

GRITSKOVA, I.A.; PANICH, R.M.; VOYUTSKIY, S.S.

/ Physicochemical properties of hydroxyethylated nonionic  
surface-active substances. Usp.khim. 34 no.11:1989-2019  
N '65. (MIRA 19:1)

1. Institut tonkoy khimicheskoy tekhnologii imeni M.V.Lomonosova.

USTINOVA, Z.M.; FODIMAN, N.M.; PANICH, R.M.; VOYUTSKIY, S.S.

Ways of obtaining concentrated vulcanized latex. Kauch. i rez. 23  
no.9:5-7 S '64. (MIRA 17:11)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii im. M.V.  
Lomonosova.

PANICH, R.M.; FEY KHUN-LYAN [Fei Hung-liang]; SANDOMIRSKIY, D.M.;  
VOYUTSKIY, S.S.

Compatibility of rubbers in latex films. Koll. zhur. 25  
no.4:455-458 J1-Ag '63. (MIRA 17:2)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni  
Lomonosova.

PANICH, R. M.; KIREYTSEV, V. V.; SANDMIRSKIY, D. M.; VOYUTSKIY, S. S.

Properties of latexes obtained with the use of nonionic stabilizers. Part 1: Properties of polychloroprene latexes as dependent on the type of stabilizer, pH of the medium, and the presence of electrolytes. Koll. zhur. 24 no.6:733-737 N-D '62. (MIRA 16:1)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni Lomonosova.

(Chloroprene) (Colloids)

USTINOVA, Z.M.; FODIMAN, N.M.; PANICH, R.M.; VOYUTSKIY, S.S.

Development of formulas and efficient systems for the  
vulcanization of natural latex. Kauch.i rez. 22 no.2:4-8  
F '63. (MIRA 16:2)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni  
Lomonosova.

(Latex)  
(Vulcanization)

S/138/63/000/002/002/007  
A051/A126

AUTHORS: Ustinova, Z.M., Fodiman, N.M., Panich, R.M., Voyutskiy, S.S.

TITLE: Development of the composition and rational conditions for natural latex vulcanization

PERIODICAL: Kauchuk i rezina, no. 2, 1963, 4 - 8

TEXT: General results in the development of the composition and rational means for vulcanizing natural latex, which has not been subjected to concentration, are outlined. The following ultra-accelerators produced in the Soviet Union were tested as accelerators; sodium diethyldithiocarbamate (S.DEDTC), K-45 (dimethyldithiocarbamate diethylamine), sodium triethanolamine salt of captax (S.TEA of captax), ДМАСК (DMASK) (dimethylamine salt of captax), zinc dimethyldithiocarbamate (Z.DMDTC) and zinc diethyldithiocarbamate. Certain imported ultra-accelerators were tested for comparison. Best results were obtained with: S.DEDTC, Z.DEDTC, K-45, vulcacite 774, vulcacite P (R) and vulcacite R of N extract. An increase in the S.DEDTC content in the latex first increases the tear resistance of the latex film; after optimum quantity is reached

Card 1/2

S/138/63/000/002/002/007  
A051/A126

Development of the composition and rational ....

(1 w.p. to 100 w.p. rubber), the tear resistance drops. The relative and residual elongation of the film is comparatively little influenced by the ultra-accelerator dosage. Maximum tensility of the unheated film during the mix vulcanization over a period of 30 min is noted at 70°C vulcanization temperature. At 60 min vulcanization periods, the highest tensile strength was noted at lower vulcanization temperatures (60°C). On the basis of experimental data obtained the following optimum composition for vulcanizing natural latex, using S.DEDTC as the ultra-accelerator is recommended: rubber (as the latex) - 100, sulfur - 2, S.DEDTC - 1, zinc oxide - 1, stabilizer - 0.5; when vulcanizing for 30 min at 70°C, or for 60 min at 60°C. The resulting indices of the vulcanized latex are close in value to those of vultex and revultex. The storage of latexes over a period of two months has little effect on the tensile properties of films, but considerably increases the viscosity of the latexes, indicating that the vulcanized latexes intended for lengthy storage periods should be produced without containing an excess of the vulcanizing group. There are 4 figures and 1 table.

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii im. M.V. Lomonosova (Moscow Institute of Fine Chemical Technology im. M.V. Lomonosov)

Card 2/2

S/069/63/025/001/007/008  
B101/B186

AUTHORS:

Fodiman, N. M., Panich, R. M., Ustinova, Z. M.

TITLE:

Study on the mechanism of film formation from vulcanized latexes. 3. Effect of time and storage on the structure of latex films

PERIODICAL:

Kolloidnyy zhurnal, v. 25, no. 1, 1963, 92-96

TEXT: The nature of interglobular bonds affecting the strength of latex films was studied. Films of CKC-30-ШХП (SKS-30-ShKhP) butadiene styrene latex (35.5% dry content) and Revertex B (V) films (60% dry content) produced by centrifuging natural latex were used. Vulcanization was either conducted in a liquid mixture containing (parts by weight): 100 latex, 2 sulfur, 2 tin oxide, 1 sodium diethyl dithiocarbamate at 70°C, or these latex mixtures were first dried and then cured in dry state at 125°C. The films were stored in air or nitrogen. The authors determined the tensile strength of new films, films stored for three or nine months (unswollen or swollen in vaseline oil) at 20°C, and of unswollen films at 100°C. Results: The tensile strength of films stored in Card 1/3

Study on the mechanism of ...

S/069/63/025/001/007/008  
B101/B186

nitrogen was equal to that of films stored in air for the same period. After three months' storage, tensile strength increased owing to coalescence of the surface layer of the globules. After nine months, tensile strength was lower than that of the initial films. This is attributed to the destructive action of oxygen dissolved in the films. Films that were allowed to swell in vaseline oil and tested at 20°C displayed low tensile strength, as did unswollen films tested at 100°C. At 20°C, however, unswollen dry-cured Revertex films were stronger than samples cured in the latex. Butadiene styrene latex showed opposite behavior. At 100°C, dry-cured films of either rubber were stronger than those cured in the latex. At 20°C, swollen SKS-30-ShKhP film stored for nine months showed a lower relative loss in tensile strength than did unswollen material at the same temperature. This was true also for unswollen films of the same type at 100°C. In the case of Revertex films the loss in tensile strength was hardly affected by swelling or by an increase in temperature. Conclusions: The small amount of protective agent in SKS-30-ShKhP films does not completely



VOYUTSKIY, S.S.; SANDOMIRSKIY, D.M.; FODIMAN, N.M., PANICH, R.M.;  
USTINOVA, Z.M.

Mechanism of formation of films from vulcanized latex. Part 2:  
Formation of films from the butadiene - styrene latex SKS-30.  
Koll. zhur. 22 no.2:143-147 Mr-Apr '60. (MIRA 13:8)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii im.  
M.V. Lomonosova, Laboratoriya elastomerov.  
(Films (Chemistry)) (Butadiene) (Styrene)

ACCESSION NR: AP4045695

S/0138/64/000/009/0005/0007

AUTHOR: Ustinova, Z. M.; Fodiman, N. M.; Panich, R. M.; Voyutskiy, S. S.

TITLE: Methods for the preparation of concentrated vulcanized latex

SOURCE: Kauchuk i rezina, no. 9, 1964, 5-7

TOPIC TAGS: latex, rubber, creaming, vulcanized latex, tragacanth, methylcarboxy-cellulose, concentrated latex, natural rubber, zinc oxide, latex coagulation, zinc diethyldithiocarbamate

ABSTRACT: The concentration of vulcanized and unvulcanized natural latex by the methods of creaming and centrifuging was studied on a latex containing 34.3% rubber, stabilized with ammonia, and having a pH of 9.3. The experimental results of the creaming of natural unvulcanized latex, containing different amounts of tragacanth and methylcarboxycellulose at temperatures of 16, 35 and 50C, showed that the rate of creaming increases with the concentration of the creaming substance to a certain extent, and then begins to decrease. The optimum concentration for tragacanth is 0.5% (based on the aqueous phase of the latex) and that for methylcarboxycellulose is 0.3%. An increase in temperature promotes creaming slightly at all concentrations. To evaluate the effectiveness of the process and the loss in rubber during creaming, the rubber and solids contents were determined

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ACCESSION NR: AP4045695

In the serum and creams. According to tabulated data, the rubber loss is about 5%, and the nonrubber content of the serum increases. The rubber content of creams obtained by creaming amounts to 60.6%. The kinetic curves of the concentration of vulcanized latex at room temperature in the presence of different amounts of creaming agents show that the concentration of vulcanized latex proceeds more slowly than that of unvulcanized latex. Three methods are described for obtaining vulcanized latex concentrates. The physico-mechanical properties of films made from vulcanized latex concentrates, obtained by different methods, were determined before and after thermal aging at 70C for 24 and 120 hours. The films had a tensile strength of 250 kg/cm<sup>2</sup>, relative elongation of 80%, residual elongation of 10% and a good resistance to thermal aging. The concentration of latex by centrifuging was studied on a de Laval type centrifuge with 600-650 ml of mixture. It was found that the stability of unvulcanized latex is not destroyed by centrifuging, but that vulcanized latex undergoes coagulation due to the presence of zinc oxide. Experiments were then carried out with latex without zinc oxide; vulcanized latex from which the excess zinc oxide has been removed was found to be stable and no coagulation appeared. Since zinc oxide has this unfavorable effect on the concentration of latex by centrifuging, zinc diethyldithiocarbamate was added to the latex instead of sodium diethyldithiocarbamate. Zinc diethyldithiocarbamate does not labilize the latex and permits vulcanized

Card 2/3

ACCESSION NR: AP4045695

latex to be concentrated without the preliminary removal of powdery ingredients. It was found that latex containing 55% dry matter can be concentrated advantageously with tragacanth and methylcarboxycellulose in amounts of 0.5% based on the aqueous latex phase. For concentration by centrifuging, the vulcanized latexes require different technical conditions according to the formulas used. Orig. art. has: 3 figures and 1 table.

