

AL'TSHULER, V.S.; LAVROV, N.V.; PITIN, R.N.; FARBEROV, I.L.; SHAFIR, G.S.

Underground gasification of coals under high pressure. Trudy IGI
13:75-82 '60. (MIRA 14:5)

(Coal gasification, Underground)

GOLGER, S.P.; DERMAN, B.M.; LAVROV, N.V.; FARBEROV, I.L.; FEDOROV, N.A.

Production of industrial gas in the underground gasification of
Lisichansk coals. Trudy IGI 13:83-86 '60. (MIRA 14:5)
(Lisichansk--Coal gasification, Underground)

KRUKOVSKIY, V.K.; PITIN, R.N.; FARBEROV, I.L.

Combustion and gasification of oil shale in a channel. Trudy IGI
13:87-96 '60. (MIRA 14:5)
(Coal gasification, Underground) (Oil shales)

KRUKOVSKIY, V.K.; PITIN, R.N.; FARBEROV, I.L.

Gas formation during the gasification of oil shales in a channel.
Trudy IGI 13:97-102 '60. (MIRA 14:5)
(Coal gasification, Underground) (Oil shales)

KREYNIN, Ye, V.; FARBEROV, I.L.

Efficient hydrodynamic regime for the process of displacement of the
combustion focus in a coal bed toward connecting boreholes. Trudy IGI
13:125-130 '60. (MIRA 14:5)
(Coal gasification, Underground)

MIROYEDOVA, Ye.V.; FARBEROV, I.L.

Products obtained in the process of the direct heating of coal by
the electric current. Trudy IGI 13:158-163 '60. (MIRA 14:5)
(Coal gasification)

LOSEV, B.I.; MEL'NIKOVA, A.N.; PITIN, R.N.; FARSEROV, I.L.

Volatility of germanium in coals. Trudy IGI 13:164-166 '60.
(MIRA 14:5)

(Germanium)

(Coal)

DERMAN, B.M.; ROGAYLIN, M.I.; FARBEROV, I.L.

Kinetics of the process of interaction of carbon with steam. Trudy
IGI 16:151-155 '61. (MIRA 16:7)
(Carbon) (Steam) (Chemical reaction, Rate of)

DERMAN, B.M.; ROGAYLIN, M.I.; FARBEROV, I.L.

Change of the internal surface of electrode carbon during its reaction
with steam. Trudy IGI 16:156-158 '61. (MIRA 16:7)
(Electrodes, Carbon) (Steam)

CHEN LU-SHEN; ROGAYLIN, M.I.; FARBEROV, I. L.

Interaction of steam with coke obtained from Lisichansk coal.
Trudy IGI 16:159-163 '61. (MIRA 16:7)
(Coal gasification, Underground) (Steam)

FARBEROV, I.L.

Brief survey of the research work of the Institute of Mineral Fuels
of the Academy of Sciences of the U.S.S.R. on the underground
processing of fuels. Trudy IGI 16:248-261 '61. (MIRA 16:7)
(Coal gasification, Underground)

KRUKOVSKIY, V.K.; MIROYEDOVA, Ye.V.; PITIN, R.N.; FARBEROV, I.L.

Hydrodynamic characteristics of a seam of kukersite oil shales. Trudy
IGI 16:262-267 '61. (MIRA 16:7)

(Oil shales) (Hydrodynamics)

KIRICHENKO, I.P., kand. tekhn. nauk; PITIN, R.N., kand. tekhn. nauk;
FARBEROV, I.L., doktor tekhn. nauk; FEDOROV, N.A., kand. tekhn.
NAUK

Some problems in recovery without mining and in underground
preparation of fuels and other minerals. Nauch. trudy
VNIIFodszengasa no.8*3-10 '62. (MIRA 16:6)

1. Institut goryuchikh iskopayemykh Gosudarstvennogo komiteta
po toplivu i Vsesoyuznyy nauchno-issledovatel'skiy institut
podzemnoy gasifikatsii ugley.
(Coal gasification, Underground)
(Sublimation(Physical sciences))

1, 15201-65 EWT(m)/EPF(c)/EPR/EWP(j)/T-2 Pa-l/Pe-l/Pr-l/Ps-l ASD(m)-3
(mp)-2 VM/MLK/RM
ACCESSION NR: AT4048187 S/0000/64/000/000/0012/0016

AUTHOR: Mishchenko, M. L.; Farberov, L. L. (Doctor of technical sciences, Professor); Bogdanov, I. F.)
BT/

TITLE: Investigation of the pyrolysis of linear polymers Under the influence of flash heating

SOURCE: AN SSSR. Institut goryuchikh iskopayemykh. Gazifikatsiya i piroliz topliv (Gasification and pyrolysis of fuel); sbornik statey. Moscow, Izd-vo Nauka, 1964, 12-16

TOPIC TAGS: pyrolysis, linear polymer, polystyrene, polyethylene, synthetic rubber, coke, flash heating

ABSTRACT: The pyrolysis of linear polymers such as polystyrene, polyethylene and synthetic rubber under the influence of flash heating was investigated and the typical analytical data for an emulsion polystyrene, type B, obtained at 600-1200C are tabulated. The yield in coke residue of pyrolysis increases with an increase in the temperature of flash heating. This is especially clear at 1200C, at which the coke residue yield increased to 65%, and the liquid resin yield decreased to 18% by weight. The rate of gas evolution during pyrolysis of polystyrene is constant at 800-1200C or higher, and the amount of evolving gas increases propor-
Card 1/3

L 15204-65

ACCESSION NR: AT4048187

tionally with the temperature. In order to establish the relationship between the specific rate of gas evolution and the weight of the sample, pyrolytic experiments were carried out at 1000 and 1200C for 0.2 and 2.5 g samples. It was found in both cases that the rate of gas evolution decreased uniformly with increasing weight of sample. Equations are given for processing the experimental data. The calculated and experimental gas evolution rates for both temperatures are tabulated. The proposed equations permit calculation of the total amount of gas for samples of different weight during pyrolysis by flash heating at 1000 and 1200C. The pyrolysis of polyethylene differs considerably from that of polystyrene in that marked gas evolution is already found at 600C. With a further increase in temperature, the gas evolution increases. The data obtained here also show that the yield in coke residue during the thermal decomposition of an organic substance depends on the heating conditions. Concerning the reactions during the pyrolysis of synthetic rubber, the variation in the yield of the main gas components with increasing temperature of flash heating is important. The tabulated data show that with increasing temperature the amount of unsaturated compounds passes through a maximum while the hydrogen content of the gas steadily increases, especially after 1000C. The composition of the pyrolysis gases for these three polymers as determined by gas chromatography is tabulated. "I. V. Romanova also took part in the work." Orig. art. has: 6 tables.

