 (1960).

ASSOCIATION: Fiziko-khimicheskiy institut im. L. Ya. Karpova  
(Physicochemical Institute imeni L. Ya. Karpov)

SUBMITTED: June 12, 1961

Card 2/2

S/190/62/004/006/020/026  
B139/B144

AUTHORS: Razikov, K. Kh., Markova, G. S.

TITLE: Technique of preparing ultrathin sections of polymeric materials

PERIODICAL: *Vysokomolekulyarnyye soyedineniya*, v. 4, no. 6, 1962, 613 - 616

TEXT: Work with the Sjostrand ultra-microtome LKB-Producter for investigating samples of polymer fibers (diameter 15 - 20  $\mu$ ), mono-fibers (diameter 0.5  $\mu$  and above), and films is described. To suit the required cutting direction (horizontal, vertical or inclined) the samples are inserted into gelatin capsules and filled with a mixture of n-butyl- and methyl methacrylates in which benzoyl peroxide has been dissolved. These capsules were kept at 48 - 50°C for 35 - 40 hr. After solidification of the contents the gelatin capsules were stripped and the blocks so obtained cut into square pyramids of 0.2 - 0.4 mm height and 0.4 - 0.5 mm side. The holders containing the specimen were stored in a dessicator over calcium chloride. Small glass plates with bevelled edges served as cutting knives, which in each case were prepared directly before use. A  
Card 1/2

Technique of preparing ultrathin ...

S/190/62/004/006/020/028  
B139/B144

"leucoplast vessel" filled with 20% aqueous solution of ethanol was used for catching the sections on the ultra-microtome. The current for heating the expansion rod to which the sample holder is fitted was varied within a range of 0.5 - 0.7 in the course of cutting. The sections produced had a thickness of  $\approx 200 \text{ \AA}$  and above. They were studied using an electron microscope and by electron diffraction photography. There are 2 figures.

ASSOCIATION: Fiziko-khimicheskiy institut im L. Ya. Karpova (Physico-chemical Institute imeni L. Ya. Karpov)

SUBMITTED: April 15, 1961

Card 2/2

S/190/63/005/004/012/020  
B101/B220

**AUTHORS:** Rasikov, K. Kh., Markova, G. S., Kargin, V. A.

**TITLE:** Supermolecular formations in oriented polycapramide. I.  
Effect of fiber orientation and of subsequent thermal treatment on the morphology of the crystalline structure of polycapramide

**PERIODICAL:** Vysokomolekulyarnyye soedineniya, v. 5, no. 4, 1963, 552-557

**TEXT:** Ultra-thin sections of stretched and nonstretched polycapramide fibers were examined in the electron microscope without and after thermal treatment at 205°C. Results: (1) Nonoriented fibers showed an inhomogeneous structure of microfibrils and transparent amorphous regions. (2) Stretching orientation develops supermolecular formations which are oriented along the microfibrils. (3) Thermal treatment leads to the formation of large complex supermolecular formations, such as bundles and spherulites, sometimes even to the formation of laminated crystals. The supermolecular formations developing inside the microfibrils are not oriented, even in stretched fibers. There are 2 figures.

Card 1/2

Supramolecular formations in ...

S/190/63/005/004/012/020  
B101/B220

ASSOCIATION: Fiziko-khimicheskiy institut im. L. Ya. Karpova (Physico-chemical Institute imeni L. Ya. Karpov)

SUBMITTED: September 29, 1961

Card 2/2

L 33557-63

BNP(3)/BMT(m)/BDS/ES(9)

AFPTU/ASD

Pc-ii/Pe-ii

RM

ACCESSION NR: AP3000704

8/0190/63/005/005/0760/0766

AUTHOR: Bazikov, K. Kh.; Zubov, Ya. A.; Markova, O. S.; Kargin, V. A.TITLE: Supramolecular formations in oriented polyacrylamide. 2. Effect of thermal treatment on the crystalline structure of polyacrylamide monofibersSOURCE: Vysokomolekulyarnyye soedineniya, v. 5, no. 5, 1963, 760-766TOPIC TAGS: supramolecular formations, oriented polyacrylamides, monofibers, the large period, orientation

ABSTRACT: Monofibers of unstretched and five-fold stretched polyacrylamide were annealed at 205C for 1.5, 3, and 6 hours, and ultrathin longitudinal slices of these were studied by electron microscope and x-rays. The formation of large supramolecular bodies of spherulitic, microfibrillar, and laminated structure was observed on the monofibers, the stretched fibers yielding structurally more perfect formations. The dimensions of the microfilament unit, constituting the basic unit of the structurally oriented monofibers, were estimated as 100 Angstrom in width and a few microns in length. Low-angle x-ray investigations disclosed the presence in both the stretched and the unstretched unheated polyacrylamide monofibers of large period units ( $d = 85$  Angstrom), which in the stretched fibers were oriented along their axis. Annealing causes the large period units to increase to  $d = 96$  Angstrom.

Card 1/2

L 13557-63

ACCESSION NR: AP5000704

suggesting a pleated chain structure in the unheated monofibers. Orig. art. has 9 figures.

ASSOCIATION: Fiziko-khimiya institut imeni L. Ya. Karpova (Physicochemical Institute)

SUBMITTED: 23 Nov 61

DATE ACQ: 17 Jan 63

REEL: 00

SUB CODE: CR

NO REF SOV: 007

OTHER: 004

Card 2/2



TOMASHPOL'SKIY, Yu.Ya.; MARKOVA, G.S.