ASSOCIATION: Moskovskiy Institut tonkoy khimicheskoy tekhnologii im. M. V. Lomonosova (Moscow Institute of Fine Chemical Technology)

SUBMITTED: 00

ENCL: 00

SUB CODE: MT

NO REF SOV: 001

OTHER: 001

Card 3/3

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69462

S/069/60/022/02/002/024  
D034/D002

AUTHORS: Voyutskiy, S.S., Sandomirskiy, D.M., Fodiman, N.M.,  
Panich, R.M., Ustinova, Z.M.

TITLE: Studies on the Mechanism of Film Formation From Vul-  
canized Latex. 2. The Formation of Films From SKS-30  
ShKhP Butadiene-Styrene Latex

PERIODICAL: Kolloidnyy zhurnal, 1960<sup>15</sup>, Vol XXII, Nr 2, pp 143-147  
(USSR)

ABSTRACT: The authors report on an investigation into the mech-  
anism of the formation of films from vulcanized and un-  
vulcanized synthetic latex. Object of the study was  
SKS-30 ShKhP butadiene-styrene latex, which contains  
55.5% dry substance. As stabilizer the authors used  
paraffinic acid ammonium salt. They determined the  
effect on the tensile strength of such factors as the  
swelling of the films in water vapors and vaseline oil,

Card 1/3

69462

S/069/60/022/02/002/024  
D034/D002

Studies on the Mechanism of Film Formation From Vulcanized Latex.  
2. The Formation of Films From SKS-30 ShKhP Butadiene-Styrene  
Latex

the test temperature, and the behavior of the films during mastication. The method of the investigation was described in a previously published paper / Ref. 1/. The study has shown that the strength of unvulcanized synthetic latex films is determined primarily by Van-der-Waal forces, whereas the strength of films from vulcanized latex and of films vulcanized in a dry state is the result of a continuous molecular network typical for vulcanizates. The introduction of casein into synthetic latex brings a number of properties of the films obtained therefrom close to those observed in films from natural latex. There are 2 graphs, 1 table and 2 Soviet references. X

Card 2/3

69462

S/069/60/022/02/002/024  
D034/D002

Studies on the Mechanism of Film Formation From Vulcanized Latex.  
2. The Formation of Films From SKS-30 ShKhP Butadiene-Styrene  
Latex

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii  
im. M.V. Lomonosova, Laboratoriya elastomerov, (Moscow  
Institute of Fine Chemical Technology imeni M.V.  
Lomonosov, Laboratory of Elastomers)

SUBMITTED: January 27, 1959

Card 3/3

PANICH, R.M.; FODIMAN, N.M.; VOYUTSKIY, S.S.

Evaluation of the degree of vulcanization of latex films  
according to swelling capacity. Kauch. i rez. 18 no.2:15-17  
F. '59. (MIRA 12:4)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni  
Lomonosova.

(Latex) (Vulcanization)



SOV/138-59-2-5/24

AUTHORS: Panich, R. M., Fodiman, N. M. and Voyutskiy, S.S.

TITLE: Evaluation of the Degree of Vulcanization of Latex Coatings According to Their Swelling Capacity (Otsenka stepeni vulkanizatsii lateksnykh plenok po ikh sposobnosti k nabukhaniyu)

PERIODICAL: Kauchuk i rezina, 1959, Nr 2, pp 15-17 (USSR)

ABSTRACT: So far, the degree of vulcanization of latex coatings has been determined according to their physico-mechanical properties. These can be influenced by the degree of coalescing of the globules in the coating (Ref 1) and a method was devised for defining the swelling of the coatings in suitable solvents. Results obtained, when using this method for the evaluation of the degree of vulcanization of coatings made from vulcanised latex, are given. The macrostructure of these coatings influences strongly the physico-mechanical properties and, therefore, inhibits the coalescing of the vulcanised globules. The gravimetric method described by D. E. Andersen (Ref 2) was used and the degree of swelling (Q) calculated in weight percent. The time

Card 1/3 required for attaining maximum swelling under the

SOV/133-59-2-5/24

Evaluation of the Degree of Vulcanization of Latex Coatings  
According to Their Swelling Capacity

described conditions was determined by investigating the kinetics of swelling of latex coatings. These were prepared from natural latexes, vulcanised when using different ultra-accelerators. In all cases maximum swelling ( $Q_{\max}$ ) was observed after six hours. The average molecular weight ( $M_s$ ) of cuttings between adjacent units of the molecular grate of the vulcanisate was calculated according to the Flory-Rehner equation. These calculations showed that the macrostructure of the coatings has a definite influence on the swelling which is reflected in the calculated results of  $M_s$ . Tests were also carried out with latex coatings, vulcanised when using varying amounts of ultra-accelerators. Sodium diethyl dithiocarbamate and dimethylamine dimethyl thiocarbamate (K-45) were used. The latex was vulcanised for one hour at 70°C. Results are given in Table 1. Further experiments were carried out on latexes which had been vulcanised for varying lengths of time.

Card 2/3 In this case 1% of the ultra-accelerator was used (Table 2).

SOV/138-59-2-5/24

Evaluation of the Degree of Vulcanization of Latex Coatings  
According to Their Swelling Capacity

In a third series of tests the latex was vulcanised at different temperatures (Table 3). At vulcanization temperatures above 80°C the tensile strength of the coatings decreases sharply. This is due to the fact that at high vulcanization temperatures a very high space structure in the rubber globules is formed; this decreases the coalescing capacity of the globules and also the strength of the latex coatings. There are 3 tables and 3 references, 1 of which is Soviet, 2 English.

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii im. Lomonosova (Moscow Institute for Fine Chemical Technology imeni Lomonosov)

Card 3/3

5(4)

AUTHORS:

Voyutskiy, S.S., Fodiman, N.M.,  
Panich, R.M.

SOV/153-58-2-27/30

TITLE:

On the Filtration of Emulsions  
(O fil'tratsii emul'siy)

PERIODICAL: —

Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya  
tekhnologiya, 1958, Nr 2, pp 170 - 179 (USSR)

ABSTRACT:

In the beginning the authors discuss the difference between the filtration of suspensions (Refs 1-6) and emulsions. Although the process mentioned in the title would be suited for large-scale industrial purposes the most important facts of the process have hitherto not been investigated. Concepts concerning the filtration of suspensions must not be applied to emulsions:—suspensions are aggregatively and kinetically unstable and contain a solid disperse phase, emulsions however, contain deformable drops of the liquid disperse phase which are capable of coalescence; they always contain a stabilizer. In the course of the last years the authors carried out special investigations to determine the characteristic features of the filtration of emulsions which are briefly summarized in reference 7. In the present paper the results are presented somewhat more in detail and new data which are of interest

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On the Filtration of Emulsions

SOV/153-58-2-27/30

for the elaboration of the filtration theory of emulsions are mentioned. The authors used cotton fabric, three-layered "kirza", asbestos cloth, several fabrics of rayon and caprone, unwoven fiber: cotton (unprocessed as well as cotton made hydrophobic by tanning or "velanization"),  $\alpha$ -cellulose, viscose fibers, caprone staple fiber, wool fiber, chrome tanned collagen fiber, glass wool in their experiments. The results are given on table 1. An emulsion of second order was used, which forms by emulsifying water in petroleum of the T-1 type. Organic acids and resins (50 mg per 10 ml in petroleum) were used as emulsifier. A specially designed device was used (Figure). The experiments showed that the same conditions prevailing filters from average hydrophilous fibers have the best filtration power. Filtration of emulsions through woven and unwoven fiber material showed a number of considerable differences from the filtration of the suspensions: 1) The emulsions do not form a filtrating layer from the particles of the disperse phase on the filter. The globulae of the emulsion remain at the depth of the filter on the surface of the elementary fibers. Due to this fact the capillaries are filled by the disperse phase and filtration is stopped. If the emulsion is aggregatively not too stable the sticking globulae coalesce and the disperse phase