Card 2/3

L 15204-65

ACCESSION NR: AT4048187

ASSOCIATION: none

SUBMITTED: 04Apr64

ENCL: 00

SUB CODE: 0C

NO REF SOV: 002

OTHER: 001

Card 3/3

L-15205-65 EPA(a)-2/EWT(m)/EPP(c)/EPR/EWP(j)/T-2/T Pc-l/Pr-l/Pa-l/Pt-10 RPL/
ASD/ASD(p)-3 WW/MLK/RM S/0000/64/000/000/0025/0035 81

ACCESSION NR: AT4048188
AUTHOR: Grebenshchikova, G. V.; Farberov, I. L. (Doctor of technical sciences, Professor)

TITLE: Determination of the character of the heat effects during pyrolysis of polymers 7

SOURCE: AN SSSR. Institut goryuchikh iskopayemykh. Gazifikatsiya i piroliz topliv (Gasification and pyrolysis of fuel); sbornik statey. Moscow, Izd-vo Nauka, 1964, 25-30

TOPIC TAGS: polymer pyrolysis, polymethyl methacrylate, polystyrene, phenol-formaldehyde resin, thermogram, heat effect

ABSTRACT: The nature of the thermal effects during pyrolysis of polymethyl methacrylate, polystyrene and phenol-formaldehyde resin was investigated by thermographic methods. The thermal conversion of the polymers was studied in a range of 20-800C on the Kurnakov pyrometer, in a nitrogen current (50 cc/min.) and in air. The diagram and description of the apparatus are given. Resistance in the circuit of the simple thermocouple was 37,900 ohms, that of the differential thermocouple 600 ohms, initial current strength 4.2 amps, sample weight 0.4 g. The thermograms are given for a nitrogen current. A correlation was found between the character Card 1/2

L 15205-65

ACCESSION NR: AT4048188

of the thermograms and the nature of the substance. The pyrolysis of polymethyl methacrylate (PMA) and polystyrene (in powdered form) is accompanied by deep endothermic effects, at 420C for PMA and 460-470C for polystyrene, and by shallower effects at 620-650C. For polystyrene, the endothermic effect of pyrolysis is slightly shifted toward higher temperatures. This difference is due to the presence of the aromatic ring in the polystyrene chain. The thermogram of synthetic rubber differs from that of PMA and polystyrene. It was found that the nature of the substance affects the character of the differential thermograms considerably and determines the zones of exo- and endothermic effects. The greatest decomposition of polymethyl methacrylate is observed between 260 and 420C; for polystyrene, decomposition at 400-470C is characterized by the endothermic effect shown on the thermograms. Between 20 and 700C, PMA and polystyrene decompose completely. For phenol-formaldehyde resins, no clear exothermic effect corresponding to decomposition was found. Phenol-formaldehyde decomposes partially (43-45%) with the formation of a stable coke residue. The more heat stable a material, the simpler the thermogram. "The photorecording pyrometer of N. S. Kurnakov (FPK-55) was manufactured at the IGI AN SSSR." Orig. art. has: 4 figures.

ASSOCIATION: none

SUBMITTED: 04Apr64

Card 2/2 NO REF SOV: 009

ENCL: 00

OTHER: 005

SUB CODE: MI,TD

L 15663-65 EPA(s)-2/EWT(m)/EPF(c)/EPR/EWP(j)/T PC-4/Pr-4/Ps-4/Pt-10 ASD-3/
AFFTC/ESD-3/SSD/RPL/Pa-4/ASD(m)-3 RWH/WW/RM
ACCESSION NR: AT4048189 S/0000/64/000/000/0031/0036

AUTHOR: Grebenshchikova, G. V.; Farberov, I. L. (Doctor of technical sciences, Professor) B-1

TITLE: Thermographic investigation of some polymers and polycondensates

SOURCE: AN SSSR. Institut goryuchikh iskopayemykh. Gazifikatsiya i piroliz topliv (Gasification and pyrolysis of fuel); sbornik statey. Moscow, Izd-vo Nauka, 1964, 31-36

TOPIC TAGS: thermography, polymer, polycondensate, polyethylene, cellulose acetate, epoxide resin, pyrolysis

ABSTRACT: Polyethylene⁶, rubber, cellulose acetate⁷ and epoxide resin¹⁵ were investigated thermographically, and a search was made for a control sample which was similar to the given materials in nature (heat capacity, heat conductivity). A waxy polyethylene was used, the rubber was an unsaturated acyclic hydrocarbon containing the isoprene⁴ group, cellulose acetate was prepared by the esterification of cellulose with acetic acid anhydride in the presence of acetic acid and a small amount of sulfuric acid, and epoxide resin was prepared by condensation of epichlorohydrin with phenols, alcohols or amines. The experiments were carried out on the Kurnakov pyrometer, described in a previous paper, with a sample weight of Card 1/3

L 15663-65

ACCESSION NR: AT4048189

4

0.4000 g, initial current density 4.0 amps., resistance 37,900 ohms in the simple thermocouple and 6000 ohms in the differential thermocouple, time 60 min., rate of heating 16-18 degrees/min.; Al_2O_3 and cokes of phenol-formaldehyde resin² and electrode carbon were used as the controls. The thermograms obtained during pyrolysis show three very characteristic thermal effects: 1) an endothermic effect connected with the removal of moisture and melting of the material; 2) an exothermic effect (260, 320-325, 350-355, and 360-375C, respectively, for each of the given materials), determined by the increase in heat conductivity during transition to the molten state; 3) an endothermic effect due to the maximum decomposition of the substance in the range of 350-550C. The nature of the differential thermal curves shows that the peculiar form of the thermograms depends on the nature of the material. The pyrolysis of polyethylene and cellulose acetate was accompanied by slight endo- and exothermic effects in the corresponding range of temperature. For rubber and epoxide resins, simplified thermograms with pronounced effects were obtained. On the basis of an analysis of the thermograms with different control samples, it is concluded that the clearest picture of pyrolysis is obtained using electrode carbon coke as control. The experimental data on the thermal effects of pyrolysis are tabulated. Orig. art. has: 4 figures, 1 table and 1 chemical equation.