Electron diffraction study of the crystalline structure of polyethylene terephthalate with the use of Fourier synthesis. Vysokom.soed. 6 no.2: 274-280 F '64. (MIRA 17:2)

1. Fiziko-khimicheskiy institut imeni Karpova.

ZUBOV, Yu.A.; TSVANKIN, D.Ya.; MARKOVA, G.S.; KARGIN, V.A.

Large periods in polypropylene fibers. Part 1: Effect of orientation and heat treatment (annealing) on the size of the large periods. Vysokom. soed. 6 no.3:406-411 Mr'64. (MIRA 17:5)

1. Nauchno-issledovatel'skiy fiziko-khimicheskiy institut imeni Karpova.

ACCESSION NR: AP4040494

S/0190/64/006/006/1132/1135

AUTHOR: Selikhova, V. I.; Markova, G. S.; Kargin, V. A.

TITLE: Reversibility of deformation in the stretching of polypropylene spherulites

SOURCE: Vy\*sokomolekulyarny\*ye soyedineniya, v. 6, no. 6, 1964, 1132-1135

TOPIC TAGS: polypropylene, polypropylene film, polypropylene film stretching, polypropylene film retraction, supramolecular structure

ABSTRACT: The nature of the deformation of polypropylene films during stretch and after retraction has been studied with the MIN-8 polarization microscope. Experiments were conducted with polypropylene films prepared by various methods in order to obtain different supramolecular structures such as large spherulites, small spherulites, or fibrils. It was shown that the properties of stretched films are highly dependent on the structure of the initial

Card 1/2

ACCESSION NR: AP4040494

unstretched films. The deformation of films having sufficiently large and well-developed supramolecular structures (large spherulites and fibrils) is reversible. Apparently, in this case, the initial structures do not break down on stretching because they are formed of closely packed simpler structural elements. Small, weakly developed supramolecular formations (small spherulites) undergo irreversible changes in the process of deformation. Orig. art. has: 4 figures.

ASSOCIATION: Fiziko-khimicheskiy institut im. L. Ya. Karpova  
(Physicochemical Institute)

SUBMITTED: 24Jul63

DATE ACQ: 06Jul64

ENCL: 00

SUB CODE: MT

NO REF SOV: 003

OTHER: 006

Card 2/2

ACCESSION NR: AP4040495

S/0190/64/006/006/1136/1139

AUTHORS: Selikhova, V. I.; Markova, G. S.; Kargin, V. A.

TITLE: Use of electron diffraction in structural studies of polypropylene spherulites

SOURCE: Vy\*sokomolekulyarny\*ye soyedineniya, v. 6, no. 6, 1964, 1136-1139

TOPIC TAGS: electron diffraction, electron microscope YEM 5J, fibril, spherulitic structure, polypropylene

ABSTRACT: The authors studied the structure of polypropylene spherulites on a YEM-5J electron microscope, using samples cooled by liquid nitrogen. Microdiffraction photographs were obtained in the range  $-100$  to  $-110^\circ$ . For comparative purposes, x-ray diffraction patterns were obtained on similar spherulites with  $\text{CuK}\alpha$  radiation and a nickel filter. Spherulites 0.5-1.5  $\mu\text{m}$  in diameter were obtained from a 1.5% xylene solution. On examination in the electron microscope the spherulites were found to consist of radiating fibrils, mostly exhibiting a herringbone pattern, with the lateral branches greatly enlarged and developing new branches. Electron diffraction showed that the axis of the molecular chains (the c axis) lies at an angle of  $65-71^\circ$  to the axis of a fibril. These results are in

Card

1/2

ACCESSION NR: AP4040495

good agreement with x-ray data. Rotation of structural axes was observed in the diffraction photograph (generally a very small angle), and it is concluded that this takes place by rotation of crystalline laminae near the  $[201]$  direction (axis of the fibril). "The authors consider it their duty to express sincere thanks to Yu. A. Zubov for participating in discussions of the results of this work." Orig. art. has: 7 figures.

ASSOCIATION: Fiziko-khimicheskiy institut im. L. Ya. Karpova (Physicochemical Institute)

SUBMITTED: 24Jul63

ENCL: 00

SUB CODE: MT, OP

NO REF SOV: 001

OTHER: 011

Card 2/2

ACCESSION NR: AP4042183

S/0190/64/006/007/1181/1186

AUTHOR: Tomashpol'skiy, Yu. Ya.; Markova, G. S.

TITLE: Possibility of applying the method of electrical recording of the intensity of scattered electrons to the study of amorphous polymers

SOURCE: Vy\*sokomolekulyarny\*ye soyedineniya, v. 6, no. 7, 1964, 1181-1186

TOPIC TAGS: amorphous polymer, amorphous polymer structure, electrical recording, scattered electron intensity, electron diffraction pattern, poly(ethylene terephthalate), atactic polystyrene, isotactic polystyrene

ABSTRACT: The possibility of applying the method of electrical recording of the intensity of scattered electrons (G. O. Bagdy\*kyants; A. G. Alekseyev, Izv. AN SSSR, ser. fiz., 23, 773, 1959) to the study of the structure of amorphous polymers has been investigated on thin films of poly(ethylene terephthalate) and of atactic and isotactic polystyrene. The procedure and equipment are described. The results

Card 1/2

ACCESSION NR: AP4042183

of the study are given in the form of electron diffraction patterns. These results in general, and in particular the results of the study of the effect of fast electrons on the structure of poly(ethylene terephthalate) films in various initial states, indicate that the method of electrical recording of the intensity of scattered electrons can be applied to the study of the structure of amorphous polymers. It is assumed that it can also be used for the study of a great variety of amorphous substances and glasses, for the observation of certain continuous processes (melting of crystal phases, crystallization, irradiation with fast electrons) involving structural changes in the substances studied, and for exact and rapid measurement of the intensity of individual reflex effects. Orig. art. has: 6 figures.