Card 2/4

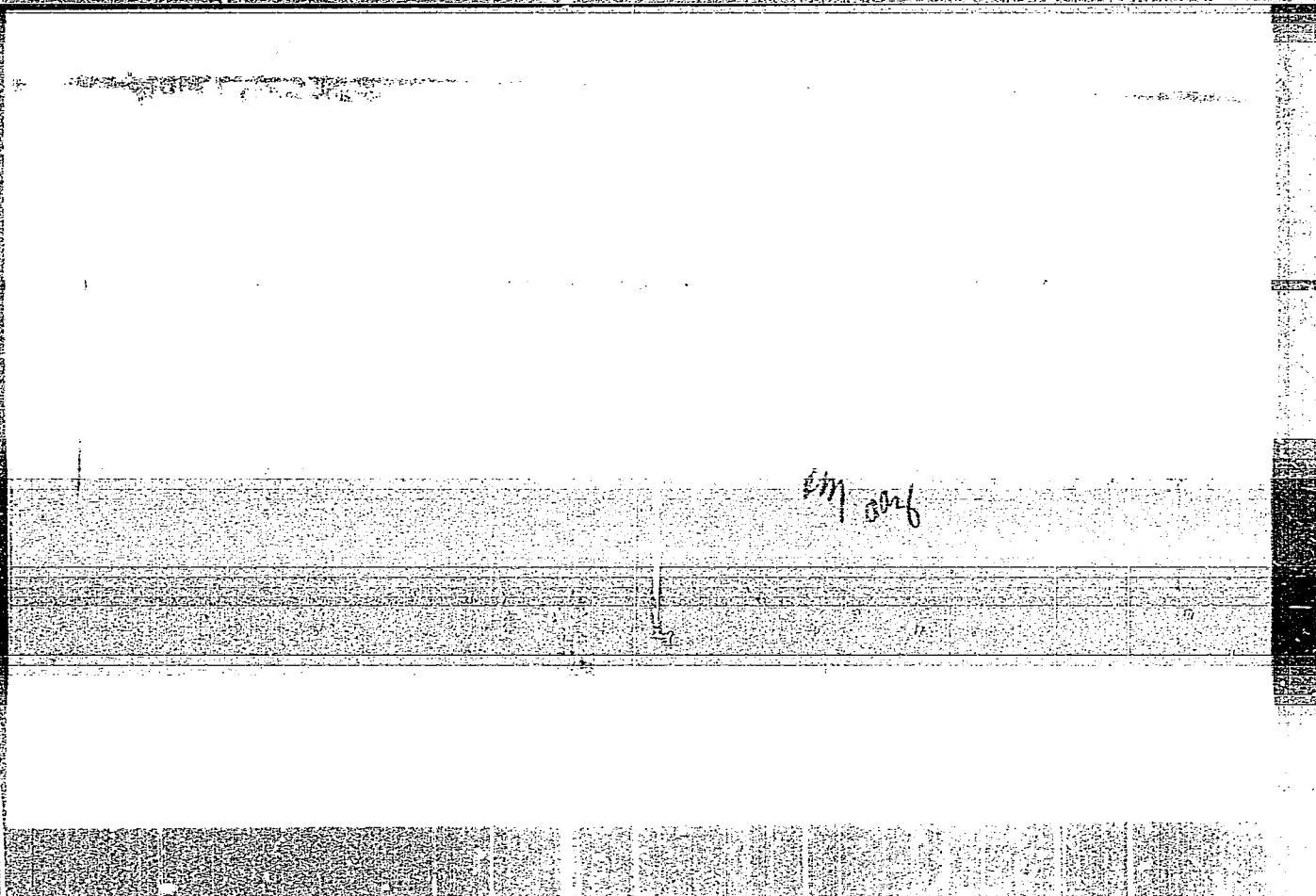
On the Filtration of Emulsions

SOV/153-58-2-27/30

drops down from the filter. This holds for all types of emulsions. 2) The completeness of the filtration of the disperse phase of the medium does not depend on the size of the capillaries but it is almost entirely due to the amount of the filtrating material per one surface unit of the filter. The density and the thickness of the filter are practically not important at all if a sufficient quantity of filtrating material is present per unit of the outer surface of the filter. Apparently filtration of the emulsion is not due to the separation of the disperse phase but to the absorption phenomena and the sticking of the globulae to the fine fibers. If the critical rate of the process is surpassed the whole emulsion passes the filter. 4) After a long filtration the filter is "poisoned". Filtration is slowed down while the fibers are covered with a resinous substance, which probably comes from the shells of the globulae. These shells consist of the emulsifier. There are 4 figures, 3 tables, and 17 references, 12 of which are Soviet.

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni M.V. Lomonosova (Moscow Institute for Fine Chemical Technology imeni M.V. Lomonosov)

Card 3/4



PANICH, R.M.

VOYUTSKIY, S.S.; PANICH, R.M.

Electrochemistry of high polymer dispersions. Part 4: The effect of cations of different valencies on the electrokinetic potential of synthetic latex globules [with summary in English]. Koll. zhur. 19 no.3:268-273 My-Je '57. (MLRA 10:8)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii.  
(Latex) (Electrolytes)



... generally was greater the greater the abs. value of  $t$ .

PANICH, R. M.

USSR/ Chemistry of High-Molecular Substances

F.

Abs Jour : Referat Zhur - Khimiya, No 4, 1957, 11911

Author : Panich R.M., Voyutskiy S.S.

Title : Electrochemistry of Dispersions of High-Polymers. I. Effect of Dialysis on Properties of Synthetic Latices.

Orig Pub : Kolloid. zh., 1956, 18, No 3, 326-331 (English summary)

Abstract : A study has been made of the effects of dialysis on the properties of latices of vinylidene chloride - divinyl copolymer (70:30) (I) and of one of the polar derivatives of divinyl. As aqueous phase of latices, were used ammonium oleate and naphthenate. It is shown that pH of latices is lowered following dialysis to a value of 4.6-5.3 and all the soap is converted to the corresponding fatty acid. Aggregative stability of the globules decreases, even though it is retained for a certain length of time due to the presence of the same acid or of other stabilizers on the surface of the globules. Dialysis is accompanied by a removal from the latex of a considerable amount of soap. By the method of conductimetric

