

LI, P.R.; CHERNIKOVA, M.P.

Nuttalliosis of hedgehogs in Samarkand region of Uzbekistan. Zool.  
zhur. 41 no.1:132-133 Ja '62. (MIRA 15:4)

1. Institut of Veterinary, Uzbek Academy of Agricultural Sciences,  
Samarkand region.

(Samarkand District--Hedgehogs--Diseases and pests)

LI, P. N. (Candidate of Veterinary Sciences, Saratov Scientific Research Veterinary Station)

"Retention of the virulent properties of Piroplasma bigeminum and Babesiella colchica in vitro"

Veterinariya, vol. 39, no. 8, August 1962 pp. 28

LI, P.N., kand.veterinarynykh nauk

Immunization of cattle against piroplasmosis and *Francisella*  
infection. Report No. 1. Trudy Uz.nauch.-issl.inst.vet.  
14:101-112 '61. (MIRA 16:2)

(Uzbekistan—Cattle—Diseases and pests)  
(Piroplasmosis) (Hemosporidia)

LI, P.N., <sup>II</sup>kand.veterinarnykh nauk

Results of the use of berenil in the Haemosporidia infection of  
cattle. Trudy Uz.nauch.-issl.inst.vet. 14:113-123 '61.  
(MIRA 16:2)

(Hemosporidia)

(Cattle--Diseases and pests)  
(Berenil)

LI, P.N.; ARIFDZHANOV, K.A.

Methods and prospects for the control of Hemosporidia infection  
of cattle in Uzbekistan. Trudy Uz.nauch.-issl.inst.vet.  
14:125-134 '61. (MIRA 16:2)

(Uzbekistan--Hemosporidia)  
(Uzbekistan--Cattle--Diseases and pests)

LI, P.N., kand. veterin. nauk; MASLOVA, Z.V., veterinarnyy vrach; KIREYEV,  
V.P., veterinarnyy vrach

Ulcerous posthitis in herd bulls and rams. Veterinariia 39 no.6:  
51-53 Je '62 (MIRA 18:1)

1. Saratovskaya nauchno-issledovatel'skaya veterinarnaya  
stantsiya (for Li). 2. Saratovskaya oblastnaya veterinarno  
bakteriologicheskaya laboratoriya (for Maslova). 3. Saratovskaya  
gosudarstvennaya stantsiya iskusstvennogo oshemeneniya zhivotnykh  
(for Kireyev).

LI, P.N., kand. veterin. nauk

Preserving the virulent characteristics of *Piroplasma bigeminum*  
and *Babesiella colchica* in vitro. Veterinariia 39 no.8:28-  
30 Ag '62. (MIRA 17:12)

1. Saratovskaya nauchno-issledovatel'skaya veterinarnaya  
stantsiya.

Li, P.N., kand. veter. nauk; MASLOVA, Z.V., veter. vrach

Materials on the study of vibriosis in sheep in Saratov Province.  
Veterinariia 40 no.8:46-48 Ag '63.

(MIRA 17:10)

1. Saratovskaya nauchno-issledovatel'skaya veterinarnaya stantsiya  
(for Li). 2. Saratovskaya oblastnaya veterinarnaya laboratoriya  
(for Maslova).



SHMULEVICH, A.I.; POVAROVA, L.N.; TURSUNOV, P.T.; LI, P.N.; ORLOV, V.P.

Chemotherapeutic characteristics of the new preparation azidine.  
Veterinariia 38 no.11:23-25 N '61 (MIRA 18:1)

1. Gosudarstvennyy nauchno-kontrol'nyy institut veterinarnykh preparatov Ministerstva sel'skogo khozyaystva SSSR (for Shmulevich, Povarova) 2. Nauchno-issledovatel'skiy institut veterinarii Akademii sel'skokhozyaystvennykh nauk Uzbekskoy SSR (for Tursunov, Li, Orlov).

LI, P.N., kand. veterin. nauk; KHASHIMOV, T.Kh., kand. veterin. nauk

Germicidal action of berenil in piroplasmosis. Veterinariia 41  
no.9:51-53 S '64. (MIRA 18:4)

1. Saratovskaya nauchno-issledovatel'skaya veterinarnaya stantsiya  
(for Li). 2. Uzbekskiy nauchno-issledovatel'skiy institut zhiivotnovodstva  
(for Khashimov).

LI, P.N., kand.veterin.nauk

Relapses of piroplasmosis in cattle after treatment. Veterinariia  
41 no.3:51-52 Mr '65. (MIRA 18:4)

1. Saratovskaya nauchno-issledovatel'skaya veterinarnaya stantsiya.

LI, P.N., kand. veter. nauk; MASLOVA, Z.V., veterinarnyy vrach

Epizootiology of vibriosis of cattle in Saratov Province.  
Sbor. nauch. rab. Sar. NIVS 6:73-81 '63.

Vibriosis of sheep in Saratov Province. Ibid.:82-87  
(MIRA 18:11)

LI, P.N., kand. veter. nauk; RASULOV, I.Kh., aspirant

Change in morphological and virulent properties of the pathogens of *Theileria annulata* (Dschunkowsky et Luhs, 1904) during preservation in vitro. Sbor. nauch. rab. Sar. NIVS 6:127-135 '63.

Strains of *Theileria annulata* (Dschunkowsky et Luhs, 1904). Ibid. 136-149

(MIRA 18:11)

LI, P.N., kand. veter. nauk

Chemoprophylaxis of theleriasis in cattle with the use of berenil and atoxyl. Sbor. nauch. rab. Sar. NIVS 6:150-154 '63.

Spontaneous infection of the tick Rhipisephalus bursa by the pathogens of babesielosis in sheep Babesiella ovis in the Crimea. Ibid.:163-168

Some data on the effect of splenectomy on the aggravation of bacterial carriage in babesielosis of sheep. Ibid.:169-172 (MIRA 18:11)

LI, P.N., kand. veter. nauk; STEPANOV, A.M., veterinarnyy vrach

Results of field testing of the method for the immunization  
of cattle against piroplasmosis and southern babesielosis.  
Sbor. nauch. rab. Sar. NIVS 6:155-162 '63.

(MIRA 18:11)

LI, P.N., kand. veter. nauk

Studying the pathogens of hemosporidiosis, vibriosis, and leptospirosis by phase contrast microscopy. Veterinariia 41 no.7:99-101 J1 '64. (MIRA 18:11)

1. Saratovskaya nauchno-issledovatel'skaya veterinarnaya stantsiya.



LI, P.N., kand. veter. nauk

Prophylaxis of Hemosporidia infestation and Piroplasma  
bigeminum. Veterinaria 42 no.9:51-53 S '65.