ASSOCIATION: Fiziko-khimicheskiy institut im. L. Ya. Karpova. (Physico-chemical Institute)

SUBMITTED: 02Mar63

ATD PRESS: 3054

ENCL: 00

SUB CODE: OC, GC

NO REF SOV: 003

OTHER: 005

Card 2/2



SELIKHOVA, V.I.; MARKOVA, G.S.; KARPIN, V.M., akademik

Birefringence of form in spherulites and stretched polypropylene films. Dokl. AN SSSR 155 no. 3:666-667 Mr '64. (MIRA 17:5)

1. Fiziko-khimicheskiy institut im. I.Ye.Karpova.

I 16111-65 EWC(j)/EWT(m)/EPT(b)/EWP(j)/T/EWA(h) Pc-l/Pr-l/PeB AFWL/ASD(a)-5 RM  
 S/0020/64/157/004/0948/0950  
 ACCESSION NR: AP4043552

AUTHOR: Zubov, Yu. A.; Tsvankin, D. Ya.; Markova, G. S.; Kargin, V. A.  
 (Academician)

TITLE: Temperature-induced changes in the major period of oriented polymers

SOURCE: AN SSSR. Doklady\*, v. 157, no. 4, 1964, 948-950

TOPIC TAGS: oriented polymer, polyethylene, strain oriented polyethylene, low pressure polyethylene, polymer ordering, polymer orientation, crystallization

ABSTRACT: The major period (the maximum in intensity of the distribution of dispersed x-ray radiation) in strain-oriented low pressure polyethylene fibers was studied by low angle scattering in the temperature range from ambient to 116C. Wide angle dispersion indicated that the orientation of the strained polymer was high and that it did not change appreciably upon heating. Diffraction spectra were obtained and found to yield a recurring spectrum on the second and subsequent cycles which agreed with the cooling curve of the first cycle. The intensity of the heating curve of the first cycle increased continuously with increasing

Card 1/3

L 16444-65

ACCESSION NR: AP4043552

temperature. The other curves all showed a maximum in intensity for the major period near 100C. By keeping the scanning control fixed on the position of the major period and varying the temperature through a heating and cooling cycle, a reproducible reversible change was noted in the intensity of the major period. The initial irreversible change was explained as caused by a decrease in the density of the irregular regions leading to an improvement in the ordering of the polymer. The reversible changes in intensity (not exceeding about 10%) were explained as thermal expansion effects not involving any structural alteration. The reversible changes in the intensity maximum near 100C were due to the greater mobility of the irregular regions in comparison to the ordered regions, and the greater coefficient of dispersion in the irregular regions. Above 100C the molecular mobilities increased, differences in density between the ordered and irregular regions decreased and the intensity decreased. This study indicates that low angle scattering of x-rays can be used in studying crystallization processes and dynamics of molecular motion in polymers. / Orig. art. has: 3 figures and 1 table.

Card 2/3

I 16/11/65  
ACCESSION NR: AP4043552

ASSOCIATION: Fiziko-khimicheskiy institut im. L. Ya. Karpova (Physical  
Chemical Institute)

SUBMITTED: 14Mar64

ENCL: 00

SUB CODE: GC, MF, GP

NO REF SOV: 002

OTHER: 002

Card 3/3

L 44166-65 EEC(b)-2/EPF(a)/EWT(1)/EWT(m)/EWP(j)/T Pc-4/PR-4/P1-4 IJP(c)

ACCESSION NR: AP5005586

GG/SM

S/0190/65/007/002/0216/0219

AUTHORS: Selikhova, V. I.; Zubov, Yu. A.; Markova, G. S.; Kargin, V. A.

TITLE: Microscopic and x-ray investigation of polypropylene crystals

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 7, no. 2, 1965, 216-219, and insert facing p. 215

TOPIC TAGS: polypropylene, crystal growth, polymer

ABSTRACT: To continue the work of V. A. Kargin, N. F. Bakeyev, Li Li-Shen, and G. S. Ochapovskaya (Vysokomolek. soyed. 2, 1280, 1960), A. Keller (Polymer 3, 393, 1962), and others, large crystals of isotactic polypropylene (PP) were grown by slow cooling (from 165C at 2 degrees/hr) of concentrated PP (m. w. = 120 000) solutions (1% in a mixture of 3 parts xylene and 1 part silicone oil). X-ray structural studies were then performed. After a preliminary microscopic observation, the crystals were placed on the diaphragm of an x-ray chamber with an aperture of 0.16 mm, and x-ray pictures of the crystal were taken in three directions. They are shown schematically in Fig. 1 on the Enclosure. The most prominent reflections were 111, 110, 131, 040, while reflections 130, 220, and 022 were very weak. The positions of these reflections indicate a complicated