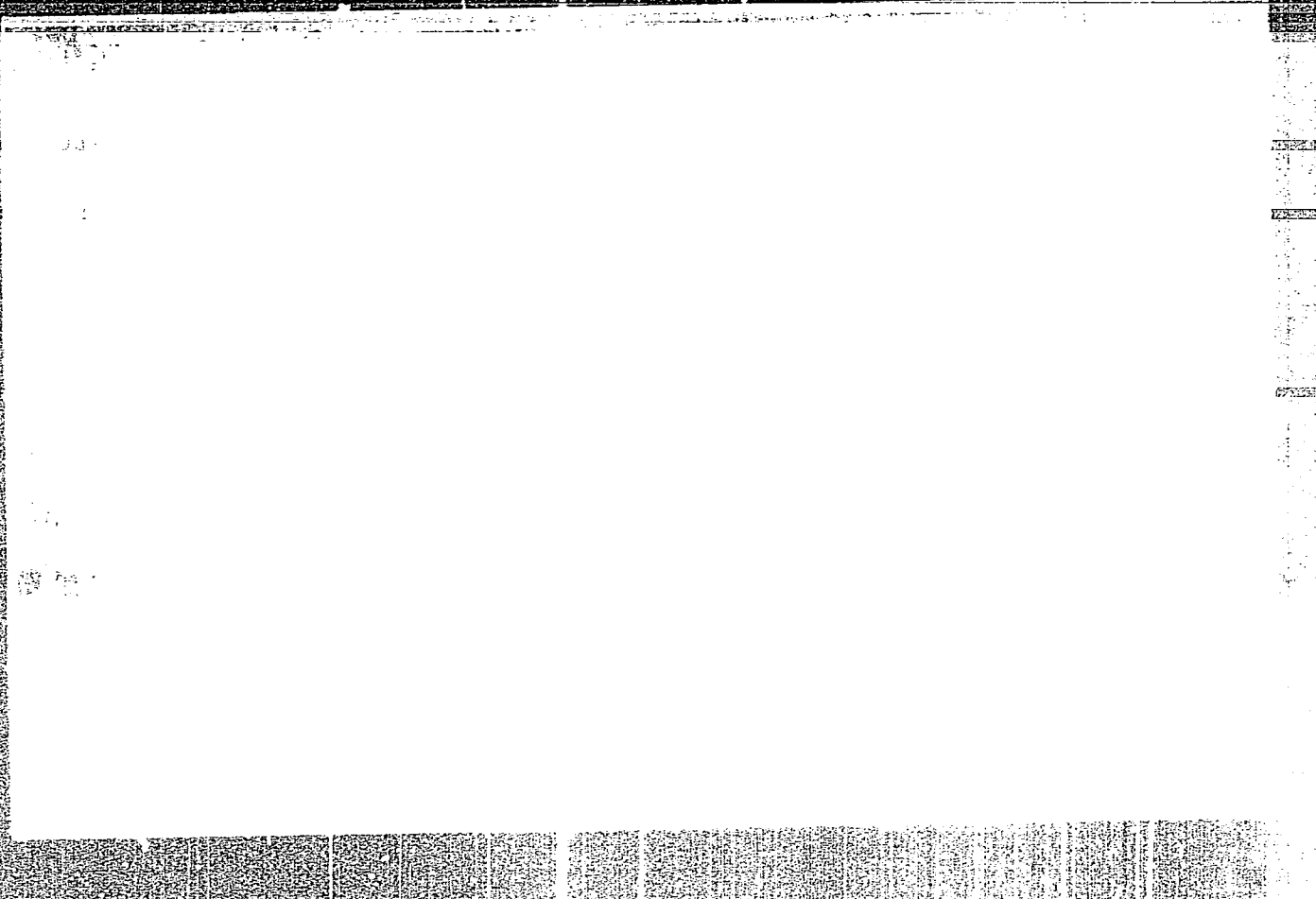
Card 1/2

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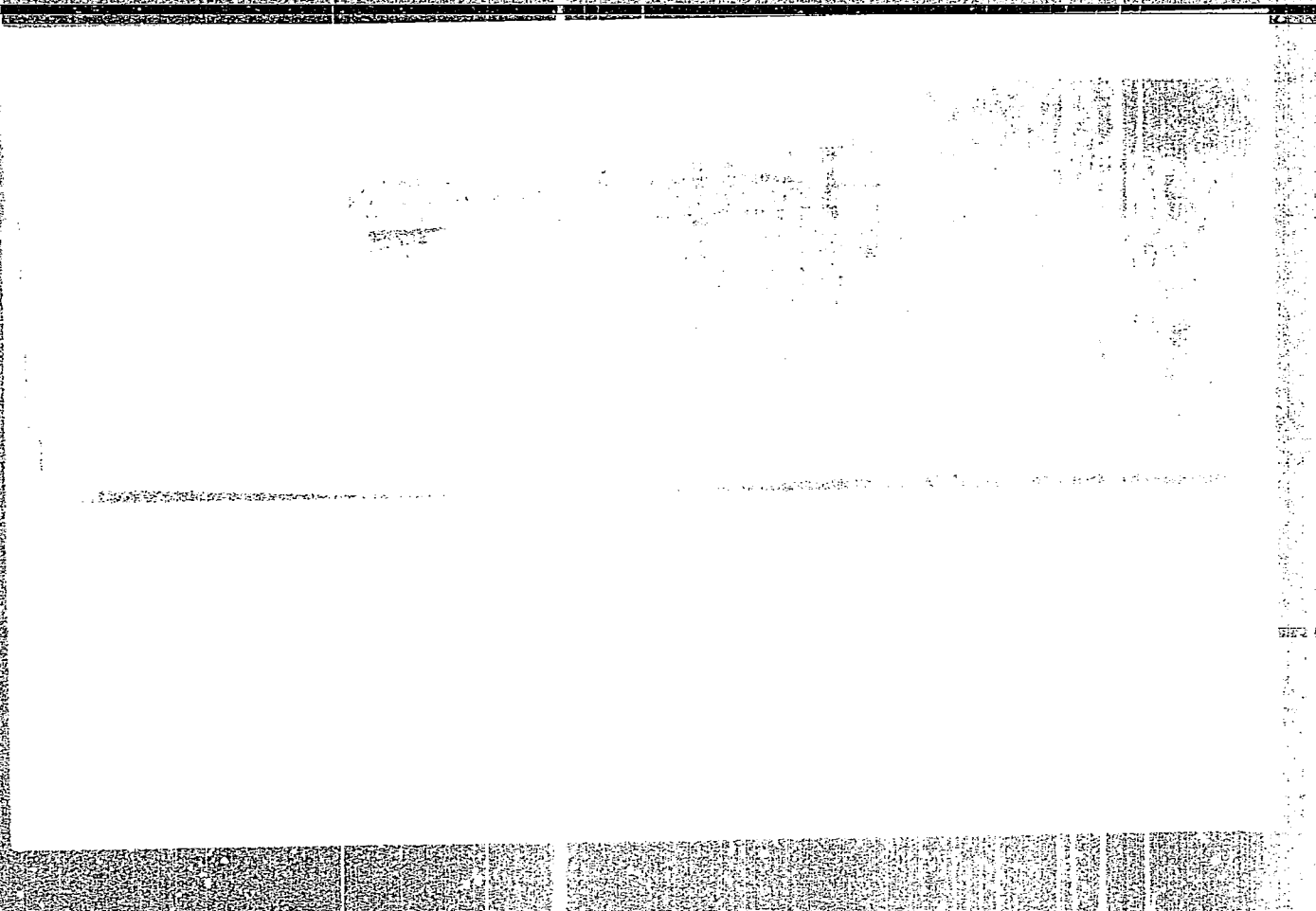
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**APPROVED FOR RELEASE: Tuesday, August 01, 2000**

**CIA-RDP86-00513R0012390**







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**CIA-RDP86-00513R001239**

**APPROVED FOR RELEASE: Tuesday, August 01, 2000**

**CIA-RDP86-00513R0012390**

PANICH, R.M.; VOYUTSKIY, S.S.

Electrochemistry of high polymer dispersions, Part 3. Effect of  
pH on the electrokinetic potential of synthetic latex globules.  
Koll. zhur. 19 no.1:113-117 Ja-F '57. (MLBA 10:4)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii im. M.V.  
Lomonosova.  
(Hydrogen-ion concentration) (Latex)



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CHANGED: S.O. from 25 to 18%, pH was reduced from

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**APPROVED FOR RELEASE: Tuesday, August 01, 2000**

**CIA-RDP86-00513R0012390**

PANICH, R.M.; VOYUTSKIY, S.S.

Electrochemistry of high polymer dispersion. 1. The influence of dialysis on the properties of synthetic latexes. Koll.zhur.18  
My-Je '56. (MIRA 9:9)

1.Moskovskiy institut tenkey khimicheskoy tekhnologii imeni M.V.  
Lomonosova.  
(Dialysis) (Rubber, Synthetic)

PANTICH, R.M.

3003

✓ 3115 Aggregate stability of dispersions of high  
 polymers and the electrokinetic potential of their  
 particles. R. M. Pantich and R. M. Pasich  
 (Sov. J. Appl. Chem. 1976, 49, 2577-2581; English transl. 1976,  
 50, 682). The article is a technical review dealing  
 particularly with latex systems, with 27 refer-  
 ences.

2

Chem

EN

DAVID, M. M.

USSR

Mechanism of separation of the disperse phase of emulsions during filtration

The mechanism of separation of the disperse phase of emulsions through fibrous and thin filters, the emulsion separates only if the filter pores are smaller than the dispersed particles. The mechanism of separation of the disperse phase of emulsions through fibrous and thin filters, the emulsion separates only if the filter pores are smaller than the dispersed particles. The mechanism of separation of the disperse phase of emulsions through fibrous and thin filters, the emulsion separates only if the filter pores are smaller than the dispersed particles.

To elucidate the mechanism of the separation, emulsions of water-in-oil emulsions of 2% H<sub>2</sub>O were brought in contact with a series of filters of equal total surface areas, but different pore sizes. The results of the experiments are given in Table 1.

The results of the experiments are given in Table 1. The results of the experiments are given in Table 1. The results of the experiments are given in Table 1.

The results of the experiments are given in Table 1. The results of the experiments are given in Table 1. The results of the experiments are given in Table 1.

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Panich, R. M.

4  
5 May

MT ✓ Aggregate stability of dispersions of high polymers and the electrokinetic potential of their particles. S. S. Vovntsi and R. M. Panich. *Uspekhi Khim.* 25, 67 (1956).  
details - review. Finding principally with rubber latex systems, with 12 references through 1954.

195  
1956

VOYUTSKIY, S.S.; PANICH, R.M. (Moskva)

Aggregate stability of high-polymer dispersions and the electrokinetic potential of their particles. Usp.khim. 25 no.1:57-90 Ja '56.  
(Polymers and polymerization) (Colloids) (MLRA 9:4)



ACC NR: AP6036391

(N)

SOURCE CODE: UR/0032/66/032/011/1385/1385

AUTHOR: Korovin, N. V.; Panich, R. U.

ORG: Moscow Power Institute (Moskovskiy energeticheskiy institut)

TITLE: Weight method for determination of gas filling of porous electrodes

SOURCE: Zavodskaya laboratoriya, v. 32, no. 11, 1966, 1385

TOPIC TAGS: electrode, test method, nickel, hydrazine

ABSTRACT: A method is described which makes it possible to determine the total amount of gas in porous electrodes, and its change under the influence of various factors. The article shows a diagram of the apparatus used.

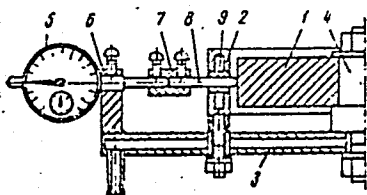


Diagram of apparatus for determination of gas filling of electrodes.