(MIRA 18:11)

1. Saratovskaya nauchno-issledovatel'skaya veterinarnaya  
stantsiya.

S/191/60/000/002/008/012  
B027/B058

**AUTHORS:** Li, P. Z., Mikhaylova, Z. V., Sedov, L. N., Eksanov, V. A.

**TITLE:** Laminated Plastics on the Basis of Glass Fiber.  
Communication V. Contact Method for the Forming of Large  
Products From Polyester Glass Plastics

**PERIODICAL:** Plasticheskiye massy, 1960, No. 2, pp. 29-35

**TEXT:** The authors describe contact forming of large products from polyester glass plastics as the simplest and most economic method, since hardening of unsaturated polyester resins is possible by addition of certain admixtures at room temperature. Molds from metal or glass plastic are best suited for the process; positive molds produce a smooth inner surface and negative ones a smooth outer surface; there are also multiple-part molds to facilitate the removal of complicate shape products; electrically heated molds are also used sometimes. In order to facilitate removal of the products from the molds, various separating agents are used, such as films from certain polymers (polyamide film ПК-4 (PK-4)), most frequently, however, alcoholic-aqueous solutions of polyvinyl alcohol,

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Laminated Plastics on the Basis of Glass Fiber. Communication V. Contact Method for the Forming of Large Products From Polyester Glass Plastics

S/191/60/000/002/008/012

B027/B058

but also mastic and pastes on wax- or paraffin basis. Various decorative coatings from resin with hardeners are applied to the mold by sprayer or brush. After the coating has gelatinized, the shredded glass fiber and resin with hardeners are attached by spraying machine or spray gun. When using glass fabric or glass mats, resin with hardener and accelerator as well as glass filler are laid in layers and each layer is rolled. The processing time for the resin of the type ПН -1 (PN-1) with active material and accelerator amounts to 40 to 90 min; inert fillers in powder form are sometimes admixed to increase viscosity and hardness. For the contact method, various types of glass fabrics may be used, which must previously be cut to shape, a larger edge having to remain, which facilitates removal from the mold. The glass fabric cut to shape is connected in the form of butt joints which must be covered by the next layer. Best durability of the products is obtained with a content of 40 to 50% polyethylene resin in glass plastic and 60 to 70% in glass mats. Smaller products are removed from the mold by hand and larger ones by machine, and undergo machine finishing. If a product consists of several parts, the best way of assembly is the simultaneous use of glued and mechanical joints. Subsequent

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Laminated Plastics on the Basis of Glass  
Fiber. Communication V. Contact Method for  
The Forming of Large Products From Polyester Glass Plastics

S/191/60/000/002/008/012  
B027/B058

repair work is easy: it is sufficient to polish the defect with emery paper and to apply some layers of resin-saturated glass mat or glass fabric. When working with polyethylene resins, it must be considered that their evaporation leads to irritation of mucous membrane and thus a sufficient ventilation of the rooms is absolutely necessary; rubber gloves or skin-protecting cream are required. These resins are also inflammable so that fire extinguishing equipment should be available in the plant. Due to danger of explosion, hydrogen peroxide and the accelerator must in all cases be added to the resin separately. There are 8 figures, 4 tables, and 54 references: 1 Soviet, 24 German, 1 Swedish, 1 Japanese, 17 US, 2 British, 1 French, 3 Czechoslovakian, and 4 Polish. ✓

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S/191/60/000/003/002/013  
B016/B054

AUTHORS: Li, P. Z., Mikhaylova, Z. V., Sedov, L. N., Kaganova, Ye.L.

TITLE: Laminated Plastics on the Basis of Glass Fiber. Report 6.  
Effect of the Degree of Polycondensation of Polyester  
Resins and of the Concentration of Terminal Groups on the  
Properties of Resins and Glass-reinforced Plastics

PERIODICAL: Plasticheskiye massy, 1960, No. 3, pp. 9-12

TEXT: The authors report on their studies of the effect of the degree of polycondensation and acidity of polydiethylene glycol maleinate phthalate (3 : 2 : 1) on some properties of the solid solution of this resin in styrene ПН-1 (PN-1), as well as on the properties of glass-reinforced plastics when using this resin as a binder. The authors had conducted the synthesis of the resin, and had published it earlier together with indices (Refs. 1,2). They found that polyester resins of different polycondensation degrees (acid number 20-100 mg KOH/g) in the presence of industrial isopropyl benzene hydrogen peroxide (3%) and HK (NK) accelerator (8%) gelatinize faster with increasing molecular

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Laminated Plastics on the Basis of Glass Fiber. Report 6. Effect of the Degree of Polycondensation of Polyester Resins and of the Concentration of Terminal Groups on the Properties of Resins and Glass-reinforced Plastics S/191/60/000/003/002/013 B016/B054

weight and decreasing acidity. This phenomenon was ascribed to: 1) extension of macromolecules of the unsaturated polyester increases the probability of copolymerization with styrene; 2) increased acidity inhibits the dissociation of the hydrogen peroxide; the free carboxyl groups of the polyester have a deactivating effect; 3) possible isomerization of maleic to fumaric acid (Ref.5). The authors keep on studying this problem. Simultaneously with the acceleration of gelatinization, the polyesters solidify to a higher degree, and their hardness and resistance to water increase. Further, it is shown that the mechanical strength of resins increases with increasing molecular weight of the initial polymer. This effect also prevails in T-1 (T-1) glass-reinforced polyester plastics. Tensile strength and resistance to static bending are practically independent of the degree of acidity and polycondensation of the binding resin. It is noted that the dielectric properties of glass-reinforced plastics depend chiefly on water absorption.  $\tan \delta$  for specimens with binding resins of an acid number of 70 mg KOH/g is much larger than with resins of 43.3 and 28 mg KOH/g.

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Laminated Plastics on the Basis of Glass Fiber: S/191/60/000/003/002/013  
Report 6. Effect of the Degree of Polycondensa- B016/B054  
tion of Polyester Resins and of the Concentration of Terminal Groups on  
the Properties of Resins and Glass-reinforced Plastics

The bending strength of glass-reinforced plastics decreases in water. The concentration of the terminal groups of the binder has its main influence when the specimen is immersed into water. The authors' results confirm the correctness of their choice of the final acid numbers (20-45 mg KOH/g) for resins used in the production of glass-reinforced plastics. There are 6 figures, 3 tables, and 6 references: 2 Soviet, 1 German, 1 US, and 2 British. X

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S/191/60/000/003/008/013  
B016/B054

AUTHORS: Li, P. Z., Lukovenko, T. M., Akutin, M. S.,  
Butylkina, M. P., Musina, A. Ya.

TITLE: Laminated Plastics on the Basis of Glass Fiber. Report VII.  
Glass Textolite on the Basis of Polyvinyl Butyral

PERIODICAL: Plasticheskiye massy, 1960, No. 3, pp. 48 - 49

TEXT: The authors report on their studies of methods of producing glass textolite from polyvinyl butyral (PVB) with glass fabric of the type ACTT (c) (ASTT (b)) as a filler. They used A-type PVB, and found that PVB embrittles at high temperatures, and loses its elasticity and solubility. Also its impact strength decreases, whereas hardness and bending strength increase. At high temperatures, PVB decomposes, becomes sticky, and its mechanical strength decreases. This was ascribed to a change in molecular structure, which changes from linear to steric with numerous cross links (Refs. 2,3). In glass textolite, the PVB content dropped to 4% after impregnating the glass fabric with an 18% PVB solution after drying at high temperature. Glass textolite was produced for

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Laminated Plastics on the Basis of Glass Fiber. S/191/60/000/003/008/013  
Report VII. Glass Textolite on the Basis of B016/B054  
Polyvinyl Butyral

experimental purposes a) by molding at different pressures and b) by deformation in vacuo. The authors studied the effect of temperature, PVB content, and deformation pressure on the properties of glass textolite. They found that a change in the PVB content has no great influence on the quality of glass textolite. A pressure of more than 45-50 kg/cm<sup>2</sup>, however, effects a decrease in strength with the use of most kinds of resin, probably due to destruction of the filler. It is shown that with the use of PVB a much higher pressure can be applied, without detrimental consequences, than with the use of other resins. Further, the authors found that PVB glass textolite deformed in vacuo has a lower strength than phenol glass textolite produced in vacuo. Experimental results show that the increased specific pressure endured by PVB products improves their quality. The properties of PVB glass textolite can be changed by additional heat treatment. There are 2 figures and 4 Soviet references.