Card 1/1

L 44166-65

ACCESSION NR: AP5005586

2

structure. The orientations of the a, b, c axes (see Fig. 1 on the Enclosure) show that b coincides with the direction of the smallest edge of the crystal, while a and c are located in the plane of the large face of the crystal at an angle of  $\sim 10^\circ$  with the diagonals of this face. Observation in a polarization microscope revealed a fine structure of the crystals, consisting of fibrillar formations (stretched plates) located along the large diagonal faces. The x-ray photographs indicate that in the individual crystal fibrils the molecular chains are located at an angle of either  $90^\circ$  or  $10^\circ$  with the fibril axes. The authors stipulate that the observed structures correspond to dendritic crystals which grow similarly to those described by V. A. Kargin and I. I. Gorina (Vysokomolek. soyed. 7, 220, 1965). The authors thank D. Ya. Tsvankin for his help in interpreting the results. Orig. art. has: 5 figures.

ASSOCIATION: Fiziko-khimicheskiy institut im. L. Ya. Karpova (Physico-Chemical Institute)

SUBMITTED: 21Mar64

ENCL: 01

SUB CODE: SS, OC

NO REF SOV: 006

OTHER: 006

Card 2/3

MARGIN, V. I., S. I. B. I. V. I. M. I. K. I. N.

Stretching and contraction processes of polymers  
having specific structures. (S. I. B. I. V. I. M. I. K. I. N.,  
1999, S. I. B. I. V. I. M. I. K. I. N.,

1. S. I. B. I. V. I. M. I. K. I. N., S. I. B. I. V. I. M. I. K. I. N.,

ACC NR: AP5022589

SOURCE CODE: UR/0190/65/007/009/1495/1499

AUTHORS: Kargin, V. A.; Selikhova, V. I.; Markova, G. S.

TITLE: The study of the stretching and contraction processes in polyethylene films of spherulitic structures

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 7, no. 9, 1965, 1495-1499

TOPIC TAGS: Polyethylene, polymer, resin, spherulite structure, polyethylene fiber / Alkaten polyethylene

ABSTRACT: The processes of stretching and contraction in polyethylene films of spherulitic structure were subjected to optical microscopy and x-ray studies. Specimens of "Alkaten" polyethylene 30  $\mu$  in thickness with spherulites of 50  $\mu$  diameter were investigated. Microphotographs of polyethylene specimens in different states of stretching are presented. The results of optical microscopy are given in Fig. 1 on the Enclosure. It was found that the deformation of spherulitic structure during stretching-contraction is reversible. The authors suggest that the orientation process may be interpreted in terms of a complete breakdown of supermolecular structure with retention of simpler structural elements. Orig. art. has: 1 graph and 13 photographs.

Card 1/3

UDC: 678.01:53+678.742



ACC NR: AP5022589

ASSOCIATION: Fiziko-khimicheskiy institut im. L. Ya. Karpova (Physico-Chemical  
Institute)

SUBMITTED: 29Jul64

ENCL: 01

SUB CODE: 07

NO REF SOV: 007

OTHER: 009

Card 2/3

ENCLOSURE: 001

ACC NR: AP5022589

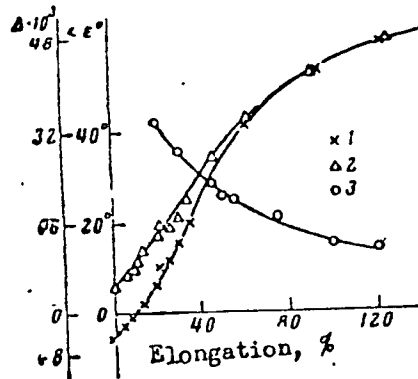


Fig. 1. Double refraction ( $\Delta$ ) and mean angle ( $\epsilon$ ) between chain and direction of stretching vs percent elongation of spherulite.

1.  $\Delta$  for radial fibrils of spherulite parallel to direction of stretching.
2. Same for fibrils perpendicular to direction of stretching.
3. Angle  $\epsilon$ .

Card 3/3

FISHKOVA, L.M.; MARKOVA, G.V.

Electrophotometric observations of low-latitude aurora borealis  
of February 11-12, 1958, in Abastumani. Astron. tsir. no.191:  
28-29 My '58. (MIRA 11:9)

1. Abastumanskaya astrofizicheskaya observatoriya AN GruzSSR.  
(Auroras)

FISHKOVA, L.; MARKOVA, G.V.

The H line in the luminescence spectrum of the night sky.  
Astron. tsir. no.196:8-9 0 '58. (MIRA 12:12)

1. Abastumanskaya astrofizicheskaya observatoriya AN Gruzinskoy SSR.  
(Night sky--Spectra)

88827

S/035/61/000/002/012/016

A001/A001

3.1800 (104), 1062, 1168)

Translation from: Referativnyy zhurnal, *Astronomiya i Geodeziya*, 1961, No. 2,  
p. 57, # 2A470

**AUTHORS:** Fishkova, L.M., Markova, G.V.

**TITLE:** Some Results of Electrophotometrical Observations of Emissions of  
OI, Na, OH and Continuous Background in the Night Sky Glow

**PERIODICAL:** "Byul. Abastumansk. astrofiz. observ.", 1959, No. 24, pp. 161-173  
(Engl. summary)

**TEXT:** The authors determined absolute intensities of emissions  $\lambda\lambda$  5577, 6300, 5890 and continuous background at  $\lambda\lambda$  5290, 5730, 6060, and also summary intensities of infrared bands OH (8,4), (3,0), (9,5) and (4,1) from observational data for the period from July 1957 to June 1958. They present the curves of daily and seasonal variations in intensity of these emissions. They note that daily variations of OH intensity have a minimum at mid-night and maximum between 2 and 4<sup>h</sup> of local time, the maximum of  $\lambda$  5577 leads the maximum of OH by 2-3 hours. Daily variations in intensities of bands OH and  $\lambda$  5577 have always reverse course.