Card 2/3

L 15663-65

ACCESSION NR: AT4048189

0

ASSOCIATION: none

SUBMITTED: 04Apr64

ENCL: 00

SUB CODE: OC, CC

NO REF SOV: 004

OTHER: 003

Card 3/3

TC

L 27790-65 EWT(m)/EPA(s)-2/EPF(c)/T/EWP(j)/EPR Pc-Li/Pr-Li/Ps-Li/Pt-10 WW/DJ/RM
ACCESSION NR: AP5004312 8/0191/65/000/002/0026/0028

AUTHOR: Bogdanov, I. F.; Grebenshchikova, G. V.; Losev, V. B.; Mishchenko, M. L.;
Molchanov, B. V.; Farberov, I. L.

46
B

TITLE: Study of the thermal degradation of polychloroorganosiloxane polymers

SOURCE: Plasticheskiye massy, no. 2, 1965, 26-28

TOPIC TAGS: silicorganic polymer, organosiloxane, polychlorosiloxane, polymer thermal degradation, phenylsiloxane polymer, chlorinated polymer

ABSTRACT: The effect of chlorination of the phenyl radical on the thermal stability of polydimethylphenylsiloxanes was studied experimentally. The thermal properties of polydimethyl-, polydimethylchloro-, polydimethyldichloro- and polydimethyltrichlorophenylsiloxane were determined by recording the thermal effects of pyrolysis to 800C on Kurnakov's pyrometer, by measuring the pyrolytic weight loss to 1000C, and by analyzing the gaseous decomposition products generated up to 1000C. The non-halogenated polymer showed a small exothermic effect at 530C, while the chlorine-substituted specimen exhibited stronger exothermic effects at 550-565C, the height of the peaks increasing with the number of chlorine atoms. Chlorine

Card 1/2

L 27790-65

ACCESSION NR: AP5004312

0

containing specimens started to decompose at lower temperatures, and the rate of gas generation and the percentage of bonded chlorine split off as hydrogen chloride both increased with the degree of chlorination. The amount of hydrogen liberated as H₂ or methane as compared with the initial hydrogen content of the methyl groups decreased in the chlorinated polymers, indicating a shielding effect of chlorine with respect to the stability of the methyl. Generally, the thermal stability decreased with increasing chlorine content. Orig. art. has: 3 figures and 1 table.

ASSOCIATION: None

SUBMITTED: 00

ENCL: 00

SUB CODE: OC, GC

NO REF SOV: 002

OTHER: 002

Card 2/2

BOGDANOV, I.P.; VOLECOV, V.Z.; MOSIN, A.M.; FARMEROV, I.I., 1965. 18:8

Problems in the chemical processing of gases obtained from under-ground coal gasification. Trudy VNIIPodzemnaya no.13:26-31 '65.

(MIRA 18:8)

1. Institut goryuchikh Iskopayemykh, Moskva.

ACC NR: AT6034951

(S, N)

SOURCE CODE: UR/0000/66/000/000/0000/0000

AUTHOR: Krukovskiy, V. K.; Lekomsкая, G. V.; Dement'yeva, T. N.; Farberov, I. L.

ORG: none

TITLE: Use of electric gas discharges in fuel conversion processes

SOURCE: Moscow. Institut goryuchikh iskopayemykh. Termicheskiy i okislitel'nyy piroliz topliv i vysokopolimernykh materialov (Thermal and oxidizing pyrolysis of fuels and high polymer materials). Moscow, Izd-vo Nauka, 1966, 58-63

TOPIC TAGS: methane, thermal decomposition, electric discharge, activation energy, gas discharge, hydrocarbon

ABSTRACT: A review has been made of the use of electric gas discharges in conversion processes for fuels such coal and gaseous hydrocarbons. Inter alia, the review reports the results of a study of the effect of an electric gas discharge on the homogeneous gas-phase thermal decomposition of methane. Figure 1 shows the effect of the discharge on the temperature dependence of the activation energy of this reaction at 1200—2000C. As Figure 1 indicates, the discharge lowers the absolute value of the activation energy and causes the activation energy to increase with temperature.

Orig. art. has: 2 figures.

[WA-68]

Card 1/2

ACC NR: AT6034951

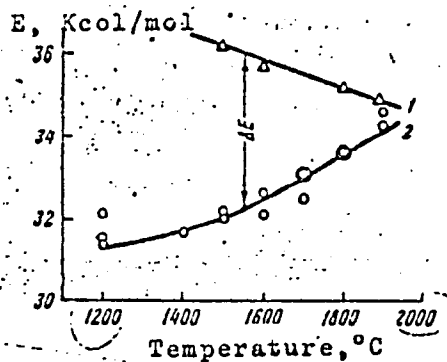


Fig. 1. Activation energy of thermal decomposition of methane versus temperature

1 - No discharge; 2 - discharge.

SUB CODE: 07, 21/ SUBM DATE: 23Jun66/ ORIG REF: 009/ OTH REF: 004

Card 2/2

FARBEROV, M.A., inzh.

Stamping corrugated sheets. Mashinostroitel' no.4:30 Ap '58.
(Sheet-metal work) (MIRA 11:5)

ACCESSION NR: AP4042337

S/0138/64/000/007/0007/0010

AUTHOR: Rumyantseva, Z. M., Golitsina, A. A., Farberov, M. A., Epshteyn, V. G., Lazaryants, E. G., Yemel'yanov, D. P., Kosmodem'yanskiy, L. V.