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15.8340

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87922

S/191/60/000/004/003/015  
B016/B058

**AUTHORS:** Li, P. Z., Mikhaylova, Z. V., Sedov, L. N.,  
Petrilenkova, Ye. B., Libina, S. L.

**TITLE:** Laminated (Glass-reinforced Plastics. Report VIII. A Polyester  
Binding Agent for Glass-reinforced Plastics

**PERIODICAL:** Plasticheskiye massy, 1960, No. 4, pp. 9-12

**TEXT:** The authors describe poly(pentaerythrite dichlorohydrin maleinate phthalate (PDP), which was synthesized for the first time. It was the purpose of the study to widen the raw-material basis of polyvalent alcohols for the synthesis of unsaturated polyester resins by using poly(pentaerythrite). In contrast with the inadequate methods known, the authors proved that unsaturated polyesters with higher fire resistance can be synthesized by using a chlorine-containing alcohol component. For the polycondensation they used pentaerythrite dichlorohydrin (PED), which is formed by saponification of the reaction product of pentaerythrite and thionyl chloride in the presence of pyridine. PDP was synthesized from PED by adding maleic acid and phthalic anhydride (molar ratio 1.0 : 0.5 : 0.5) in

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Laminated Glass-reinforced Plastics.  
Report VIII. A Polyester Binding Agent for  
Glass-reinforced Plastics

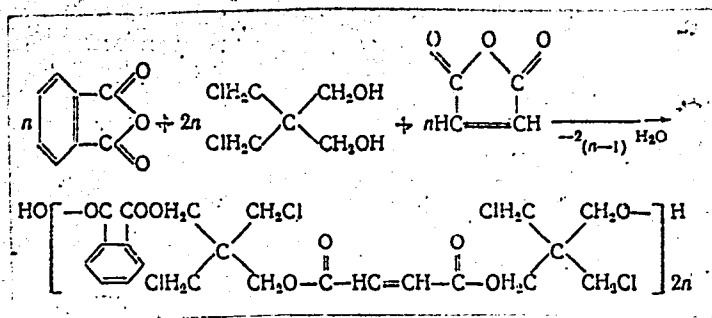
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B016/B058

the inert gas at 170-190°C (see scheme). The resin yield was 89 to 92 % of the total content of all components. After solidification, PDP mixed with 1/5 styrene gives a product that is difficultly combustible and stops burning after removal of the flame. The product from 70 parts by weight of PDP and 30 units of styrene is still less combustible. PDP may be mixed with methyl methacrylate at any proportion, and its solution in styrene (45 : 55) does not tend toward stratification. Its solutions are gelatinized at room temperature within three hours in the presence of 6% isopropyl benzene hydrogen peroxide and 8% of the accelerator HK(NK). This also occurs within 15 minutes in the presence of 3% methyl-ethyl ketone peroxide and 3% NK. From PDP and glass fabric T<sub>1</sub> (T<sub>1</sub>), the authors produced samples of self-extinguishing glass textolite, which are superior to the product from styrene resin ПН-1 (PN-1) with respect to their most important mechanical and insulation properties. The authors prepared a test sample of higher transparency from PDP and glued glass mat. Papers by G. S. Petrov, K. A. Andrianov, and S. I. Dzhenchel'skaya (Ref. 2), as well as G. S. Petrov and K. N. Vlasova (Ref. 3) are mentioned. There are 5 figures, 2 tables, and 7 references; 5 Soviet, 1 French, and 1 German.

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S/191/60/000/004/003/015  
B016/B058



Card 3/3

S/191/60/000/005/005/020  
B004/B064

AUTHORS: Li, P. Z., Kashirskaya, T. M., Lukovenko, T. M.

TITLE: Laminated Plastics on Glass Fiber Basis. Information IX.  
Hardening of Some Resol Resins Used in the Production of  
Glass-reinforced Plastics and Other Laminated Plastics

PERIODICAL: Plasticheskiye massy, 1960, No. 5, pp. 12 - 14

TEXT: The authors discuss the optimum properties of a resin suited for glass-reinforced plastics. They come to the result that the resin should be comparatively little active until 100°C, at a temperature rise to 150°C, and more, however, it should quickly harden. The following samples were tested: resin 1, a phenol-formaldehyde-resol resin; resin 2: a phenol-formaldehyde-resol resin; resin 3: a cresol-formaldehyde-resol resin, and resin 4: a phenol-aniline-formaldehyde-resol resin. Resin 1 was condensed in the presence of  $\text{NH}_3 + \text{NaOH}$ , the other samples in the presence of  $\text{NH}_3$  only. The content of free phenol, melting point, and rate of hardening were determined. The first method, i. e., the determination  
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Laminated Plastics on Glass Fiber Basis. S/191/60/000/005/005/020  
Information IX. Hardening of Some Resol Resins B004/B064  
Used in the Production of Glass-reinforced  
Plastics and Other Laminated Plastics

of the rate of hardening on a plate of 150°C, proved to be unsuitable. In spite of the considerable difference in the content of free phenol (resin 1: 5.5 - 8.0 %, resin 4: 15.5 - 16.4 %), the difference in the hardening rate, determined by this method, was 15 - 20 seconds only. The hardening rate was, therefore, determined according to I. Scheiber (Ref. 6): Impregnation of filtering paper with resin, heating to 110, 130, or 150°C, and, after 20, 40, 60, 120, 180, and 240 minutes, determination of the residual solubility in an acetone-alcohol mixture of 1:1. By this method, the following results were obtained: 95.5 % of resin 1 became insoluble at 150°C after 120 minutes, 94 % of resin 2 after 180 minutes, 87 % of resin 3 after 240 minutes, and 90 % of resin 4 after 240 minutes. The rise in the percentage of resin having become insoluble at low temperatures (110° and 130°C) shows a course characteristic of the respective type of resin. Therefore, this method is recommended for the determination of the rate of hardening and the study of the hardening process. G. S. Petrov and A. A. Vansheydt are mentioned. There are 4 figures, 1 table, and 11 Soviet references.

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LI, P.Z.; KASHIRSKAYA, T.M.; LUKOVENKO, T.M.

Laminated plastics based on glass fibers. Report No.10: Processing quality of alcohol solutions of resoles used in the production of glass fiber and other laminated plastics. Plast.massy no.6:23-25 '60. (MIRA 13:11)

(Phenol condensation products)  
(Glass reinforced plastics)

LI, P.Z.; MIKHAYLOVA, Z.V.; SEDOV, L.N.

Laminated plastics based on glass fibers. Report No.11: Effect  
of the content of monomers on the properties of unsaturated poly-  
ester binder. Plast.massy no.8:7-16 '60. (MIRA 13:10)  
(Glass reinforced plastics) (Resins, Synthetic)



S/191/60/000/009/003/010  
B013/B055

AUTHORS: Iskra, Ye. V., Shtaykhman, G. A., ~~Li, P. Z.~~ Mikhaylova, Z.V.,  
Sedov, L. N., Al'shits, I. M., Kats, L. F., Papyшева, Ye.V.,  
Eksanov, V. A.