Card 1/2

88827

S/035/61/000/002/012/016  
A001/A001

lx

Some Results of Electrophotometrical Observations of Emissions of OI, Na, OH and Continuous Background in the Night Sky Glow

The mean intensity of continuous background at  $\lambda 5290$  in the polar zone ( $\varphi = 51^\circ$ ) equals 2.5 R/A after excluding stellar and zodiacal components which are equal to 0.4 R/A. Three types of intensity variations of background at  $\lambda 5290$  are noted: 1) background variation does not correlate with any emission; 2) background variation correlates with  $\lambda 5577$ ; 3) background variation correlates with OH, mainly at high OH intensities. Seasonal variations of background intensity have two maxima: major one in January, and minor one in July. It is assumed that continuous background consists of three components of the proper atmosphere emission in continuous spectrum; it does not correlate with emissions in bands and lines and produces January maximum of forbidden molecular bands of scattered Sun's light. There are 18 references.

N. Shefov

Translator's note: This is the full translation of the original Russian abstract.

Card 2/2

28839 S/169/61/000/004/020/026  
A005/A130

3.5120

AUTHORS: Fishkova, L.M.; Markova, G.V.

TITLE: Some results of electrophotometric and spectrographic observations of night-sky glow at Abastumani

PERIODICAL: Referativnyy zhurnal. Geofizika, no. 4, 1961, 40, abstract 4 G 298. [V sb.: Spektr., elektrofotometr. i radiolokats. issled. polyarn. siyaniy i svecheniya nochnogo neba, no. 2 - 3. Moscow, AN SSSR, 1960, 49 - 56 (English summary)]

TEXT: The authors give a brief account of the main results of electrophotometric observations of diurnal and seasonal variations in the intensities of the  $\lambda$  5,577 [01],  $\lambda$  6,300 - 6,364 [01] and Na night-sky emissions, the continuous emission and the OH bands in the range  $\Delta \lambda$  9,000 - 10,550 Å; the observations were carried out by the Abastumanskaya Observatoriya AN Gruzinskoy SSR (Abastumani Observatory of the Academy of Sciences of the Gruzinskaya SSR) during the IGY (see abstract 4 G 297). In addition, data are given on variations in the intensity of H $\alpha$  emission in the glow spectrum of the night sky according to spectrographic observations conducted during the same time. A record is presented of

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Some results of electrophotometric and....

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the night-sky glow spectrum in the  $\lambda$  3,000 - 4,000 Å range showing bands of the  
O<sub>2</sub> Herzberg system, the  $\lambda$  3,914 N<sub>2</sub><sup>+</sup> band and three unidentified bands in the 3,700  
- 3,800 Å range.

[Abstracter's note: Complete translation.]

Author's summary

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A001/A001

9,984/

Translation from: Referativnyy zhurnal, Astronomiya i Geodeziya, 1960, No. 12, p. 61, # 12345

AUTHORS: Fishkova, L. M., Markova, G. V.

TITLE: On Variations in Intensity of the  $H_{\alpha}$  Line in the Nocturnal Airglow Spectrum

PERIODICAL: Astron. tsirkulyar, 1960, yanv. 30, No. 208, pp. 14-15

TEXT: Observations of emission  $H_{\alpha}$   $\lambda 6562$  in the spectrum of nocturnal airglow were continued in 1959. The following preliminary results have been obtained. the intensity of  $H_{\alpha}$  in direction  $z = 67^{\circ}N$  attained the maximum magnitude in June-August, both in 1958 and 1959; the intensity of  $H_{\alpha}$  varies from night to night analogously to variations of OH band intensities, but the amplitude of variations is twice as small as the amplitude of OH band variation; the ratio of intensity in direction  $z = 70^{\circ}$  to that in direction  $z = 20^{\circ}$  amounts to  $1.73 \pm 0.14$  for  $H_{\alpha}$ , and to  $2.50 \pm 0.40$  for OH. Attempts are made to explain the peculiarities of variations of the  $H_{\alpha}$  intensity. There are 5 references. N. P. Kukarkina  
Translator's note: This is the full translation of the original Russian abstract.

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84683

S/020/60/134/004/007/023  
B019/B067

3,1800 (1041, 1062, 1168)

AUTHORS: Fishkova, L. M. and Markova, G. V.