TITLE: Synthesis and use of butadiene methacrolein latexes

SOURCE: Kauchuk i rezina, no. 7, 1964, 7-10

TOPIC TAGS: tire manufacture, tire cord saturation compound, saturated cord bond strength, latex containing saturation compound, latex SKMA-3, butadiene methacrolein latex, aldehyde group content, polymerization process, latex synthesis, rubber SKS-30 AM, rubber NK, synthetic rubber, SBR rubber

ABSTRACT: Latexes were synthesized by copolymerization of butadiene and methacrolein at 5C in acid (pH 2.5-3.0) and alkaline (pH 10.0-10.5) media, with methacrolein in the initial emulsion varying from 1 to 30 parts by weight (recipos given). Conversion levels of 70% were attained and the kinetics of the process are described in detail. Compounds of the synthesized latexes with resorcinol-formaldehyde (RF) or glycol-resorcinol formaldehyde (FR-12) resins (12 parts by weight of resin per 100 parts of polymer) were used to saturate tire cords. The cords were then tested by multiple deformation, static peeling and N methods for the strength of their bond to resins from NK, SKB and SKS-30

Card 1/2

ACCESSION NR: AP4042337

AM rubbers. It was found that bond strength depends on the content of aldehyde groups in the latex and was best for a monomer mixture with 20% methacrolein by weight. Polymerization at 5C, a conversion level of 70%, Defo hardness levels of 1500 to 3000 g and the use of a rosin soap as an emulsifier promoted bond strength. Comparative evaluation of the synthesized latex, named SKMA-3, indicated it to be superior in bond strength over compounds based on carboxyl containing and vinyl pyridine latexes. Orig. art. has: 4 tables and 2 graphs.

ASSOCIATION: Nauchno-issledovatel'skiy institut monomerov dlya sinteticheskogo kauchuka (Scientific Research Institute for Synthetic Rubber Monomers); Yaroslavskiy tekhnologicheskii institut (Yaroslav Technological Institute); Yaroslavskiy shinny*y zavod (Yaroslav Tire Factory)