TITLE: Glass Fiber Laminates. 12. Dyeing of Polyester Glass-  
reinforced Plastics

PERIODICAL: Plasticheskiye massy, 1960, No. 9, pp. 11 - 15

TEXT: The present work deals with the dyeing of glass-reinforced polyester plastics and the dyes used for this purpose. The investigation showed that polyester resins may be colored satisfactorily with azo-, anthraquinone-, and triphenyl-methane dyes, phthalocyanine pigments, and others. The results obtained with several vat dyes and direct dyes were unsatisfactory. Inorganic pigments and dyes gave less brilliant hues than organic colorants. The results of the investigation showed that most dyes retard the gelling process. This retardation, however, is comparatively insignificant so that the properties of the hardened resin are hardly affected. To obtain well-colored products, the resin is generally applied

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Glass Fiber Laminates. 12. Dyeing of Polyester Glass-reinforced Plastics

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in two thin layers, a coat thickness of 0.4 - 0.7 mm being advisable. In practical use, structural glass-reinforced plastics are often exposed to sunlight. This necessitates the use of specially light-fast dyes. The color stability of samples was tested both in the laboratory under a ПРК-4 (PRK-4) quartz lamp and in open air, on roofs in Leningrad and Moscow. The following facts were established: 1) Polyester resins turn yellowish under sunlight. This is particularly noticeable with the lighter shades. 2) Inorganic pigments are the most light-fast. Direct introduction of the dye or pigment is the most expedient way of dyeing, but cannot be repeated. It is often the case, however, that the color of some structural part dyed in this manner must be renewed owing to damage or fading. This can only be done by applying enamel or oil paint. Some recipes for decorative units are given. According to destination, structural glass-reinforced plastics may be exposed to salt water, petroleum products, mineral oils, alkaline, and acid media. The coloring of plastics was stable for 4500 h in sea water, 3 h in boiling water, 3000 h in mineral oil, 24 h in 10%  $H_2SO_4$ , and 24 h in 2% NaOH. There are 5 tables and 5 non-Soviet references.

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S/191/60/000/011/003/016  
B013/B054

15.8109

AUTHORS: Li, P. Z., Mikhaylova, Z. V., Sedov, L. N. Kaganova, Ye. L.,  
Gefter, Ye. L.

TITLE: Laminated Plastics on Glass Fiber Basis. Report 13. A New  
Binder on the Basis of Unsaturated Polyester Resins With  
Addition of an Organophosphorus Compound

PERIODICAL: Plasticheskiye massy, 1960, No. 11, pp. 9 - 10

TEXT: The authors studied the possibility of producing incombustible resins with the use of dichloro-diethyl ester of vinyl phosphinic acid (DE). Dichloro-diethyl ester was synthesized by Ye. L. Gefter. Experiments with the use of DE with usual resins gave no satisfactory results. Its use with chlorine-containing polyester resins is much more promising. The effect of organophosphorus admixtures on the properties of chlorine-containing resin is shown in Table 1. Hence, it appears that with addition of small DE amounts the properties of resin remain practically unchanged except for the gelation rate. Some physicommechanical properties of glass-reinforced

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Laminated Plastics on Glass Fiber Basis.  
Report 13. A New Binder on the Basis of  
Unsaturated Polyester Resins With Addition  
of an Organophosphorus Compound

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B013/B054

plastics from chlorine-containing polyester resin, with and without DE addition, are given in Table 2. The refractoriness of samples of glass-reinforced plastics was tested by exposing the sample to an open flame for a definite time, and - after removal of the flame - determining the duration of independent burning and glowing of the sample, as well as the loss in weight (Table 3). Combustibility of glass-reinforced plastics was little reduced by the addition of DE to the general-purpose resin of the type ПН-1 (PN-1). On the other hand, an introduction of small DE amounts into chlorine-containing resin, which is only slowly extinguished after removal of the flame, warrants the production of hardly combustible glass-reinforced plastics. There are 1 figure, 3 tables, and 3 references: 1 Soviet, 1 US, and 1 British.

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S/081/62/000/021/049/069  
B162/B101

AUTHORS: Li, P. Z., Mikhaylova, Z. V., Sedov, L. N.

TITLE: Unsaturated polyester resins

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 21, 1962, 449, abstract  
21P18 (Vest. tekhn. i ekon. inform. N.-i. in-t tekhn.-ekon.  
issled. Gos. kom-ta Sov. Min. SSSR po khimii, no. 11, 1961,  
51-60)

TEXT: Synopsis. Synthesis, properties, the methods of curing of poly-  
ester resins and also the properties of cured unsaturated polyester resins  
are described. 55 references. [Abstracter's note: Complete translation.]

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LI, P.Z.; MIKHAYLOVA, Z.V.; SEDOV, L.N.; KOSTYGOV, V.A.

Synthesis and investigation of unsaturated polyester resins  
based on N-bis-beta-oxethylaniline. Plast.massy no.12:11-14  
'61. (MIRA 14:12)

(Esters)

(Resins, Synthetic)

16897

S/191/62/000/005/004/012  
B110/B101

157.0110

AUTHORS: Li, P. Z., Kaganova, Ye. L., Mikhaylova, Z. V.

TITLE: Self-extinguishing unsaturated polyester resins

PERIODICAL: Plasticheskiye massy, no. 5, 1962, 10-15

TEXT: Self-extinguishing polyesters were obtained by: (1) special admixtures, (2) chemical modification. By adding  $Sb_2O_3$  (14.3%) and PVC resins (6.7-7.9%) to ПН-1 (PN-1) resin, glass reinforced plastics made therefrom on the basis of glass fabric  $T_1$  ( $T_1$ ), showed worse physical-mechanical properties, reduced impact strength, increased viscosity and opacity. Modification was based on the principle of introducing chlorine atoms into the polymer molecule. Ethylene glycol was polycondensed with maleic and tetrachlorophthalic anhydride (ratio 1.1:0.5:0.5) in the melt at 160, 180 and 200°C in inert gas atmosphere. The reaction started at 135°C, the acid number of 35-40 mg KOH/g was reached after 4.5 hr at 200°C, which proves the high reactivity of tetrachlorophthalic anhydride. Polycondensation was a reaction of second order. Its rate constants in

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Self-extinguishing unsaturated ...

S/191/62/000/005/004/012  
B110/B101

$\text{g}\cdot\text{mole}^{-1}\cdot\text{min}^{-1}$  were: 1.21 at  $160^{\circ}\text{C}$ , 2.62 at  $180^{\circ}\text{C}$  and  $\sim 5.93$  at  $200^{\circ}\text{C}$ , its activation energy  $\sim 17,500$  cal/mole, the yield 92-93%. The brown, solid polycondensate is soluble in styrene, methyl methacrylate and polyester acrylates. A 30% styrene solution of polyethylene glycol maleinate tetrachlorophthalate was best. Methyl-ethyl ketone peroxide combined with cobalt naphthenate and the redox system p-benzoyl peroxide-dimethyl aniline served as hardeners. Addition of  $\text{Sb}_2\text{O}_3$  increases the fire-resistant

quality of the resins and does not change the physical-mechanical properties of glass reinforced textolites produced from them, which correspond to those produced from PN-1. Moreover, ethyleneglycol was polycondensed with maleic anhydride and endomethylene hexachloro tetrahydrophthalic anhydride (I) at a molar ratio of 1.1:0.5:0.5 and  $180^{\circ}\text{C}$ . The reaction was here  $\sim 3.88$   $\text{g}\cdot\text{mole}^{-1}\cdot\text{min}^{-1}$ . The condensate is a solid, brown resin, easily soluble in styrene, methyl methacrylate, polyester acrylates, etc. A curing agent for maximum hardening is still being sought. Replacement of ethylene glycol by diethylene glycol and increase of the amount of maleic anhydride improved the mechanical properties of the corresponding glass reinforced textolites ( $T_1$ ). 0.6 mole I, 0.4 mole

Card 2/3



h1915

S/191/62/000/011/009/019  
B101/B186

15.8500

AUTHORS: Li, P. Z., Lukovenko, T. M., Yakubovich, E. I., Shagova,  
E. A., Markovich, V. E.TITLE: Determination of the linear expansion coefficient of glass  
plastics