TITLE: On Intensity Variations of the 6526 H I Line in the Night  
Airglow Spectrum

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol 134, No. 4.  
pp. 799 - 801

TEXT: From 1958 to 1959 systematic observations of the night airglow spectrum in the region of from 5400 to 6700 A were made at the observatory mentioned under the Association. The pictures were taken on a panchromatic film by means of a diffraction spectrograph of the type СП-48 (SP-48) with a power of 1 : 0.8, a dispersion of approximately 85 A/mm, and an aperture of 3.5 A. 40 spectra were obtained during moonless nights on the almucantar at a zenith distance of 67° N. Fig. 1 graphically shows the seasonal intensity variations of the H $\alpha$  line (Curve 1) and, for comparison, the lines P<sub>2</sub> with 6554 A of hydroxyl (Curve 2). Curve 3 shows the variations in the OH band intensity in the region of from 9400 to 10.550 A. As may be

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On Intensity Variations of the 6526 HI Line  
in the Night Airglow Spectrum

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seen, the H $\alpha$  lines attain their maximum intensity in July of each year the hydroxyl lines have their maximum intensity in November - December. Emission line 5577 A reaches its maximum intensity in October, and lines 5893 A and 6300 A have their maximum in winter and their minimum in summer. Thus, the intensity variation of the atomic hydrogen differs from seasonal variations of other lines. For nine nights the spectrum was photographed in the two zenith distances 20°S and 70°N and the ratio  $I_{70}/I_{20} = r_H$  was measured. The similar relations  $r_{OH}$  for the bands P<sub>2</sub>(6-1), Q(6-1), and Q(9-3) were determined. The ratio of the H $\alpha$  lines, obtained as a mean value from a large number of measurements was found to be  $1.73 \pm 0.14$ ; that of hydroxyl was  $2.40 \pm 0.40$ . The variability of the H $\alpha$  line intensity is obviously influenced by star and galaxy atomic hydrogen radiation. During the measurements celestial bodies emitting the H $\alpha$  line did not pass through the telescope field. The summer maximum of the H $\alpha$  line intensity cannot be explained by external influences. The authors assume that the summer maximum of the H $\alpha$  line intensity is connected with the solar counterpoint position which is shifted by 40° from the observation point in summer. However, rockets measured the Lyman lines at

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On Intensity Variations of the 6526 HI Line  
in the Night Airglow Spectrum

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altitudes of 85 to 120 km as earth's atmosphere emission with an albedo of 0.42. Assuming that an H $\alpha$  component exists in this emission, the quantity of H $\alpha$  emission measured on the earth's surface is about 1/3 of the total emission. In the authors' opinion the ratio of the hydroxyl emission agrees with the measurement data. According to the authors large amounts of neutral hydrogen are found up to altitudes of 85 - 120 km, OH up to 70 - 120 km. Furthermore, fluctuations of the solar activity influence the intensity of the H $\alpha$  line. There are 1 figure, 1 table, and 12 references: 8 Soviet, 2 US, 1 German, and 1 Czech. ✓

ASSOCIATION: Abastumanskaya astrofizicheskaya observatoriya Akademii nauk GruzSSR (Abastumani Astrophysical Observatory of the Academy of Sciences Gruzinskaya SSR)

PRESENTED: May 19, 1960, by A. N. Terenin, Academician

SUBMITTED: May 12, 1960

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 B019/B067

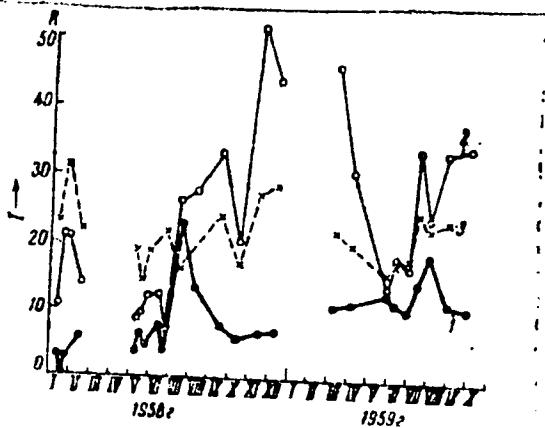


Fig 1

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Таблица 1

| Data<br>Дата         | r/ш  | rOH                     |            |            |
|----------------------|------|-------------------------|------------|------------|
|                      |      | P <sub>2</sub><br>(8-1) | Q<br>(8-1) | Q<br>(9-3) |
| 8-10 VI<br>1959 г.   | 1,95 | 2,32                    | 3,37       | 2,68       |
| 1-2 VII              | 1,52 | 1,77                    | 1,83       | 2,08       |
| 2-3 VII              | 1,59 | 2,76                    | 3,00       | 2,60       |
| 13-14 VII            | 1,69 | —                       | 1,87       | 2,44       |
| 2-3 VIII             | 1,92 | 2,14                    | 2,14       | 3,09       |
| 28-30 VIII           | 1,48 | 3,19                    | 2,35       | 3,15       |
| Mean<br>Средн.       | 1,73 | —                       | —          | —          |
| 30-31 X<br>1959 г.   | 0,70 | 2,14                    | —          | —          |
| 2-3 XII              | 0,90 | 2,40                    | —          | —          |
| 28-29 III<br>1960 г. | 2,80 | 2,10                    | —          | —          |
| Mean<br>Средн.       | —    | 2,35                    | 2,67       | 2,30       |

3,1810

37EC  
S/169/62/000/004/096/103  
D290/D302

AUTHORS: Fishkova, L.M., and Markova, G.V.