SUBMITTED: 00

ENCL: 00

SUB CODE: MT

NO REF SOV: 010

OTHER: 003

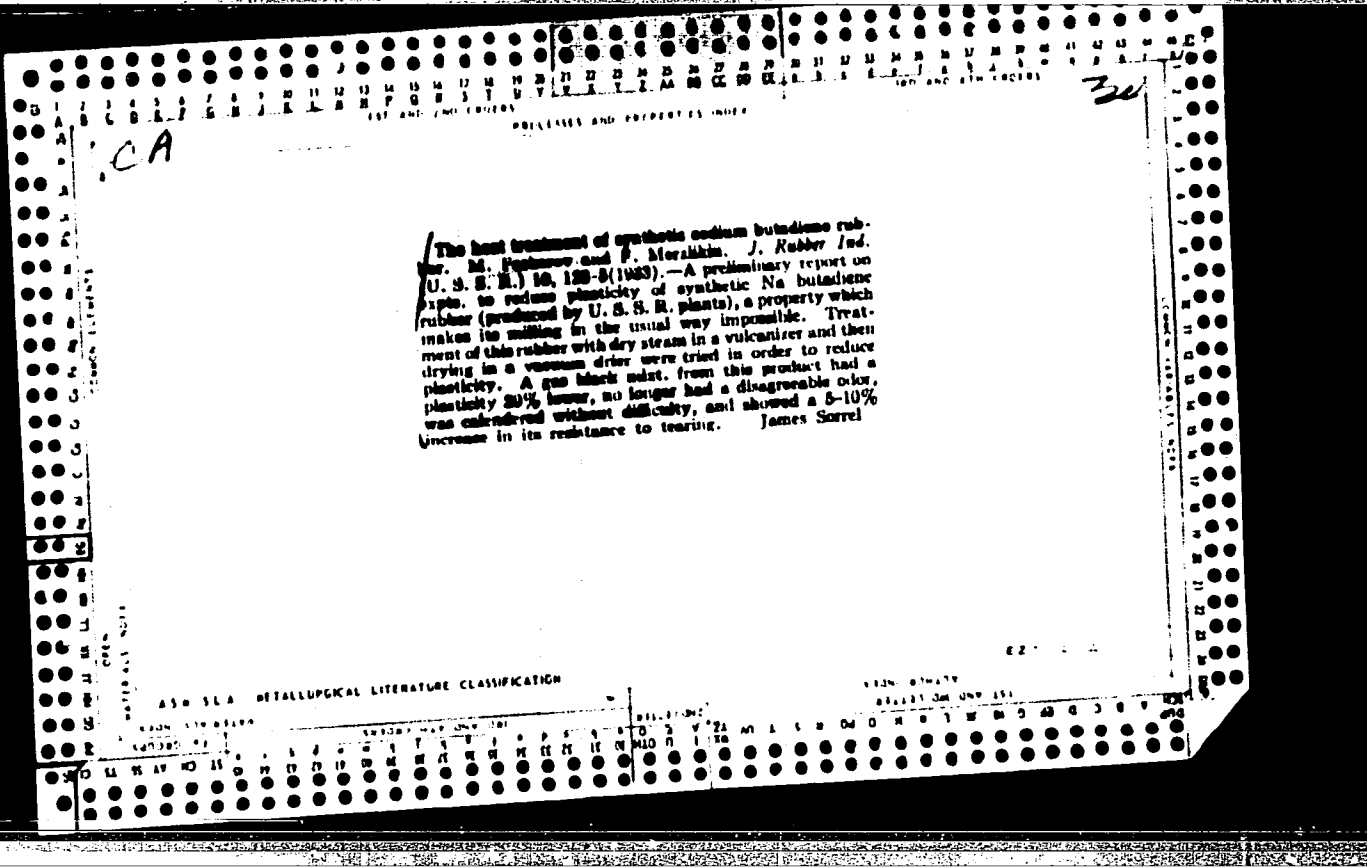
Card

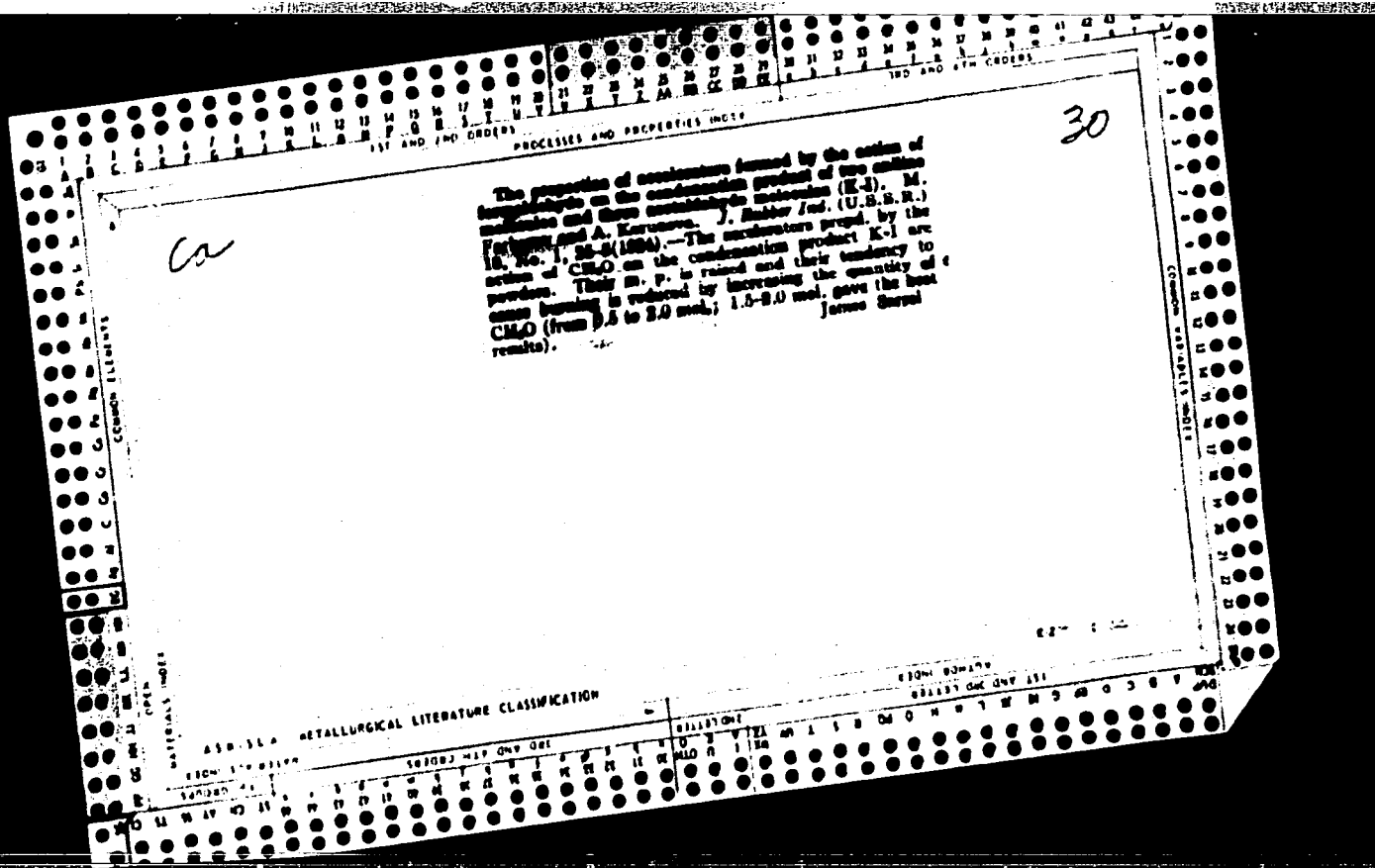
2/2

FARBEROV, M.G.

Improve the work of disability evaluation experts. Zdrav. Bel.
6 no.12:38-41 D '60. (MIRA 14:1)

1. Zaveduyushchiy otdelam vrachebno-trudovoy ekspertizy Ministerstva
sotsial'nogo obshchestveniya Belorusskoy SSR.
(WHITE RUSSIA--DISABILITY EVALUATION)