PERIODICAL: Plasticheskiye massy, no. 11, 1962, 36-40

TEXT: The linear expansion coefficient  $\alpha$  of a glass textolite from phenol formaldehyde resin reinforced by 65-70% glass fabric was determined in the temperature range 20-400°C. The resin combinations of 70% ЭА-6 (ED-6) epoxy resin and 30% phenol formaldehyde resin, phenol formaldehyde resin with polyvinyl butyral 1:1, or of phenol formaldehyde resin with furfural acetone resin 1:1, tested for comparison, showed no essential differences. The relative elongation  $\Delta l/l_0$  of glass textolites was not found to be a linear function of temperature.  $\alpha$  for 30% resin content lies near the  $\alpha$  for glass fiber ( $\sim 5 \cdot 10^{-6}/^{\circ}\text{C}$ ), it approaches that of iron for 45-55% resin content, and that of aluminum for 78% resin content, whereas  $\alpha$  for pure resin is  $\sim 80 \cdot 10^{-6}/^{\circ}\text{C}$ . Glass textolite shaped in

Card 1/2

Determination of the linear ...

S/191/62/000/011/009/019  
B101/B186

vacuo and molded glass textolite differ in that the  $\Delta l/l_0$ -versus-temperature curve for the latter shows irregularities above  $100^{\circ}\text{C}$ , due to after-hardening of the resin and loss of volatile components (the loss in weight being greater than with vacuum-shaped textolite). Therefore vacuum-shaped glass textolite offers higher heat resistance and mechanical strength. Glass textolite heated to  $300^{\circ}\text{C}$  and cooled in the exsiccator showed constant relative elongation owing to the elimination of moisture. The bending strength of vacuum-shaped glass textolite after heating to  $300^{\circ}\text{C}$  rose by 15% to  $2000 \text{ kg/cm}^2$ , at  $350^{\circ}\text{C}$  by 10% to  $1900 \text{ kg/cm}^2$ . The bending strength decreased above  $400^{\circ}\text{C}$ . There are 6 figures and 3 tables. f

Card 2/2

S/191/63/000/001/003/017  
B101/B186

AUTHORS: Mikhaylova, Z. V., Li, P. Z.

TITLE: Use of three-component systems to initiate the copolymerization of unsaturated polyesters with styrene

PERIODICAL: Plasticheskiye massy, no. 1, 1963, 12-18

TEXT: Using Western research data, e.g. those described by J. W. Cywinski (Appl. Plast., 3, no. 2, 56 (1960), Reinf. Plast., 4, no. 8, 8 (1960)), the authors investigated how initiators containing a promotor or "coaccelerator" as third component affect the copolymerization of polydiethylene glycol maleinate phthalate with styrene. The redox systems isopropyl benzene hydroperoxide + cobalt naphthenate (I); methyl ethyl ketone peroxide + cobalt naphthenate (II); cyclohexanone peroxide + cobalt naphthenate (III); and benzoyl peroxide + dimethyl aniline (IV) were studied. Dimethyl aniline (DMA) was added as promotor to the initiators I, II, and III, and cobalt naphthenate to the system IV. Results: The gel formation time was reduced to 1/5 - 1/50 by the systems I, II, and III with promotor for 65% solutions of polyester in styrene. Without

Card 1/3

Use of three-component systems ...

S/191/63/000/001/003/017  
B101/B186

component systems containing DMA can be used to cure polyester resins at low temperatures. The synergistic effect of systems containing two peroxides as described by Cywinski (ibid.) and J. B. Harrison et al. (Mod. Plast., 39, no. 5, 135 (1962)) was also studied. In contrast to the data found by these research workers, the curing was not accelerated by systems of I, II, and III plus benzoyl peroxide. There are 11 figures and 4 tables.

Card 3/3

L 9840-63

Pr-4/Pt-4--RM/WW/MAY  
ACCESSION NR: AF3000396

EPR/EWP(j)/EPF(c)/EWT(m)/BDS/ES(π)-2--AFFTC/ASD/SSD--Ps-4/Pc-4/  
S/0191/63/000/005/0015/0019

81

AUTHOR: Li, P. Z.; Mikhaylova, Z. V.; Makarova, Yu. S.

TITLE: Unsaturated polyesters based on 2,2-bis(chloromethyl)-1,3-propanediol

SOURCE: Plasticheskiye massy\*, no. 5, 1963, 15-19

TOPIC TAGS: 2,2-bis(chloromethyl)-1,3-propanediol, ethylene glycol, diethylene glycol, maleic anhydride, chlorendic anhydride, tetrachlorophthalic anhydride, unsaturated polyesters, polycondensation, reactivity polyester solutions, glass-fabric reinforced plastics, fire resistance, self-extinguishing, heat-resistance

ABSTRACT: Fire-resistant polyesters and glass-fabric-reinforced plastics based on 2,2-bis(chloromethyl)-1,3-propanediol (BCMPD), alone or with ethylene or diethylene glycol (EG or DEG), and maleic (MA), chlorendic (CA), or tetrachlorophthalic (TCPA) anhydride have been prepared. The polyesters were synthesized by polycondensation of the starting materials under an inert gas at 180 to 205C until an acid number of 38 to 42 mg KOH/g resin was attained.

Card 1/32

L 9840-63  
ACCESSION NR: AP3000396

Study of the polycondensation kinetics using the starting materials in various ratios showed that the reactivity of BCMPD approaches that of DEG but is lower than that of EG, and that the activity of the anhydrides in reactions with BCMPD decreases in the order MA is greater than CA is greater than TCPA. Polyesters synthesized from BCMPD, EG, DEG, MA, CA, and TCPA in various molar ratios are transparent substances ranging in color from yellow to dark brown, with melting points of 40 to 83C. Polyesters modified with CA or TCPA and containing EG or DEG are readily soluble in styrene, methyl methacrylate, dimethyl acrylate, and other monomers. Polyester-styrene solutions can be cured by various redox systems at room temperature. The products are fire and water resistant and have a Brinell hardness of 11.5 to 22 kg/cm sup 2 and a Martens heat resistance of 64 to 74C. Glass-fabric-reinforced plastics made with the above polyesters and various glass fabrics are self-extinguishing and water resistant and exhibit in most cases a Martens heat resistance greater than 250C. They have at 20C a bending strength of 1436 to 3853 kg/cm sup 2 and a compressive strength (parallel to the layers) of 570 to 2195 kg/cm sup 2; 77.5 to 100% of this strength is retained at 80C. Orig.

Card 2/3

LI, P.Z.; MIKHAYLOVA, Z.V.; KAGANOVA, Ye.L.

Curing of unsaturated chlorine-containing polyester resins  
by means of the oxidation-reduction systems benzoyl peroxide -  
tertiary amines. Plast. massy no.8:13-16 '63. (MIRA 16:8)

(Resins, Synthetic) (Benzoyl peroxide) (Amines)

SEDOV, L.N.; LI, P.Z.

Rate of gel formation in unsaturated polyester resins at high  
temperatures. Plast.massy no.10:13-16 '63. (MIRA 16:10)



ACCESSION NR: AP4012184

S/0191/64/000/002/0012/0016

AUTHOR: Li, P. Z.; Mikhaylova, Z. V.; By\*kova, L. V.

TITLE Production of self extinguishing chlorine-containing polyester resins using unsaturated organophosphorus compounds.