Card 1/2

ACC NR: AP6036391

The value of the gas filling in porous electrodes,  $v_x$ , is calculated by the formula:

$$v_x = \frac{\Delta G_f - \Delta G_r}{d_{sp} \text{ liq.}}$$

where  $\Delta G_f$  is the change in weight of a porous electrode in an electrolyte at a current density  $i$ ;  $\Delta G_r$  is the change in weight of a smooth electrode at the same current density;  $d_{sp}$  is specific weight of the electrode. The method can be used to study the gas filling of a porous nickel electrode, with evolution of hydrogen at the cathode, for the anode oxidation of hydrazine (evolution of nitrogen), and for the evolution of oxygen. Orig. art. has: 1 figure.

SUB CODE: 20, 09 SUBM DATE: none/ ORIG REF: 001

Card 2/2

*PANICH, S.I.*  
LIVSHITS, I.S., kand. tekhn. nauk; PANICH, S.I., tekhnik.

Inhomogeneity in the fusion zone of welded joints subjected to  
500-700° heat. Svar. proizv. no. 4:22-25 Ap '58. (MIRA 11:4)

1. Vsesoyznyi nauchno-issledovatel'skiy institut Stroyneft'.  
(Steel--Welding) (Metallography)

S/135/60/000/007/004/014  
A006/A002

AUTHORS: Livshits, L.S., Candidate of Technical Sciences, Panich, S.I.,  
Technician

TITLE: On the Effect of Heterogeneity in the Fusion Zone of Perlite Steels<sup>18</sup>  
on Their Properties

PERIODICAL: Svarochnoye proizvodstvo, 1960, No. 7, pp. 13-15

TEXT: In a number of cases structural heterogeneity arises in the fusion zone of weld joints in perlite steels, appearing in the formation of a decarburized and a carburized zone. To reveal the effect of this heterogeneity in the fusion zone on the strength of weld joints, their ductility, endurance and behavior at high temperatures and under brief and long-lasting loading, the following tests were performed on "30XM" (30KhM) steel joints welded with "УЛ-17" (TsL-17) electrodes; tensile tests on Gagarin specimens with one-side notches; impact tests on specimens with notches in the fusion zone, the seam and the base metal, endurance tests, performed at TsNIITMash on "У-12" (U-12) machines; and rupture strength tests on specimens with notches across the weld joint, performed on "ВП-8" (VP-8) machines at the Moskovskiy institut stali (Moscow Steel Institute)

Card 1/2

PANICH, S.I.

Packet setting and unloading is the main reserve. Stroi.  
mat. ll no. 12:24 D '65. (MIRA 18:12)

1. Glavnyy inzhener Nikol'skogo kirpichnogo zavoda.

81173

S/125/60/000/05/02/005

18.7210

AUTHORS: Livshits, L. S., Grinberg, N. A., Panich, S. I., Shamonov,  
S. I.

TITLE: The Nature of Chemical Non-Homogeneity of the Fusion Zone in  
Some Pearlite Steels

PERIODICAL: Avtomaticeskaya svarka, 1960, No. 5, pp. 11-16

TEXT: Local spectral analysis with "three standards" was employed in investigating the distribution of carbon and other elements in the fusion zone of welded joints. The article gives the most characteristic results of investigation of welds with 1.9% Cr, and with 1.7% V. A "PMT-3" apparatus (Fig. 2) was slightly changed for local analysis with the use of a manganese needle electrode, i. e. the diamond was replaced by this electrode. The other electrode was a lead cone. The cylindrical needle 1-mm in diameter was of pure magnesium produced by electrolysis with 10-12 volt a-c in electrolyte consisting of 90 cm<sup>3</sup> of 10% Na<sub>2</sub>HPO<sub>4</sub> solution and 10cm<sup>3</sup> H<sub>2</sub>SO<sub>4</sub>. Sharpening the needle to 0.01-0.015 mm took 20<sup>4</sup> to 25 sec. After every photograph with the "ISP-28" spectrograph, the needle was immersed for 2-3 sec into 10% HNO<sub>3</sub> solution to remove oxides, then was

Card 1/3

01470

S/125/60/000/05/02/015

The Nature of Chemical Non-Homogeneity of the Fusion Zone in Some Pearlite Steels

rinsed in alcohol. A high frequency "DG-2" generator was used (Ref. 10) for exciting the spectrum, fitted with a variable shunting liquid capacitor. For simultaneous determination of carbon and other elements (chrome, niobium, etc.) plate types "III" and "I" of different sensitivity were inserted. The relative carbon determination error was 3.7%. The weld specimens of steel with 0.12% C, were welded with electrodes producing different contents of elements, and heated for 100 hours in 700°C. The microstructure of a specimen is shown in Figure 1. It was proved that it is possible to change the nature of the carbonized zone in welded joints prone to carbon migration in increased temperature, by adding elements producing carbides of different stability, and by changing the fusion depth. The following was concluded: 1) Carbon migrates between the parent and the weld metal toward the side with a higher content of carbide forming elements (or with elements forming more stable carbides), and the nature of the carbonized zone depends on details of the welding process and the type of the carbides forming. 2) Increasing the depth of the fusion in the parent metal must lead to a smoother change of carbon

Card 2/3

X

Pavich, S.I.

135-58-4-7/19

AUTHORS: Livshits, L.S., Candidate of Technical Sciences, and Pavich, S.I., Technician

TITLE: Formation of Non-Homogeneity in Fusion Zones of Welds in Heating up to 500 - 700° C (Obrazovaniye neodnorodnosti v zone splavleniya svarnykh soyedineniy pri nagreve do 500 - 700°)

PERIODICAL: Svarochnoye Proizvodstvo, 1958, Nr 4, pp 22-25 (USSR)

ABSTRACT: In the works published thus far on the problem [Ref 1-5], the non-homogeneity of metal structure of welded joints is explained by the difference in the content of the carbide-forming elements in portions of weld joints. This article gives information of the results of experimental investigation carried out recently by VNIISTroyneft', which prove that the aforementioned conception is wrong. The conclusion is that the non-homogeneity, forming at the temperature of 500 - 700° C, is caused by the presence and migration of excessive atoms (not bound in carbides) from one portion of the weld joint into another, i.e. when there is an excess of free atoms of a carbide-forming element in one portion of the weld, and an excess of free carbon atoms

Card 1/2



135-58-4-7/19

Formation of Non-Homogeneity in Fusion Zones of Welds in Heating up to 500 - 700° C

in the other. A calculation principle is suggested which permits the determination of the possibility of the formation of carbon non-homogeneity in the fusion zone by the content (in atomic percentage) of the alloying elements in the seam and in the base metal. The uniform distribution of carbon and liquidation of the non-homogeneity can be obtained by a subsequent (after heating to 500 - 700° C) heating to 950° C. The information includes a detailed description of the processes as observed in experiments, and microphotographs. The chemical composition of the alloy steel is shown in tables. There are 5 figures, 2 tables and 5 references, 2 of which are Soviet, 2 English and 1 Japanese.

ASSOCIATION: VNIISTroyneft'

AVAILABLE: Library of Congress

Card 2/2

LIVSHITS, L.S.; PANICH, S.I.; ASSONOVA, Ye.A.

Effect of alloying on dissolved carbon concentration in ferrite.  
Fiz. met. i metalloved. 13 no.4:572-576 Ap '62. (MIRA 16:5)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut po  
stroitel'stvu magistral'nykh truboprovodov.  
(Steel alloys—Metallography)

PANICH, S.I.; KARASEV, I.V.; KALINOVSKIY, V.V.

Placing and removing bricks by means of loaders. Stroi. mat.  
10 no.7: p.3 or cover. JI '64 (MIRA 18:1)

PANICH S.I.

LIVSHITS, L.S., kand. tekhn. nauk; BAKHRAKH, L.P., inzh.; PANICH, S.I.,  
inzh.

Inhomogeneity in the fusion zone of weld joints. Metalloved. 1 obr.  
met. no.1:26-29 Ja '58. (MIRA 11:2)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut po stroitel'stvu  
ob'yektov neftyanoy i gazovoy promyshlennosti.  
(Steel alloys--Metallography)  
(Welding--Testing)

LIVSHITS, L.S., kand.tekhn.nauk; PANICH, S.I., tekhnik

Effect of heterogeneity in the weld zone of pearlitic  
steels on their properties. Svar.proizv. no.7:13-15  
J1 '60. (MIRA 13:7)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut po  
stroitel'stvu magistral'nykh truboprovodov.  
(Steel--Welding) (Welding--Testing)

LIVSHITS, Lev Semenovich, kand. tekhn. nauk. Prinimali uchastiye:  
BAKHRACKH, L.P., starshiy nauchnyy sotr.; PANICH, S.I., inzh.;  
GRINBERG, N.A., asp.; KURKUMELLI, E.G., inzh.; KAVKOVA, V., red.