1ST AND 2ND ORDERS 100 AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

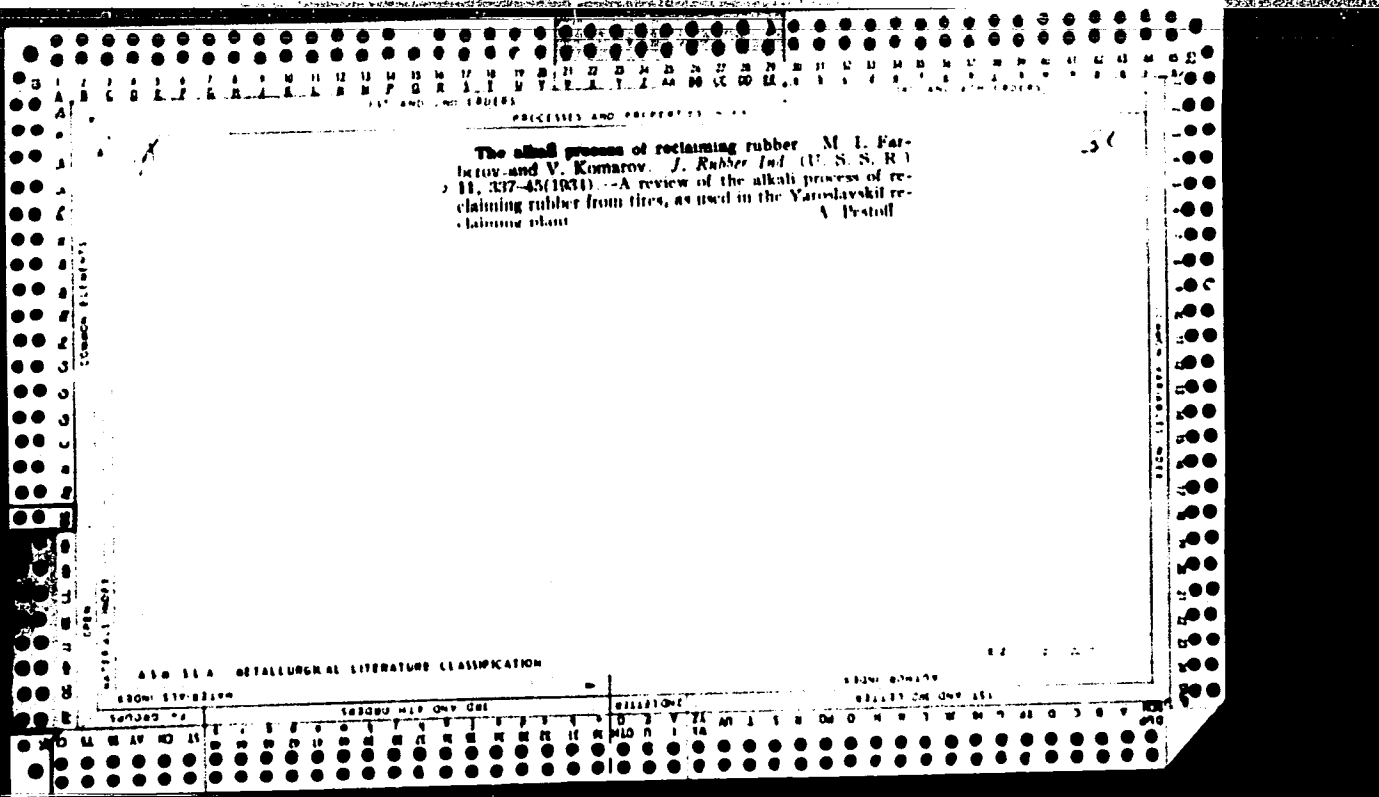
30

A method of obtaining nonadhesive lining material for the tire industry. F. Merzlikin, M. Farkov and E. Polonkin. *J. Rubber Ind.* (U. S. S. R.) 11, 232-4 (1934).—The following formulas are given (g. per kg. of final product): (1) gelatin 75, tech. glycerol 85, talc 30, dye of any color 10, water 800, and (2) 10% formaldehyde soln. The gelatin is dissolved in water at 80°, and while stirring the talc, glycerol and dye are added. The cotton is worked up with mixt. (1) from both sides and is dried; afterward the cotton material is worked into mixt. (2), dried again and put through a roller or calender. One thousand sq. m. of cotton material requires (in kg.): gelatin 37.5, glycerol (or polyglycol) 42.5, talc 15, dye 0.5 and formaldehyde 25.0. A. Pestoff

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

FROM SOURCE LISTED ON ONLY

MATERIALS INDEX COUNTRIES INDEX



PRECEDENCE AND PRIORITY INDEX

30

ca

The laboratory of the Yaroslav (U. S. S. R.) rubber-asbestos combine. M. I. Falerov. *J. Rubber Ind* (U. S. S. R.) 11, 404-01 June, 1934). A description of the organization, equipment and work of the lab. A. Pestoff

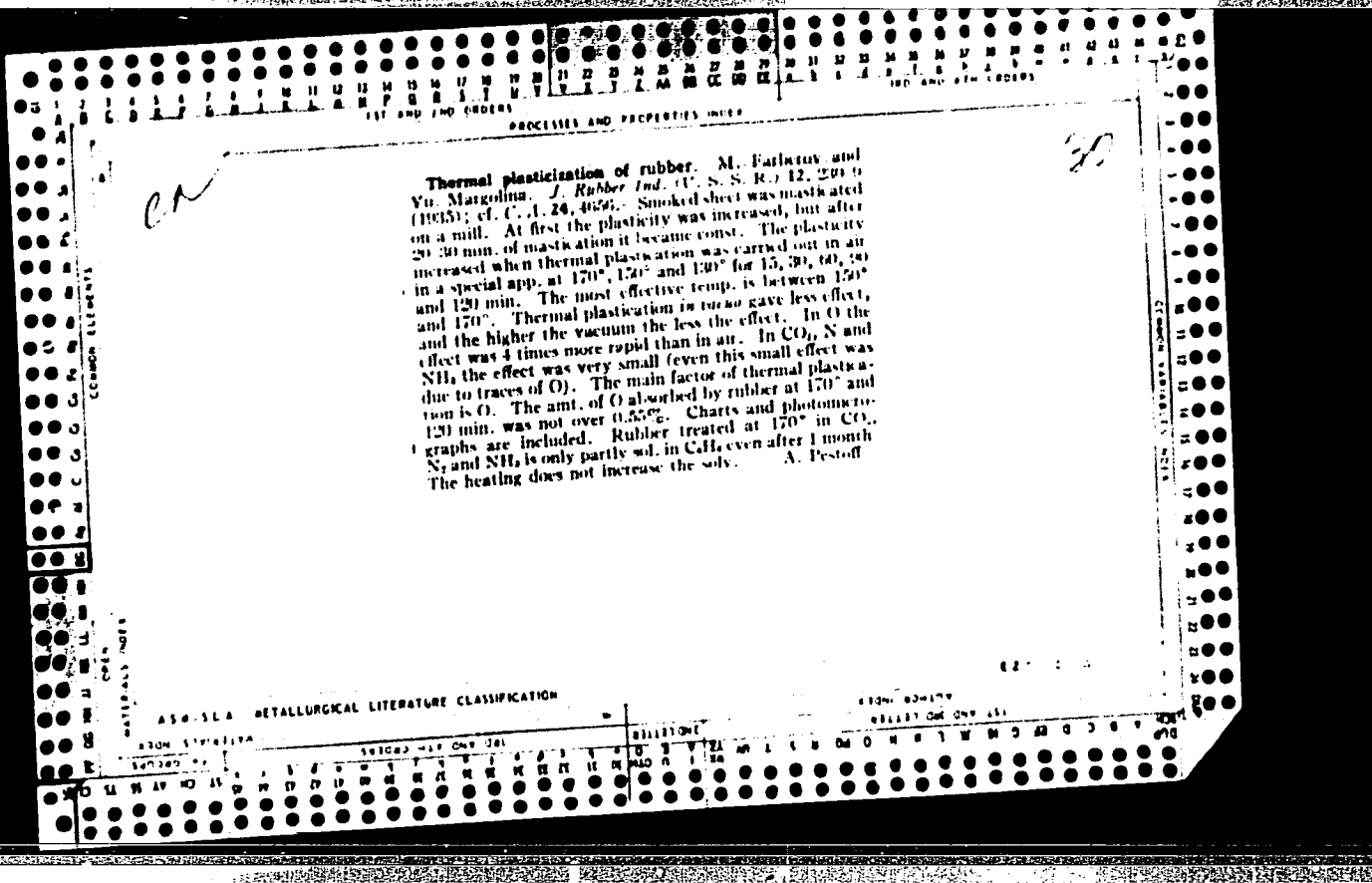
ASSOCIATED METALLURGICAL LITERATURE CLASSIFICATION