SOURCE: Plasticheskiye massy\*, no. 2, 1964, 12-16

TOPIC TAGS: polyester resin, flameproofing, self extinguishing polyester, fire resistant fiberglass, chlorine containing polyester, vinylphosphonate polymer, phosphorus containing polyester, polyester resin curing

ABSTRACT: Fire-resistant binders for fiber glass can be obtained from a chlorine-containing polyester resin, di- $\beta$ , $\beta'$ -chloroethyl ester of vinylphosphonic acid, and polyesters based thereon. Hardening of the chlorine-containing polyester resins by adding organophosphorus compounds at room temperature in the presence of various initiator systems was studied. The system, consisting of unsaturated polyester, styrene, and polyester based on the di- $\beta$ , $\beta'$ -chloroethyl es-

Card: 1/2

KALININA, L. S.; AKUTIN, M. S.; LI, P. Z.

Bibliography. Plast. massy no. 5:76-78 '64. (MIRA 17:5)

L 19727-65 ENT(m)/EPF(c)/EPR/EPF(j)/T Pc-L/Pr-L/Ps-L RPL/ASD(m)-3 WA/EM  
SESSION NR: AP5003602 S/0191/64/000/007/0010/0015

AUTHOR: Sedov, L. N.; Li, P. Z.

TITLE: Influence of the degree of polycondensation of unsaturated polyesters on the water stability of their copolymers with styrene B

SOURCE: Plasticheskiye massy, no. 7, 1964, 10-15

KEY TAGS: polyester plastic, polystyrene, copolymerization, condensation reaction

Abstract: The influence of the degree of polycondensation, composition, and conditions of synthesis of polyesters on the water absorption of their copolymers with styrene at temperatures of about 20°C was investigated. Products based on polyesters with increased molecular weight (lower acid number) exhibited greater water stability. Copolymers of maleates were found to absorb somewhat less water than copolymers of fumarates, despite the greater cross-linking density of the latter, probably as a result of the greater activity of fumarates in copolymerization with styrene. No significant difference in the water absorption was observed in set resins based on polyesters produced at 180 and 200°C. The optimum styrene content in the systems investigated (copolymers of styrene with polydiethylene glycol maleate, polydiethylene glycol fumarate, polydiethylene glycol maleate phthalate, polydiethylene

Card 1/2

L 19727-65

ACCESSION NR: AP5003602

glycol fumarate phthalate, and polyethylene glycol maleate adipate) was 30-33%. Modifying the polyesters by introducing phthalate radicals increased in the water stability of the copolymers by 50-200%. The process of water absorption of the copolymers and glass plastics based on them was found to be satisfactorily described by the Andrews-Johnston equation. Orig. art. has 1 table, 7 graphs, and 4 formulas.

ASSOCIATION: none

EXEMPTED:00

ENCL: 00

SUB CODE: MT

NO REF SOV: 011

OTHER: 009

JPRS

Card 2/2

LI, P.Z.; MIKHAYLOVA, S.V.; BYKOVA, I.V.

Obtaining self-dumping chlorine-containing polyester resins  
by means of unsaturated organophosphorous compounds. Plast.  
massy no.2:12-16 '64. (MIRA 17:8)

U 14509-65 BPA(s)-2/EWT(m)/EWT(c)/...  
ACCESSION NR: AP4048204 S/0191/64/000/011/0019/0021

AUTHOR: Mikhaylova, Z. V., Li, P. Z., Savicheva, O. I.

B

TITLE: A study of the properties of polyethyleneglycolmaleate diphenates and of the glass textolites based on them

SOURCE: Plasticheskiye massy\*, no. 11, 1964, 19-21

TOPIC TAGS: fiberglass, glass textolite, polyethyleneglycolmaleate, diphenic acid, polymer laminate

ABSTRACT: The properties of polyethyleneglycolmaleate diphenates and the glass textolites made from them were investigated, using polyester resins based on ethylene-glycolmaleate diphenate with different proportions of acid reagents in the formula. ob-  
served in the process of condensation in a melt. The reaction was carried out at 120°C until an acid  
number of 33-35 was obtained. The beginning of the condensation was noted at 140-150°C,  
the reaction time was 9-15 hrs. depending on the ratio of the acid reagents. The syn-  
thesized polyesters were solid, brittle, brown products. Their characteristics are tabu-  
lated and plotted. The polyesters are characterized by a good compatibility with styrene  
up to a ratio of about 25:75. The temperature dependence of the viscosity of the styrene  
solution of polyethyleneglycolmaleate diphenate showed a hyperbolic character and could be  
Cont. 1/2

L 14509-65

ACCESSION NR: AP4048204

calculated from a general equation. It is shown that the viscosity of three types of resin decreases with increasing temperature to the same extent:  $n = 2.51-2.59$ . These solutions readily harden at room temperature with different redox systems. They have a slightly higher brittleness than glycolmaleate phthalate, but a lower shrinkage and better heat stability (at a higher degree of unsaturation). Their waterproofness is determined by the density of cross-linking and the content of aromatic components. The diphenates have a higher moisture resistance than the adipates of similar structure. The use of these resins as binders for glass textolites gave better mechanical and insulating properties than that of the usual resins. Tabulated data show that at higher temperatures, the loss in bending strength and compressive strength of these materials is less than for materials based on adipate phthalate. It can be concluded that unsaturated polyester resins based on diphenic acid can be used for making high-strength and heat-stable glass textolites. Orig. art. has 5 figures, 3 tables and 1 formula.

ASSOCIATION: None

SUBMITTED: 00

ENCL: 00

SUB CODE: MT

NO REF SOV: 005

OTHER: 002

Card

2/2

48569-65

EWI(m)/EWP(j) Pc-4 RM

ACCESSION NR: AR5009906

UR/0081/65/000/004/S071/S071

SOURCE: Ref. zh. Khimiya, Abs. 4S461

15  
B

AUTHOR: Li, P. Z.; Mikhaylova, Z. V.; Pugachevskaya, N. F.

TITLE: Properties of unsaturated polyesters of 1,2-propylene glycol and of transparent plastics based on them.

CITED SOURCE: Vestn. tekhn. i ekon. inform. N.-1, in-t tekhn.-ekon. issled. Gos. Kom-ty khim. prom-sti pri Gosplane SSSR, vyp. 6, 1964, 16-18

TOPIC TAGS: unsaturated compound, polyester plastic, propylene glycol, transparent plastic

TRANSLATION: The properties of polyesters based on 1,2 polypropylene glycol and various quantities of maleic and phthalic anhydrides were studied as well as those of transparent plastics manufactured from these polyesters. In addition to the polyesters, the binder for these plastics contains styrene in various quantities as well as hardeners. When an initiator system of isopropyl benzene hydroperoxide and cobalt naphthenate, the resin hardening process took 21 days, while the use of

Card 1/2



L 48569-65

ACCESSION NR: AR5009906

methylethyl ketone peroxide shortened it to 7 days. The optimum content of styrene in the binder was 40%. It was found that the thermal stability for copolymers of polyesters with styrene increases with the non-saturation of the polyester, while the hardness and compressive strength of these copolymers simultaneously decreases. When the non-saturation of the polyester is low, the water resistance of the composition products is poor. The strength and bending module of elasticity for transparent plastics with a binder based on polypropylene glycol maleatephthalate are lower than those for plastics based on polypropylene glycol maleate. However, the latter composition yields a transparent plastic of maximum strength at high temperatures. Z. Ivanova.

SUB CODE: OC

ENCL: 00

Card 2/2

SENOV, L.N.; LI, P.Z.

Effect of the degree of polycondensation of unsaturated polyesters  
on the water resistance of their copolymers with styrene. Plast.  
massy no.7:10-14 '64. (MIRA 17:10)

SEDOV, I.N.; II, P.2.