[Role of alloyed steel composition on the conservation of structural homogeneity, and the properties of welded joints during heat time] Rol' sostava legirovannykh staley v sokhranении strukturnoi odnorodnosti i svoistv svarnykh soedinenii pri dli- tel'nykh rabochikh nagrevakh. Moskva, VNIIST Glavgaza SSSR. Re- daktionno-izd. otdel, 1962. 56 p. (MIRA 15:11)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut po stroitel'- stvu magistral'nykh truboprovodov (for Bakhrakh, Panich, Grinberg, Kurkumell').  
(Steel—Welding) (Metals, Effect of temperature on)

84697

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S/135/60/000/005/004/009  
A115/A029

AUTHORS: Livshits, L.S., Candidate of Technical Sciences; Panich, S.I.,  
Technician

TITLE: Some Regularities of Migration of Carbon <sup>21</sup> in Perlite Steel <sup>16</sup> Welding  
Joints <sup>16</sup>

PERIODICAL: Svarochnoye proizvodstvo, 1960, No. 5, pp. 23 - 24

TEXT: After reheating a welded joint up to 500 - 700°C the carbon migrates through the solid solution to the joint, where a concentration of carbides took place during the welding process. Unequal concentration of carbon in the ferrite causes its migration into the sphere of more stable carbides. Replenishment of carbon content in the ferrite (conditional equilibrium) takes place at the expense of less stable carbides. A diagram of impaired homogeneity in a seam after reheating is shown in Figure 1. Although general laws of carbon migration in weldments are known, there are still some questions unsolved. One of them is the influence of the various alloying elements and their quantities upon the behavior in the zone of fusion. In this connection, a series of tests has been made

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S/135/60/000/005/004/009  
A115/A029

### Some Regularities of Migration of Carbon in Perlite Steel Welding Joints

by means of fusion upon steel St.3 (0.17% C). The patterns were exposed to 700°C for 1.10 and 100 hours, after which they were tested metallographically, the extent of carbon migration being judged by the depth of the decarbonized zone of the basic metal. According to the location of the alloying elements (Table 2) it cannot be said that the influence of the alloying elements upon carbon migration is in direct dependence on the affinity of the given elements with carbon. Actually, with equal content (in weight %), tungsten<sup>1</sup> yielding more stable carbides gives a twice smaller zone of decarbonization<sup>2</sup> than chromium<sup>3</sup> yielding less stable carbides. Instead of the sequence Mn, Cr, Mo, Nb, W, V, based on increasing influence upon carbon migration, the sequence W, Mn, Mo, Nb, Cr<sup>4</sup> was found showing at first glance no congruity. Allowing for previously expressed observations that dissolved atoms of carbide-forming elements influence carbon migration, the results of the tests have been represented in atomic percents (Fig. 2b). Results obtained of the dependence of the decarbonized depth on the duration and temperature of processing (Fig. 4) show that decarbonizing proceeds slowly at 550°C. At 624°C the rate of decarbonizing makes itself felt

Card 2/3



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S/135/60/000/005/004/009  
A115/A029

Some Regularities of Migration of Carbon in Perlite Steel Welding Joints

and the speed at 700°C rises in importance; here, eventually, a premature destruction of a seam is possible. There are 4 figures, 2 tables and 5 Soviet references.

ASSOCIATION: VNIIST (All Union Scientific Research Institute of Welding)

X

Card 3/3

PANICH, S. I.

129-1-6/14

AUTHORS: Livshits, L.S., Candidate of Technical Sciences, and Bakhrakh, L.P., Panich, S.I., Engineers.

TITLE: On the Non-uniformity in the Zone of Fusion of Welded Joints (O neodnorodnosti v zone splavleniya svarnykh soyedineniy)

PERIODICAL: Metallovedeniye i Obrabotka Metallov, 1958, No. 1, pp. 26 - 29 (USSR).

ABSTRACT: For studying the influence of manganese in the seam on the non-uniformity of fusion, strips of "Steel 3" (0.18% C, 0.45% Mn) were welded by means of a wire under flux. The manganese content in the seam was varied by introducing different quantities of ferro-manganese in the coating and thus a number of weld joints were obtained containing different quantities of manganese, whilst the content of other elements remained approximately unchanged. Some of the results obtained are given in Table 1, p.27. Experiments were also made with welding the chromium-manganese steel 30XMA with electrodes of such composition as to obtain an equal strength of the welds and the base material; the chemical compositions of the base metal and the welds are given in Table 2, p.28. Some of the results are entered in Table 3, p.28. On the basis of the

Card 1/3

On the Non-uniformity in the Zone of Fusion of Welded Joints. <sup>129-1-6/14</sup>

obtained results, the following conclusions are arrived at: in welds of pearlitic steels with differing chemical compositions of the metal in the weld and the base metal, the formation is possible of a structural and chemical non-uniformity in the melting zone which is characterised by the formation of decarburised and carburised zones; the formation of these non-uniformities proceeds in the solid state due to displacement of carbon atoms from one zone of the weld into the other, whereby the carbon displacement takes place only in the sections which are close to the fusion zone, namely, it proceeds from the sections containing elements which produce less stable carbides to those sections which contain elements producing more stable carbides, i.e. from the sections with lower content of carbide-forming elements into the section with higher content of such elements. The direction of displacement of the carbon does not depend on its relative concentration in the neighbouring regions and is determined by the qualitative and quantitative difference in the content of carbide-forming elements in the weld and in the base metal and, therefore, frequently the carbon moves away from zones with low carbon content; immediately after welding, the weld

Card2/3

129-1-6/14

On the non-uniformity in the Zone of Fusion of Welded Joints.

does not always have an appreciable non-uniformity in the fusion zone. The non-uniformity occurs during heating to temperatures slightly below the  $Ac_1$  point. Displacement of carbon and formation of the above mentioned type of non-uniformities take place at heating temperatures at which the iron is in the  $\alpha$  state. There are 3 tables and 3 figures, and 4 Slavic references.

ASSOCIATION: VNIISTROYNEFT'

AVAILABLE: Library of Congress.

Card 3/3

FAL'KEVICH, A.S., kandidat tekhnicheskikh nauk; LIVSHITS, L.S., kandidat tekhnicheskikh nauk; PANICH, S.I.

Methods of assessing the susceptibility of steel to brittle fracture in welded storage tanks. Svar.preizv.no.12:8-10 D '55. (MLRA 9:2)

1.Vsesoyuznyy nauchno-issledovatel'skiy institut stroitel'noy nefti.

(Tanks--Welding) (Steel--Brittleness)

S/126/62/013/004/012/022  
E111/E435

AUTHORS: Livshits, L.S., Panich, S.I., Assonova, Ye.A.

TITLE: Influence of alloying on the concentration of dissolved carbon in ferrite

PERIODICAL: Fizika metallov i metallovedeniye, v.13, no.4, 1962, 572-576

TEXT: The relation between carbon solubility in ferrite and the concentration of different alloying elements (which affects welding processes, ageing, etc) was investigated for manganese (0.12% C, 0.41 to 2.68% Mn), chromium (0.10% C, 0.10 to 2.00% Cr), molybdenum (0.10% C, 0.25 to 3.00% Mo), tungsten (0.11% C, 0.59 to 3.22% W), vanadium (0.12% C, 0.25 to 1.68% V) and niobium (0.10% C, 0.41 to 1.69% Nb) steels, using the internal-friction method. Specimens were heat treated to obtain a close approximation to equilibrium for the carbide/solid-solution phases. For each alloying element increasing concentration was accompanied by decreasing internal-friction peak maximum. Increase in alloying-element concentration beyond a critical value had little effect on the decrement-versus-temperature plot. A steel alloyed

Card 1/2

Influence of alloying ...

S/126/62/013/004/012/022  
E111/E435

with 0.25 and 0.46% aluminium was also studied to provide an indication of the effect of dissolved nitrogen: there was no difference between the two curves. The experimental conditions did not permit a direct quantitative study of the effect of the alloying elements on dissolved-carbon concentration in ferrite. This information was obtained indirectly by making certain assumptions and showed that the elements can be arranged in the following order in decreasing effect for a given element/carbon atomic ratio on the dissolved-carbon concentration: niobium, vanadium, tungsten, molybdenum, chromium, manganese. The given values of the effect for different values of the ratio has practical importance for deciding the effect of alloying on ageing, for instance. There are 2 figures and 1 table.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut po stroitel'stvu magistral'nykh truboprovodov  
(All-Union Scientific Research Institute for the Construction of Main Pipelines)

SUBMITTED: August 1, 1961

Card 2/2

PANICH, V. (Khar'kov)

On the wings of a dream. Kryl. rod. 16 no.3:10 Mr '65.

(MIRA 18:5)



PANICH, V.A.

Heat treatment of granite. Stroi. mat. no.11:8-9 N '65.  
(MIRA 18:12)

1. Direktor Leningradskogo kamneobrabatyvayushchego zavoda.

PANICHEV, A.D.; KALASHNIKOV, A.P.; KUZ'MIN, Yu.S.; NOSOV, Yu.A.;  
DEMIDOV, G.K.