TITLE: The OH emission at Abastuman

PERIODICAL: Referativnyy zhurnal. Geofizika, no. 4, 1962, 25-26, abstract 4G149 (V sb. Spektr. elektrofotometr. i radiolokats. issled. polyarn. siyaniy i svecheniya nochn. neba., no. 6, M., AN SSSR, 1961, 17-20)

TEXT: Measurements of the nightglow spectra were made at the Abastuman observatory during the IGY; a  $\text{C}\Pi$ -48 (SP-48) spectrograph was used. The OH emission between 6100 - 6700 Å was measured. The rotational temperature (T) of the OH bands was determined from the P branch of the (9-3) band, using an equation due to Hill and van Vleck. The logarithm of the intensity of the (903) band (I) was plotted against 1/T. It was found that I varied with T only if  $T > 250^{\circ}\text{K}$  (i.e. in winter); I was independent of T if  $T < 250^{\circ}\text{K}$  (i.e. in summer). The seasonal variations of I and T were measured from January, 1958 to September, 1959. I and T vary appreciably from night to night, and have similar mean seasonal variations with ma-  
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The OH emission at Abastuman

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xima in November-December. T has a distinct winter maximum and summer minimum. The mean T was  $225 \pm 10^{\circ}\text{K}$ , and the mean I was 160 rays between January, 1958 and September, 1959. It was observed that the intensities of the  $\text{H}_{\alpha}$  and OH  $\text{P}_2$  (6-1) emissions were correlated. [Abstractor's note: Complete translation].

Card 2/2

MARKOVA, G. V.; KALITEYEVSKIY, N. I.; CHAYKA, M. P.

2

"Observation du Croisement des Sous-Niveaux Zeeman dans le Natrium."

report submitted to 11th Intl Spectroscopy Colloq, Belgrade, 30 Sep-4 Oct 63.

Physics Inst, Leningrad Univ.



MARKOVA, G.V.; CHAYKA, M.P.

Observation of the intersection of magnetic sublevels of the excited  
states of cesium and sodium. Opt. i spektr. 17 no.3:319-326 S '64.  
(MIRA 17:10)

L 2136-65 EWI(1) SSD/ASD(a)-3/ASD(d)/ASD(m)-3/AFWL/AFETR/AS(mp)-2/  
ESD(c)/ESD(gs)/ESD(t)/RAEM(t) s/0051/64/017/003/0319/0326  
ACCESSION NR: AP4044840

57  
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AUTHORS: Markova, G. V.; Chayka, M. P.

TITLE: Observation of the crossing of magnetic sublevels of the excited states of cesium and sodium

SOURCE: Optika i spektroskopiya, v. 17, no. 3, 1964, 319-326

TOPIC TAGS: cesium, sodium, polarization, resonant emission, interference effect, level crossing, Zeeman effect

ABSTRACT: The polarization of resonant emission of the sodium line 5,890 Å ( $3^2P_{3/2} \rightarrow 2^2S_{1/2}$ ) and the cesium line 4,553 Å ( $7^2P_{3/2} \rightarrow 6^2S_{1/2}$ ) was investigated in fields from zero to 40 Oe. The experimental set-up was built around a cell containing the vapor of the alkali metal, placed in a constant magnetic field, and exposed to polarized light from a lamp excited by a high-frequency generator

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ACCESSION NR: AP4044840

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and containing the same vapor. The observation was carried out along the field, so as to make the observed polarization to be caused only by interference phenomena. In addition to the maximum at  $H = 0$  (the Hanle effect) additional polarization maxima were observed, due to the crossing of the Zeeman sublevels in the external magnetic field. The experimental values of the polarization (19.6 and 16% for sodium and cesium, respectively) agree well with the theoretical values (19.8 and 15.6%). Results yielded for the lifetime of the  $3^2P_{3/2}$  of sodium a value of  $1.63 \pm 0.05) \times 10^{-8}$  sec, which agrees well with other measurements. "The authors thank S. E. Frish and N. I. Kaliteyevskiy for a discussion of the present article." Orig. art. has: 5 figures and 3 formulas.

ASSOCIATION: None

SUBMITTED: 14Jan64

ENCL: 01

SUB CODE: OP

NR REF SOV: 006

OTHER: 011

Card 2/3



Pathology

CZECHOSLOVAKIA

UDC 616.419-007.01 :616.155.194.763-039.5

BEDNAR, B.; MARKOVA, H.; Hlava's 1st Institute of Pathology and Anatomy, Faculty of General Medicine, Charles University (Hlavuv I. Pataologicckoanatomicky Ustav Fakulty Vseobecneho Lekarstvi KU), Prague, Head (Prednosta) Prof Dr B. BEDNAR.

"Myeloproliferative and Myelofibrotic Syndrome."

Prague, Casopis Lekarů Ceskych, Vol 105, No 29, 8 Jul 66, pp 761 - 766

Abstract /Authors' English summary modified 7: The causes of 190 myeloproliferative syndromes are analyzed; 10% were due to carcinoses of the bone marrow, 43% to reticuloses, and 12% to myeloses, and 5% to other hemoblastoses. The idiopathic syndrome (22%) is probably due to a chronic form of polycythemia rubra with a mild course. The syndrome develops very slowly, and that is probably the reason why it is found frequently in medullar dissemination of relatively benign tumors. It is different from hemoblastoma. An exaggerated response of the hemopoietic system to tumor dissemination of medullary or extramedullary origin is usually found. 12 Figures, 1 Table, 13 Western, 1 Czech reference.