Effect of the molecular weight on the viscosity of unsaturated  
polyesters and their concentrated solutions. Plast.massy no.9:  
10-13 '64. (MIRA 17:10)

SSSCV, I.N.s 11, P.S.g (SOLIN, Yr.A.: AVDEYEVA, G.M.

Using the viscosimetry method for determining the molecular weight  
of unsaturated polyesters. Plant. massy no. 019-10 165. (MIRA 18:8)

L 58359-65 EPA(s)-2/EWT(m)/EPF(c)/EPR/ENP(j)/T/ENP(v) Pc-4/Pr-4/Ps-4/Pt-7

52  
51

... Gosteva, O. K. (deceased), Shugova, E. A., Yakubovich,

Heat-resistant glass-reinforced plastics based on epoxy resins with an increased functionality

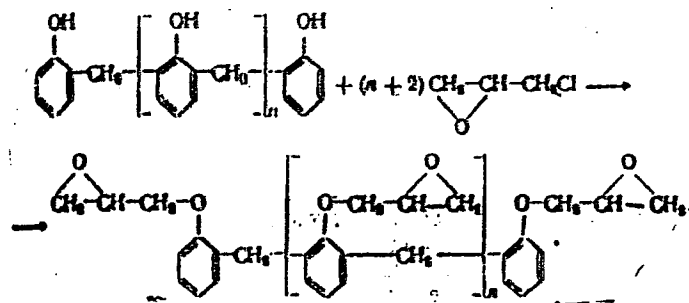
SOURCE: Plasticheskiye massy. no. 7, 1965, 21-22.

TOPIC TAGS: glass reinforced plastic, epoxy resin, epoxy novolak resin, 6 EN resin, ENF resin, heat resistant plastic

ABSTRACT: The feasibility of using phenol-formaldehyde resin as a curing agent... constituent of 6-EN epoxy-novolak resin to produce a binder for heat-resistant reinforced plastics (GRP) was studied. The idea was to produce a binder with increased functionality capable of a higher degree of cross-linking and greater rigidity. 6-EN resin is prepared thus:

Card 1/3

APPROVED-65  
 ACCESSION NR: AP5018035



Resole- and novolak-type phenol-formaldehyde resins were tried. Thermomechanical tests showed the superior heat resistance of 6-EN resin in comparison with EDF resin (unidentified) and the advantage of novolak over resole resin. Subsequent testing was carried out with GRP made from 6-EN resin cured with novolak, a combination designated ENF resin. GRP comprising "1" glass fabric and 25-30% ENF were made by curing at 150C and 50 kg/cm<sup>2</sup>, followed by heat treatment at various temperatures and different periods of time. The testing involved bending strength tests at 20C. It was found that heat treatment ceased to affect the bending strength.

Card 2/3

1 52350-65

ACCESSION NR: AP5018035

and 2) the GRP based on ENF was superior in heat resistance to GRP from EDF resin and to GRP from phenolic resin. Orig. art. has: 3 figures, 1 table, and 1 formula. [SM]

ASSOCIATION: none

SUBMITTED: 00

ENCL: 00

SUB CODE: MT

NO REF SOV: 002

OTHER: 002

ATD PRESS: 4047

AR  
Card 3/3

AF 5015292

REF ID: A6015292

AUTHORS: Sedov, L. N.; Li, P. Z.; Savichova, G. I.

TITLE: A method for obtaining unsaturated polyesters. Class 39, No. 170664

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 9, 1965, 67

TOPIC TAGS: polyester, unsaturated polyester, glycol, dicarboxylic acid, aliphatic acid, adipic acid

ABSTRACT: This Author Certificate presents a method for obtaining unsaturated polyesters by the condensation of glycol with saturated dicarboxylic acid and a subsequent condensation with unsaturated dicarboxylic acid or with its anhydride. To impart elasticity to the solidified polyesters, aliphatic acids with a long chain, such as adipic acid, are used as the saturated dicarboxylic acid.

ASSOCIATION: none

SUBMITTED: 10Jun63

ENCL: 00

SUB CODE: 00

NO REF SOV: 000

OTHER: 000

Card 1/1 *ms*



ИЗВЕЩАНИЕ  
№ А15013048

№ 156  
578.674 : 578.029.294

AUTHOR: Li, P. Z.; Mikhaylova, Z. V.; Rykova, L. V.; Puhtsova, I. K.; Travnikova,

TITLE: A method for hardening unsaturated polyester resins. Class 19,  
1965-1967

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 12, 1965, 75

TOPIC TAGS: plastic, resin, polyester resin, thermal stability

ABSTRACT: This Author's Certificate introduces a method for hardening unsaturated polyester resins by copolymerization with a cross-linking agent containing the presence of an oxidizing agent. The method provides for the hardening of the resin rapidly and self-heating during the process. The method is applicable to the hardening of unsaturated polyester resins.

INSTITUTION: Nauchno-issledovatel'skiy institut plasticheskiy mass (Scientific

APPROVED FOR RELEASE: Monday, July 31, 2000  
REF ID: A66802  
AP 5019045

Research Institute of Plastics)

SUBMITTED: 31Aug64

ENCL: 00

SUB CODE: MT

NO REF SOV: 000

OTHER: 000

181  
Card 2/2

L 65130-65 EWT(m)/EPF(c)/ENF(j)/T RM

ACCESSION NR: AP5021599

UR/0286/65/000/013/0070/0070

AUTHORS: Li, P. Z.; Mikhaylova, Z. V.; Koganova, Ye. L.; Malinovskaya, T. P.

TITLE: A method for hardening a mixture of polyester-maleinate and polyester-acrylate resins. Class 39, No. 172491

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 13, 1965, 70

TOPIC TAGS: resin, polyester, hardening method

ABSTRACT: This Author Certificate presents a method for hardening a mixture of polyester-maleinate and polyester-acrylate resins in the presence of oxidizing-reducing resins at room temperature. To accelerate gelling during simultaneous intensive hardening of resin, two hydroxides, a tertiary amine, and a fatty acid salt, such as cyclohexanone peroxide, isopropylbenzene hydroperoxide, natural rubber accelerator, and dimethylaniline are used as the oxidizing-reducing agents.

ASSOCIATION: Nauchno-issledovatel'skiy institut plasticheskikh mass (Scientific Research Institute of Plastics)

SUBMITTED: 08Feb64

ENCL: CO

SUB CODE: OC

NO REF SOV: 000

OTHER: 000

Card 1/1

LUKOVENKO, T.M.; GOSTEVA, O.K. [deceased]; SHAGOVA, E.A.; YAKUBOVICH, E.I.;  
Li, P.Z.

Heat resistant glass plastics based on epoxy resins with increased  
functionality. Plast. massy no.7:21-22 '65. (MIRA 18:7)

SEDOV, L.N.; LI, P.Z.; AVDEYEVA, G.M.

Properties of the polyesters of diethyleneglycol, maleic and  
sebacic acid and their copolymers with styrene. Plast.  
massy no.11:32-35 '65. (MIRA 18:12)

L 11598-66 EWT(m)/EWP(j)/T WW/RM

ACC NR: AP6000349

SOURCE CODE: UR/0286/65/000/021/0047/0047

AUTHORS: Sedov, L. N.; Li, P. Z.; Zotov, L. I.; Akutin, M. S.; Kargin, V. A.; Krupkina, F. A.