Setting of a continuous tread strip in extruding. Kauch. 1  
rez. 20 no.8:40-44 Ag '61. (MIRA 14:8)

1. Yaroslavskiy tekhnologicheskii institut i Yaroslavskiy  
shinnyy zavod.

(Tires, Rubber)

DEMIDOV, G.K., inzh.; KALASHNIKOV, A.P.; FANICHEV, A.D., kand.tekhn.nauk

Quality and shrinkage of rayon tire cord. Tekst.prom. 21 no.5:  
13-14 My '61. (MIRA 15:1)

(Tire fabrics) (Rayon)

PANICHEV, A. D. Cand Tech Sci -- (diss) "Study of the formula for the basic components of automobile <sup>chassis</sup> ~~covers~~ and their distribution according to <sup>the modulus of</sup> elasticity ~~modulus~~, as well as other mechanical properties." Mos, 1958. 16 pp (Min of Higher Education USSR. Mos Inst of Fine Chem Technology im M. V. Lomonosov), 150 copies. Bibliography at end of text (12 titles) (KL, 43-59, 125)

PANICHEVA, A.A., Cand Tech Sci -- (diss) <sup>the</sup> "On dyeing <sup>of</sup> wool  
with water-insoluble salts of alkali-earth metals of acid and  
acid-mordant dyes." Mos, 1958, 13 pp (Min of Higher Education  
USSR. Mos Textile Inst) (KL, 27-58, 111)

- 130 -

И. А. Р. Ч. В. А. Д.

5 (1) **PHASE I D-V-K EXPLOITATION** 800/2927  
 Karvelav', Technological Institute  
 Debanoye Zapiski, Tom II (Scientific Notes, Vol. 2)  
 Karvelav', *not published*, 1957, 100 copies printed.  
 Editorial Staff: A.I. Zaikina, Candidate of Historical Sciences; Dozent  
 M.M. Masarov, Candidate of Technical Sciences; Professor M.I. Farberov,  
 Doctor of Technical Sciences;  
 Resp. Ed.: Professor Yu.S. Masabekov, Doctor of Chemical Sciences  
 Secretary-Scientist: B.P. Ustavshchikov, Candidate of Chemical Sciences  
**PURPOSE:** This book is primarily intended for industrial chemists and tech-  
 nologists interested in the kinetics of chemical reactions and their re-  
 lated physical processes.  
**COVERAGE:** The twenty-two articles of this collection deal mainly with in-  
 dustrial processes for the preparation of organic compounds, problems of  
 heat physics and general mechanics related to these processes, and with  
 industrial chemical equipment. No personalities are mentioned. References  
 are given after each article.

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PANICHEV, A.D.; KALASHNIKOV, A.P.; KUZ'MIN, Yu.S.; DEMIDOV, G.K.;  
NOSOV, Yu.A.

Shrinkage of treads. Kauch. i rez. 20 no.12:48-49 D '61.  
(MIRA 35:1)

1. Yaroslavskiy tekhnologicheskii institut i Yaroslavskiy shimnyy  
zavod.

(Yaroslavl--Tires, Rubber)

PANICHEV, A.D.

Factors determining the shrinking of rubber compounds. Khim.  
i khim. tekhn. 1:189-194 '62. (MIRA 17:2)



PANICHEV, A.D., Cand Tech Sci -- (diss) "Study of the <sup>formula</sup> ~~specification~~  
of basic <sup>the</sup> ~~details~~ <sup>parts</sup> of <sup>motor vehicle</sup> ~~automobile~~ casings and their distribution ac-  
cording to the module of elasticity, as well as, other mechanical  
properties." Mos, 1958. 16 pp (Min of Higher Education USSR.  
Mos Inst of Fine Chem Technology in M. V. Lomonosov). 150 co-  
pies Bibliography at end of text (13 titles) (KL,40-59, 104)

37

PANICHEV, A.D.

Distribution of types of rubber in individual parts of automobile  
tires. Uch. zap. Ikarosl. tekhnol. inst. 2:173-192 '57. (MIRA 12:7)  
(Tires, Rubber)

PANICHEV, A. D., Cand Tech Sci -- (diss) "Study of ~~the~~ standards of <sup>the</sup> main parts of automobile hoods and their division according to the modulus of elasticity as well as other mechanical indexes." Yaroslavl', 1958. 21 pp with drawings (Min of Higher Education USSR, Yaroslavl' Technological Inst), 500 copies. Bibliography at end of text (13 titles) (KL, 16-58, 121)

-68-

PANICHEV, A.F., podpolkovnik meditsinskoy sluzhby

So-called penicillin epilepsy in the hospital. Voen.-med. zhur.  
no.5:37-40 My '61. (MIRA 14:8)  
(PENICILLIN) (EPILEPSY)

NIKOL'SKIY, L.N.; GAVRILOV, M.Ye.; KUZNETSOV, A.V.; PANICHEV, F.P.

Experience in and ways of introducing rotary swaging for further  
forging. Kuz.-shtam.proizv. 5 no.8:15-18 Ag '63. (MIRA 16:9)

chloride solution was obtained and an average of

... was established for determining potassium. Zil'bershteyn's method (Zav. Lab. v. 21, 1955, 342) was selected for determining the rare earth elements by the lines LaII 3921.54, LaII 3929.27, CeII 3942.75, PrII 3956.16 and NdII 3951.50 A, using SmII 3946.50 A as internal standard. The use of a samarium reference eliminated the effect of potassium concentration on the analytic results since

ROZHKOVA, V.V., inzh.; KONONENKO, T.V., inzh.; PANICHEVA, A.A., kand. tekhn. nauk; ANTIPOVA, N.P., inzh.; KORSAKOVA, V.B., inzh.; VASIL'YEVA, V.V., inzh.

Technology for the processing of staple lamsan in woolen and worsted manufacture. Nauch.-issl. trudy TSNIIShersti no.17: 56-68 '62. (MIRA 17:12)



PANICHEVA, A.A., kand.tekhn.nauk

Dyeing of polyester-lavsan fibers and fabrics made from wool and  
lavsan blends. Nauch.-issl.trudy TSNIIShersti no.16:146-155  
'61. (MIRA 16:11)

PANICHEVA, A.A.; BOBOSLOVSKIY, B.M.

Simplified method of dyeing wool fiber. Tekst.prom. 16 no.5:36-38  
My '56. (MLRA 9:8)

(Dyes and dyeing--Wool)

Panicheva, A. H.

✓ Faster method for dyeing wool. A. A. Panicheva and B. M. Bogoslovskii. *Tekstil Prom.* 16, No. 6, 38-40, 1956. *USA*

A new method of dyeing wool by reducing its dyeing time from the currently used 30-45 to 10-20 min. and decreasing the temp. of dyeing is recommended. It is based on the absorption by the wool of the H<sub>2</sub>O-insol. mordant dyes (alizarin and other anthraquinone type dyes). In the first stage, the phys. stage of this method, the wetted fiber is treated for 5-10 min. at 20-30° with an aq. suspension of the dye. In the second, the chem. stage, the fiber is heated for 5-10 min. in an acidified K<sub>2</sub>Cr<sub>2</sub>O<sub>7</sub>. Elisabeth B. ...

2

FEDOROV, V.F.; TSUKERMAN, B.S.; PANICHEVA, A.G.

Mobile mill for the manufacture and installation of pipes. Gaz.  
delo. no.12:52-55 '63. (MIRA 17:10)

1. TSentral'nyy nauchno-issledovatel'skiy institut tekhniko-ekonomi-  
cheskikh issledovaniy po neftyanoy, neftekhimicheskoy i gazovoy promy-  
shlennosti.

SOV/129-59-3-7/16

AUTHORS: Ratner, A.V., Candidate of Technical Sciences and  
Panicheva, A.S., Engineer

TITLE: Fastening Steel for Power-generating Equipment With  
Steam Parameters of 140 atm, 570 °C (Krepezhnaya stal'  
dlya energoustanovok s parametrami para 140 at, - 570 °C)

PERIODICAL: Metallovedeniye i Termicheskaya Obrabotka Metallov,  
1959, Nr 3, pp 28 - 32 (USSR)

ABSTRACT: Building of power-generating equipment intended to  
operate with steam parameters of 140 atm, 570 °C,  
brought about the necessity of developing pearlitic-  
class steels for fastening components and spindles of  
fittings; the housings and the covers of these fittings  
are produced from the steel TsV-I, developed by  
TsNIITMASH. The steel for such purpose has a high yield  
point at room temperature and at the operating tempera-  
tures and also a sufficiently high relaxation stability.  
According to available experience, the residual stresses  
in bolts after 10 000 hours at the operating temperature  
should not be less than 10 kg/mm<sup>2</sup> in the case of  
tensioning with an initial stress of 30-35 kg/mm<sup>2</sup>, which

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Parameters of 140 atm, 570 °C

corresponds to a deformation of 0.15%. If the relaxation stability is lower, frequent tightening is necessary. The permissible specific pressure in the case of dry friction between the spindle and its guide should be not less than 3-3.5 kg/mm<sup>2</sup> and to achieve this, a thermochemical hardening of the surface has to be applied. The steels used at present for such components (in the Soviet Union) do not have an adequate relaxation stability and do not satisfy the specified requirements. The steel EI723, developed by TsNIITMASH(Ref 1) also does not have the required relaxation stability. In this paper, the results are described of investigations of the properties of a chromium-molybdenum steel, containing 0.2-0.25% C, 1% Cr, 1% Mo and 1% V, the aim of which was to elucidate whether this steel is suitable as a material for fastenings and spindles of fittings of power-generation equipment, operating with steam of 180 atm, 570 °C. In the experiments, 150 kg of steel was produced in a high-frequency furnace at the "Serp i Molot" Works.