1/1

USSR/Medicine - Staphylococci MARKOVA, I. A.

FD 156

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Author : Markova, I. A.

Title : An evaluation of Chapman's stained media for determining the pathogenic characteristics of staphylococci

Periodical : Zhur. mikrobiol. epid. i immun. 5, 61-62, May 1954

Abstract : Chapman's bromthymol-blue agar and crystal-violet agar for determining the pathogenicity of staphylococci by the color of the culture colonies is criticized as inaccurate and more of a hindrance than a help. No references are cited.

Institution : Chair of Microbiology (Head - Docent I. G. Akimov) of the Ivanovskiy Medical Institute (Director - Prof. P. P. Yerofeyev)

Submitted : December 24, 1953

MARKOVA, I.A.

Comparative evaluation of hemolytic characteristics of staphylococci cultivated on a solid medium and in buffer broth. Zhur. mikrobiol. epid. i immun 28 no.2:24-26 P '57 (MLRA 10:4)

1. Iz kafedry mikrobiologii Ivanovskogo meditsinskogo instituta.

(HEMOLYSIS

hemolytic characteristics of Staphylococcus cultivated on solid medium & in buffer bullion)

(MICROCOCCUS PYOGENES, culture

on solid medium & buffer bullion, hemolytic characteristics)

ZEYTLNCK M.A.; MARKOVA, I.A.; NEPYSHNEVSHAYA, V.V.

Distribution of toxoplasmosis in Voronezh Province. Trudy IGI  
63:73-76 '64. (MIRA 18:6)



5(2)  
AUTHORS: Terekhova, V. F., Markova, I. A., Savitskiy, Ye. M. SOV/78-5-1-43/45

TITLE: Alloys of Magnesium With Yttrium

PERIODICAL: Zhurnal neorganicheskoy khimii, 1960, Vol 5, Nr 1,  
pp 235-236 (USSR)

ABSTRACT: The authors investigated the influence exerted by yttrium upon the properties of magnesium and plotted the phase diagram for the system Mg - Y, on which there are no data available. They studied the macro- and microstructure of 19 alloys with an yttrium content of up to 55%, carried out the thermal analysis, and measured their hardness. Figure 1 shows the microstructure of magnesium alloys with different yttrium content. Figure 2 illustrates the phase diagram recorded by a Kurnakov pyrometer, and represents the dependence of microhardness on the content of the second component. In alloys with more than 40% of yttrium, a compound of Mg with Y (probably  $Mg_3Y$ ) was formed, whose crystallographic data were determined by P. I. Kripyakevich and Ye. I. Gladyshevskiy. The phase diagram shows that it is similar to the earlier investigated diagrams of the

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Alloys of Magnesium With Yttrium

SOV/78-5-1-43/45

systems Mg - La, Mg - Ce, Mg - Pr, and Mg - Nd, but the melting point of its eutectic is higher. Thus, this Mg - Y system obtains better physical and mechanical properties than the systems formed by Mg and other rare earth elements. There are 2 figures and 3 Soviet references.

SUBMITTED:

July 23, 1959

Card 2/2

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21755

S/078/61/006/005/014/015  
B121/B208

AUTHORS: Terekhova, V. F., Markova, I. A., and Savitskiy, Ye. M.  
 TITLE: Phase diagram of alloys of the system chromium - yttrium  
 PERIODICAL: Zhurnal neorganicheskoy khimii, v. 6, no. 5, 1961,  
 1252 - 1253

TEXT: The physico-chemical reaction of chromium with yttrium and the effect of yttrium on the strength and plasticity of chromium was studied. Electrolyte chromium with a purity of 99.5% and metallic yttrium with a purity of 97%, contaminated by tantalum, niobium, and rare earths, were the starting materials for preparing the alloys. The alloys were prepared in a furnace heated by an electric arc in helium atmosphere. 23 alloys with 0.1, 0.2, 0.3, 0.5, 1, 2, 3, 5, 10, 20, 30, 50, 60, 70, 80, 85, 90, 95, 99, 99.5, and 99.8 wt% yttrium were obtained. Microstructural analyses indicated the diphasic structure in alloys with 0.4% yttrium and more. Yttrium with ~13% Cr forms a eutectic at  $1315 \pm 7^\circ\text{C}$ . Chromium and yttrium in liquid and solid state were found to be immiscible in the range of 15 - 70 wt% yttrium at a temperature of  $1760 \pm 25^\circ\text{C}$ . The limited

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Phase diagram of alloys of ...

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X

solubility of yttrium in solid chromium was studied by hardening the samples at 1100, 1500, and 1700°C and subsequent measuring of the microhardness and thermo-emf. The solubility of yttrium in solid chromium at 110°C is about 0.5 wt% yttrium, and at 1700°C about 1 wt% yttrium. X-ray analysis disclosed that no chemical compounds appear in yttrium - chromium alloys with 30 and 70 wt% yttrium. In the system chromium-yttrium the immiscible range is narrower than in the systems chromium - lanthanum and chromium - cerium, also the range of solid solutions. The resistance to corrosion and the plasticity of chromium at temperatures up to 1200°C are improved by adding yttrium to chromium up to 2 wt%. The results obtained by studying the effect of yttrium on the strength and plasticity of chromium will be reported later on. There are 1 figure, 1 table, and 5 Soviet-bloc references.

SUBMITTED: November 9, 1960

Card 2/2