ORG: none

TITLE: Method for obtaining elastic copolymers. Class 39, No. 176062

SOURCE: Byulleten' izobrateniy i tovarnykh znakov, no. 21, 1965, 47

TOPIC TAGS: polymer, polymerization, polyester, polycondensation

ABSTRACT: This Author Certificate presents a method for obtaining elastic copolymers of unsaturated polyester resins with different monomers. To decrease shrinkage and the exothermic effect during hardening, the polyesters used are those obtained by condensation of unsaturated acids or their anhydrides with polyalkyleneglycols (e.g., with polytetramethyleneglycol) with molecular weight from 1000 to 40 000.

SUB CODE: 11/

SUBM DATE: 04May62

HW  
Card 1/1

50  
B

(A) L 13359-66

EWT(m)/EWP(j)/T

RPL

WW/RM

ACC NR- AP6002473

SOURCE CODE: UR/0191/66/000/001/0011/0013

AUTHORS: Sedov, L. N.; Li, P. Z.

33  
30  
B

ORG: none

TITLE: The two-stage method for synthesizing unsaturated polyesters. Production of polyesters of maleic acid, modified with certain dicarboxylic acids by two-stage condensation

SOURCE: Plasticheskiye massy, no. 1, 1966, 11-13

TOPIC TAGS: polymer, resin, polyester, polycondensation, chain polymerization, ethylene glycol, esterification, carboxylic acid, anhydride

ABSTRACT: A new method for the synthesis of unsaturated polyesters having a regular structure was developed in a study constituting an extension of a previously published work (Avt. svid. No 170666; Byull. izobr., No. 9, 1965). This method consists of a two-stage synthesis. The first stage involves the synthesis of the diester of glycol and an unsaturated acid or of a mixed diester of saturated and unsaturated acids by the addition of dicarboxylic acid anhydrides to glycol. The second stage consists of condensing the acid diester of glycol with the same or a different glycol in the mole ration of 2:1. A schematic for the vulcanized or hardened products of the first and second stages respectively is presented as

Card 1/2

UDC: 678.744.342





L 18446-66 EWT(m)/EWP(j)/T WW/RM

ACC NR: AF6002546

(A)

SOURCE CODE: UR/0286/65/000/023/0045/0046

AUTHORS: Trepalkova, L. I.; Tartakovskiy, B. D.; Falsy, M. I.; Naumkina, N. I.  
Li, P. Z.

ORG: none

TITLE: Method for plasticizing epoxy resins and compositions based on them. Class 39, No. 176675<sup>15</sup>

1514456

33  
B

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 23, 1965, 45-46

TOPIC TAGS: epoxy plastic, plasticizer, polyether/ PGA-5 polyether

ABSTRACT: This Author Certificate presents a method for plasticizing epoxy resins and compositions based on them by using polyether. To broaden the selection of plasticizers and to add vibration absorption properties to the epoxy compositions, the polyether PGA-5<sup>15</sup> is used as the plasticizer. This is a product of the interaction of dibutyladipate and a mixture of diethylene glycol and ethylene glycol.

SUB CODE: 11, 07/ SUBM DATE: 21Jan65

Card 1/1

UDC: 678 643.4215 678 674.049

L 38508-66 EWT(m)/EWP(j)/T IJP(c) NW/RM

ACC NR: AP6018123 (A) SOURCE CODE: UR/0191/66/000/006/0019/0021

AUTHOR: Li, P. Z.; Mikhaylova, Z. V.; Bykova, L. V.

ORG: none

TITLE: Copolymerization of unsaturated polyesters with different monomers

SOURCE: Plasticheskiye massy, no. 6, 1966, 19-21

TOPIC TAGS: polyester plastic, copolymerization, polymerization catalyst, heat resistance, hardness, vanadium pentoxide, *monomer*

ABSTRACT: The effect of vanadium pentoxide as an accelerator in an oxidation-reduction curing system for the copolymerization of unsaturated polyesters with different monomers was investigated. The study was conducted using resins based on polyethylene glycol maleinate hexachloroendomethylenetetrahydrophthalate blended with polyester acrylate <sup>15</sup> TMG-3 or with polydiethylene glycol maleinate phthalate. Resins were cured with cumene hydroperoxide (C) and 0.25 and 0.5% solutions of V<sub>2</sub>O<sub>5</sub> in acid phosphate (accelerator B). The gelling rate was affected much more by change in concentration of B than of C. Gelling with C+B started in 1-3 hours in the polyester samples; the corresponding

Card 1/2

UIC: 678.674'4'0=9:678.744] :678.044.8

L 38508-66

ACC NR: AP6018123

induction period at room temperature for C+NK (Abstractor's note--NK not defined, probably cobalt naphthenate) was several days. The C+B system gives a harder, more heat stable lightly colored non-sticky glassy product. If resins made with C+B, are heat treated for 3 hours at 80°C their hardness and heat stability are higher than for room temperature cure. Gel formation is slowed down in a 3-component system of C+B+NK. Optimum hardness and heat stability are obtained if about 0.5 parts by weight of NK is used per 100 parts of resin. Unsaturated polyesters can be cured at room temperature with systems containing V<sub>2</sub>O<sub>5</sub>; resultant resins have improved properties. Orig. art. has: 8 figures and 1 table.

SUB CODE: 07/ SUBM DATE: none/ ORIG REF: 002/ OTH REF: 009

Card 2/2 *///*

L 08798-67 EWT(m)/EWP(j) IJP(c) WW/RM

ACC NR: AP6030851

(A,N)

SOURCE CODE: UR/0191/66/000/009/0040/0042

AUTHOR: Li, P. Z.; Mikhaylova, Z. V.; Bykova, L. V.; Chertok, O. M.; Volkov, B. V.;  
Zaslavskiy, N. N.; Telegina, L. I.; Novikova, T. V.

34

ORG: none

TITLE: Moisture resistance and chemical stability of unsaturated polyester resins  
modified with colophony

SOURCE: Plasticheskiye massy, no. 9, 1966, 40-42

TOPIC TAGS: solid mechanical property, polyester plastic, synthetic material, physical chemistry property, stability constant

ABSTRACT: Moisture resistance and oxidation stability of two commercial resins modified with colophony, resin PN-10-<sup>b</sup> a copolymer of an unsaturated ester with styrene and resin TGM-3-<sup>b</sup> (a copolymer of an unsaturated ester and polyacrylate) and some glass laminates based on these two resins were investigated. The physical properties of the colophony-modified resins are tabulated. The tensile strength of the colophony-modified resins and the glass-laminates based on them was practically unaffected after holding in water or 25%-sulfuric acid for 7-360 days. In general, the addition of colophony was found to be beneficial with respect to water resistance and chemical stability of the unsaturated polyester resins. Orig. art. has: 1 figure and 3 tables.

SUB CODE: 11/ SUBM DATE: 00/ ORIG REF: 000/ OTH REF: 006

Cord 1/1 net

UDC: 678.674#9:547:914.2]:678.079.3

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 Sponsoring Agency: The International Union of Pure and Applied Chemistry, Commission on Macromolecular Chemistry  
 Tech. Ed.: T.A. Prusabova.

PURPOSE: This book is intended for chemists interested in polymerization reactions and the synthesis of high-molecular compounds.

CONTENTS: This is Section II of a multi-volume work containing papers on macromolecular chemistry. The papers in this volume treat mainly the kinetics of various polymerization reactions initiated by different catalysts or induced by radiation. Among the research techniques discussed are electron paramagnetic resonance spectroscopy and light-scattering spectroscopy. There are summaries in English, French and Russian. No periodicals are mentioned. References follow each article.

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**"APPROVED FOR RELEASE: Monday, July 31, 2000**

**CIA-RDP86-00513R000929810**

**APPROVED FOR RELEASE: Monday, July 31, 2000**

**CIA-RDP86-00513R000929810C**

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