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The chemical composition of the produced steel, designated as 20Kh1M1F1 (E1909) is: 0.24% C, 0.36% Mn, 0.17% Si, 0.032% S, 0.019% P, 1.23% Cr, 1.01% Mo and 0.98% V. The tests were made mainly with the steel after hardening, followed by tempering; however, simultaneously, tests were also made with steel after normalisation annealing, followed by tempering. In Table 1, the hardness values and the structural composition of the steel after various heat treatments are listed. In Table 2, the results are listed of chemical analysis of the carbide precipitate. The mechanical properties of this and a few comparative steels after various heat treatments are entered in Table 3. A graph, p 31, shows the obtained relaxation data. The experiments also included nitriding and borating of the experimental steel (carried out by L.G. Leonova). Prior to nitriding, the steel was quenched in oil from 1 000 °C and then tempered for 4 hours at 700 °C. The thickness of the nitrided layer was below 0.01 mm and had a surface hardness of 1 300 kg/mm<sup>2</sup>. With greater depth, up to 0.35-0.4 mm, the hardness dropped

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to 800-600 kg/mm<sup>2</sup>, whereby the hardness of the base metal was 322 kg/mm<sup>2</sup>. Borating resulted in the formation of a diffusion layer, 0.25 - 0.3 mm deep, with a hardness of 1 700 - 1 900 kg/mm<sup>2</sup>. On the basis of the obtained results, the following conclusions are arrived at.

- 1) After appropriate heat treatment, the tested experimental steel 20 Kh1M1Fl (EI909) has very favourable strength and relaxation properties at 565 - 570 °C and, consequently, it can be applied for joining/elements of connections in power-generating equipment with steam parameters of up to 140 atm, 570 °C.
- 2) Ageing studies of this steel at 600 °C for 2 000 hours showed that the steel properties are sufficiently stable.
- 3) The tested 20Kh1M1Fl steel can be hardened by borating and nitriding and therefore can also be used for spindles and gland boxes of fittings operating with steam parameters up to 570 °C.

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Parameters of 140 atm, 570 °C

There are 1 figure, 4 tables and 4 references, 3 of  
which are Soviet and 1 English.

ASSOCIATION: Vsesoyuznyy teplotekhnicheskii nauchno-issledovatel'skiy  
institut (All-Union Thermotechnical Scientific-  
research Institut)

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PANICHEVA, A.S., kand. tekhn.nauk; PRIBYLOV, B.P., kand.tekhn. nauk,  
red.

[Investigation of imported fitter's and assembly tools] Issledovanie importnogo slesarno-montazhnogo instrumenta. Pod red. V.P. Pribylova. Moskva, 1962. 50 p. (MIRA 16:3)

1. Moscow. Vsesoyuznyy nauchno-issledovatel'skiy instrumental'nyy institut.

(Engineering--Tools and implements)

PANICHEVA, A.S., inzh.

Austenite steel without nickel content used for the fastening parts of reinforcements. Nauch.dokl.vys.shkoly; mash.i prib. no.1:164-172 '58. (MIRA 12:1)

1. Predstavleno kafedroy "Metallovedeniye" Moskovskogo vyshego tekhnicheskogo uchilishchaimeni N.E. Baumana. (Steel, Structural)

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Investigating chromium-manganese austenitic steel. Metalloved. 1  
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1. Vsesoyuznyy teplotekhnicheskii nauchno-issledovatel'skiy  
institut.

(Chromium-manganese steel--Metallography)

PANICHEVA, A. S.

AUTHOR: Panicheva, A. S., Engineer

129-58-5-7/17

TITLE: Investigation of Chromium Manganese Austenitic Steel  
(Issledovaniye khromomargantsevoy austenitnoy stali)

PERIODICAL: Metallovedeniye i Obrabotka Metallov, 1958, Nr 5,  
pp 25-27 + 1 plate

ABSTRACT: The work described in this paper aimed at determining the possibility of using chromium-manganese base austenitic steels for pins in high pressure steam piping. The tests were carried out on specimens obtained from eighteen experimental melts with ingot weights of 30 kg each and five pilot plant scale melts of 150 kg each. The chemical compositions of these steels are entered in Table 1, p 24. After hardening in water, from 1000 to 1150°C, the chromium-manganese steel had, depending on the contents of carbon and of additional alloying elements, one of the following three types of structure: austenite plus 5 to 10% ferrite (Figure 1), in the case of 0.1% C steels without additional alloying elements and also steels to which only tungsten or titanium were added or silicon or titanium or respectively vanadium and titanium were added; a purely austenitic structure without additional admixtures for steels containing over

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0.1% C and steels with an increased content of carbon and vanadium; steel with 1.5% Nb has a structure consisting of three phases, namely, of austenite, ferrite and carbides. The mechanical properties, the high temperature strength and the scale resistance were investigated and some data on these are given. Furthermore, the results are given of industrial scale tests and of investigations of steel of a specific composition after it has been established in laboratory tests that a steel with an addition of vanadium (0.18-0.33% C, 12-14% Cr, 17-20% Mn, 0.5-0.8% V) satisfies the basic requirements to be met by steel for pins and studs in fittings of very high pressure and very high temperature steam systems with an operating temperature of the metal up to 580°C. Table 2 gives the mechanical properties of two of the tested steels after one year's operation of pins and studs made of these steels. On the basis of the obtained results the authors arrive at the following conclusions:

1. The chromium-manganese steel EI729 has very favourable characteristics of high temperature strength and relaxation stability. The impact strength after thousand hours ageing at 550 to 650°C is stabilised at 4.5 kg/cm<sup>2</sup>. Thus,

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this steel satisfies the fundamental requirements to be met by the material used for studs of high pressure steam piping (180 atm, 565°C).

2. Addition to chromium-manganese steels of 1-2% W, 0.17-0.7% Ti and 1.5% Nb has an unfavourable influence on its properties, since these additions cause the formation of an  $\alpha$ -phase which subsequently decomposes forming a  $\sigma$ -phase and causing a strong drop in the ductility and the impact strength.

3. During ageing at 500 to 650°C of chromium-manganese steels, which contains additions of vanadium, a large quantity of disperse separations take place along the boundaries and in the grains of the austenite which bring about an appreciable increase of the strength characteristics of the steel. Industrial tests with this type of chromium-manganese steels has shown that it has satisfactory technological properties. Operational tests for a period of one year in the Cherepets power station of studs made of this material have proved that their properties are fully satisfactory.

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Investigation of Chromium Manganese Austenitic Steel 129-52-5-7/17

There are 6 figures, 2 tables and 10 references, 8 of which are Soviet and 2 English.

ASSOCIATION: Vsesoyuznyy teplotekhnicheskiiy nauchno-issledovatel'skiy institut (All-Union Thermo-technical Scientific Research Institute)

AVAILABLE: Library of Congress.

- Card 4/4
1. Chromium-manganese austenitic steel-Properties-Test results
  2. Austenitic steel-Properties



PANICHEVA, A. S., Eng.

Steam Boilers

Damage of a cast iron, shutter-type ash collector. Elek. sta. 23, No. 2, 1953.

Monthly List of Russian Accessions, Library of Congress  
June 1953. UNCL.

PANICHKIN, A.P.

*Acrobatic  
(Halter, ...)  
3*

100. A. P. Panichkin, "Forces acting on an oscillating profile in a supersonic gas flow," (in Russian) *Appl. Math. Mech. (Pril. Mat. i Mekh.)*, Jan.-Feb. 1947, vol. 11, no. 1, pp. 165-170.

The differential equations for the potential of a disturbance in a uniform supersonic stream are linearized in the conventional manner. Solutions which are harmonic in time are sought, to describe the disturbance associated with an oscillating thin two-dimensional profile. The boundary conditions at the profile are linearized, the linear dependence "split off," and the resulting two-dimensional hyperbolic differential equation is readily solved by the Heun method. In this case, the Heun function is a zero-order Bessel function.

The dynamic lift and turning moment on the wing are evaluated for the particular case where the wing (1) oscillates about the leading edge, (2) "flaps" in a direction normal to its chord. The results appear as series of Bessel functions.

G. F. Carrier, U.S.A.

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METALLURGICAL LITERATURE CLASSIFICATION

YEAR	MONTH	DAY	ISSUE	PAGE	NO.	...
1947	1	1	1	1	1	...



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Standard for construction drawings. Standartizatsiia 25  
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