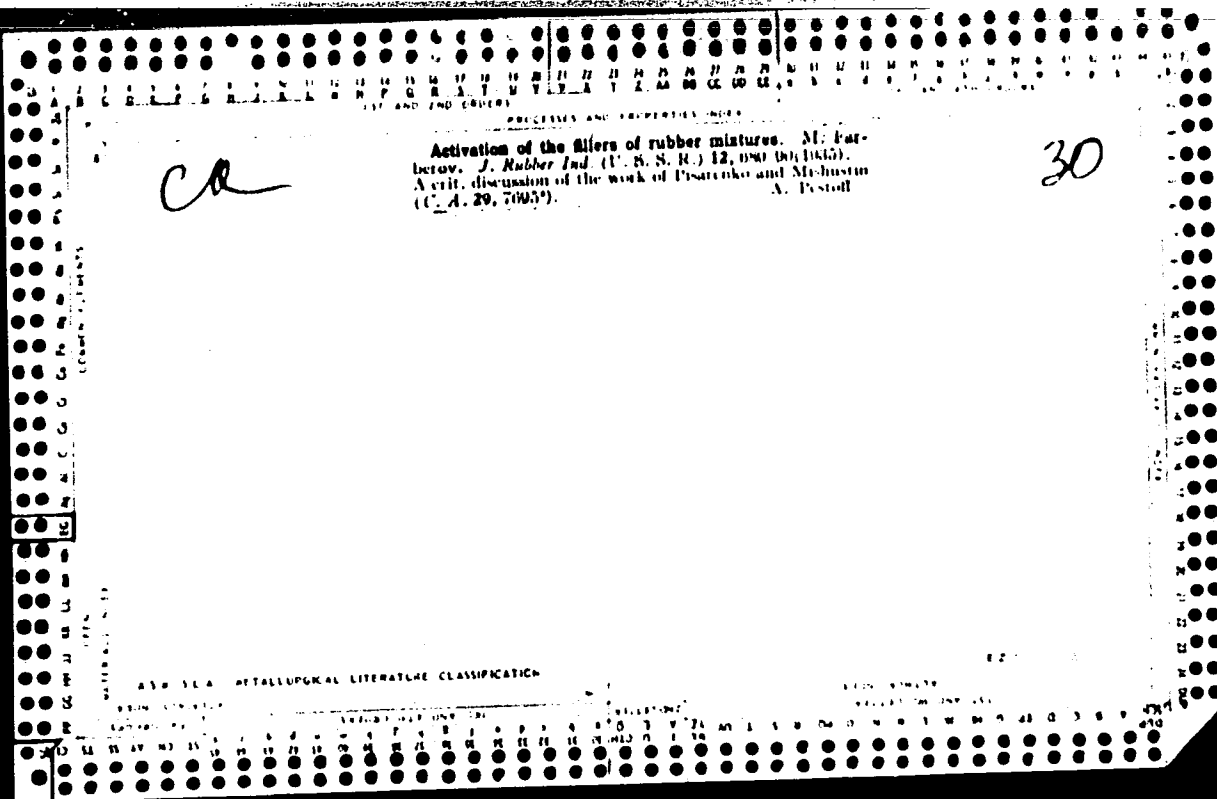
542083-111 ONE USE

00111101

0011111 Cat One Use

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z



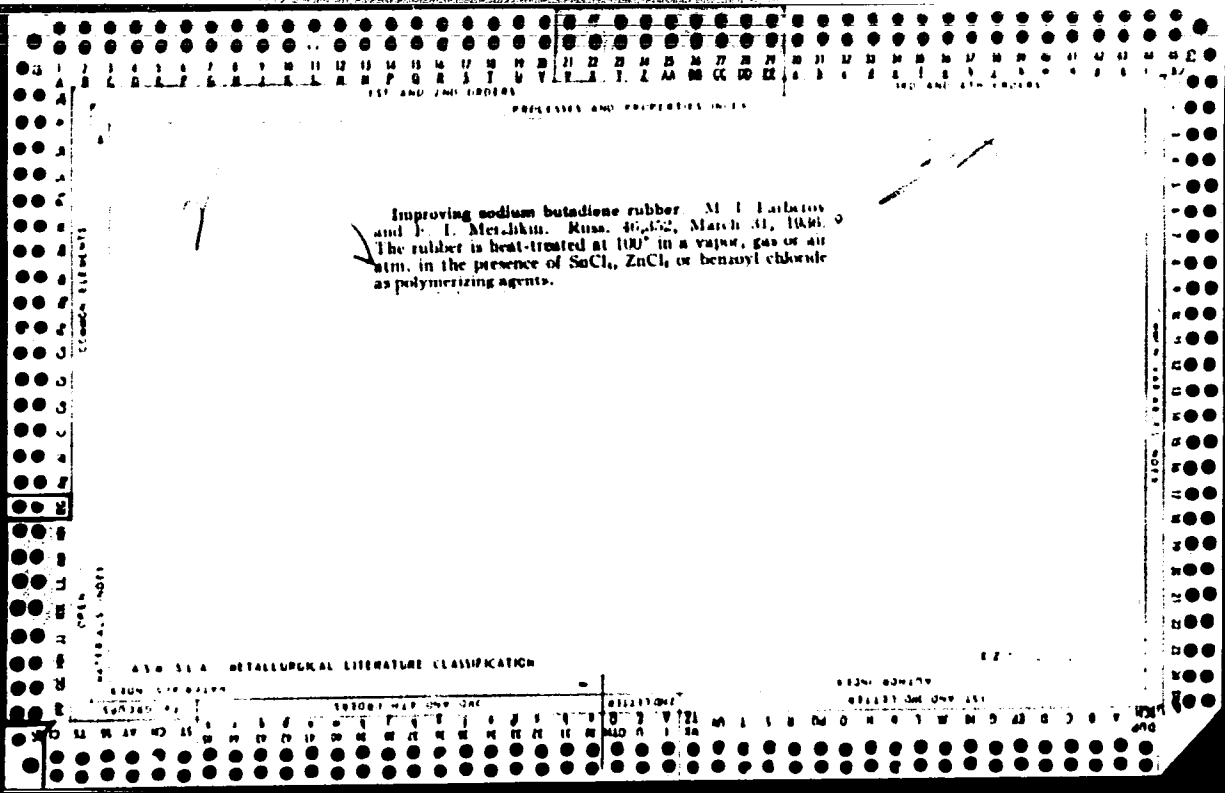


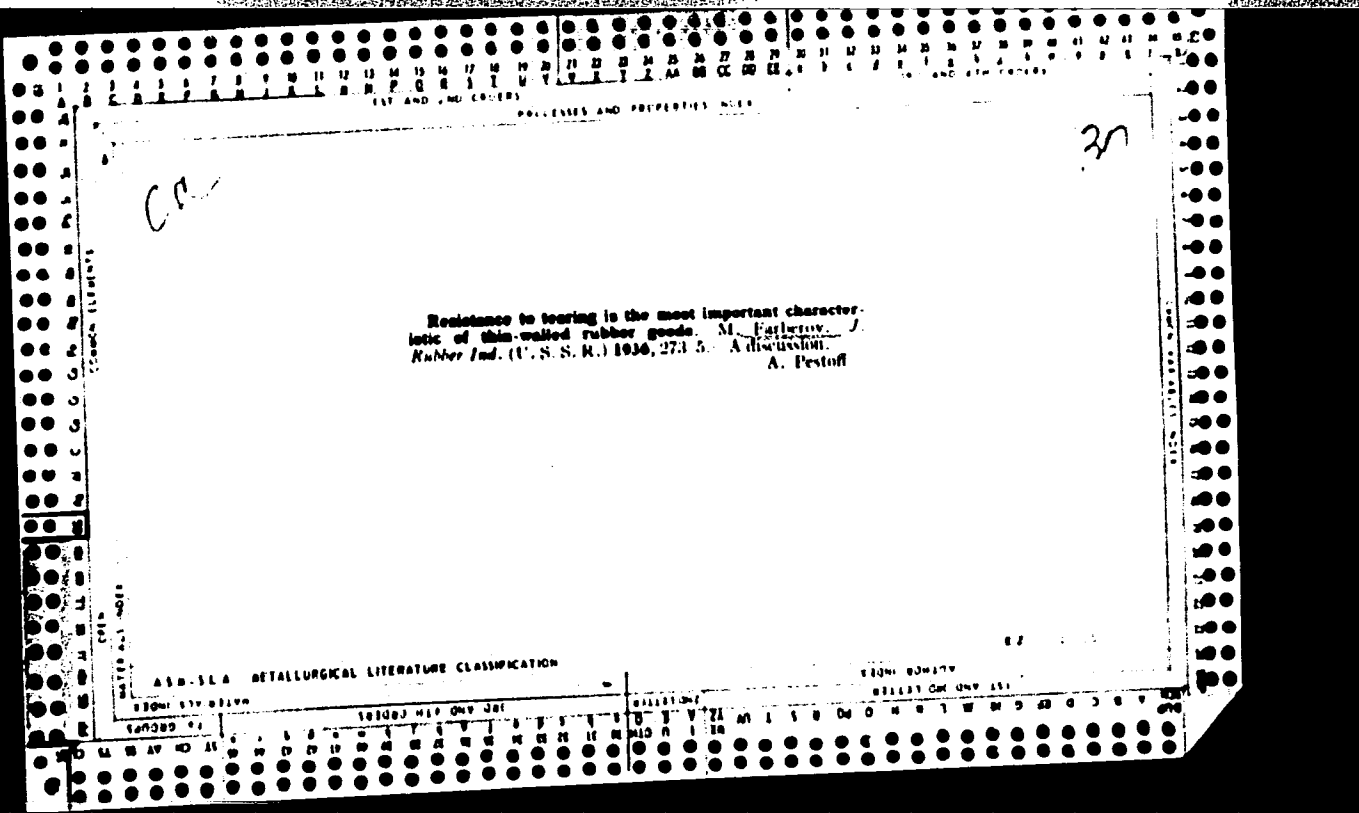
CA 30

PROCESSING AND PROPERTIES INDEX

Thermal plasticization of rubber. Technological characteristics of CR product of thermal plasticization. M. Yarkov and A. Sushakov. *J. Rubber Ind.* (U.S.S.R.) 12:914-92(1968); cf. C. A. 29, 7080; Gusev, Gurevich, Khovrins and Tschkov, C. A. 29, 6797. Rubber was plasticized in an autoclave at 150°, cooled to 50° and passed 3 times through a mill (65-70°). The plasticity increased directly with the time of thermal treatment. The energy used was 15-30% less than that with mech. treatment. With a high proportion of rubber and a high plasticity, the economy is greater with thermal plasticization. The mech. properties of vulcanizates prepd. from mech. and thermally plasticized rubber aged the same. The thermally treated vulcanizates adsorbed less water and showed less roller effect; at plasticities of 2.5-2.75, their solns. gave lower viscosities and a plasticity of 1.8; a higher viscosity than solns. of mechanically plasticized rubber. Thermally plasticized rubber was used to prep. sponges, rubberized fabrics and frictions. Thermally plasticized rubber required a higher concn. of alkali for its water dispersion. A. Pestoff

ASB-31A METALLURGICAL LITERATURE CLASSIFICATION





LIST AND INDEX CATEGORIES PROCESSES AND PROPERTIES INDEX

30

Rubber as an anticorrosive material. M. Farguey and A. Gurina. *J. Rubber Ind.* (U. S. S. R.) 1986, 28, 97. - Tests of various types of vulcanizates, including reclaimed rubber, synthetic rubbers, Thiokol, etc., in air, water, 18 and 35% aq. HCl, 5 to 6% H₂SO₄, 85% H₃PO₄, 4, 8 and 17% HNO₃, 10 and 70% AcOH, 15 and 50% NaOH, HF and NH₄OH, for 8, 10 and 35 weeks are described. The tests included tensile strength, elongation, hardness and swelling. Na butadiene rubber withstood the acids better than did natural rubber. Thiokol had no resistance to NaOH. Seven references. A. Frestoff

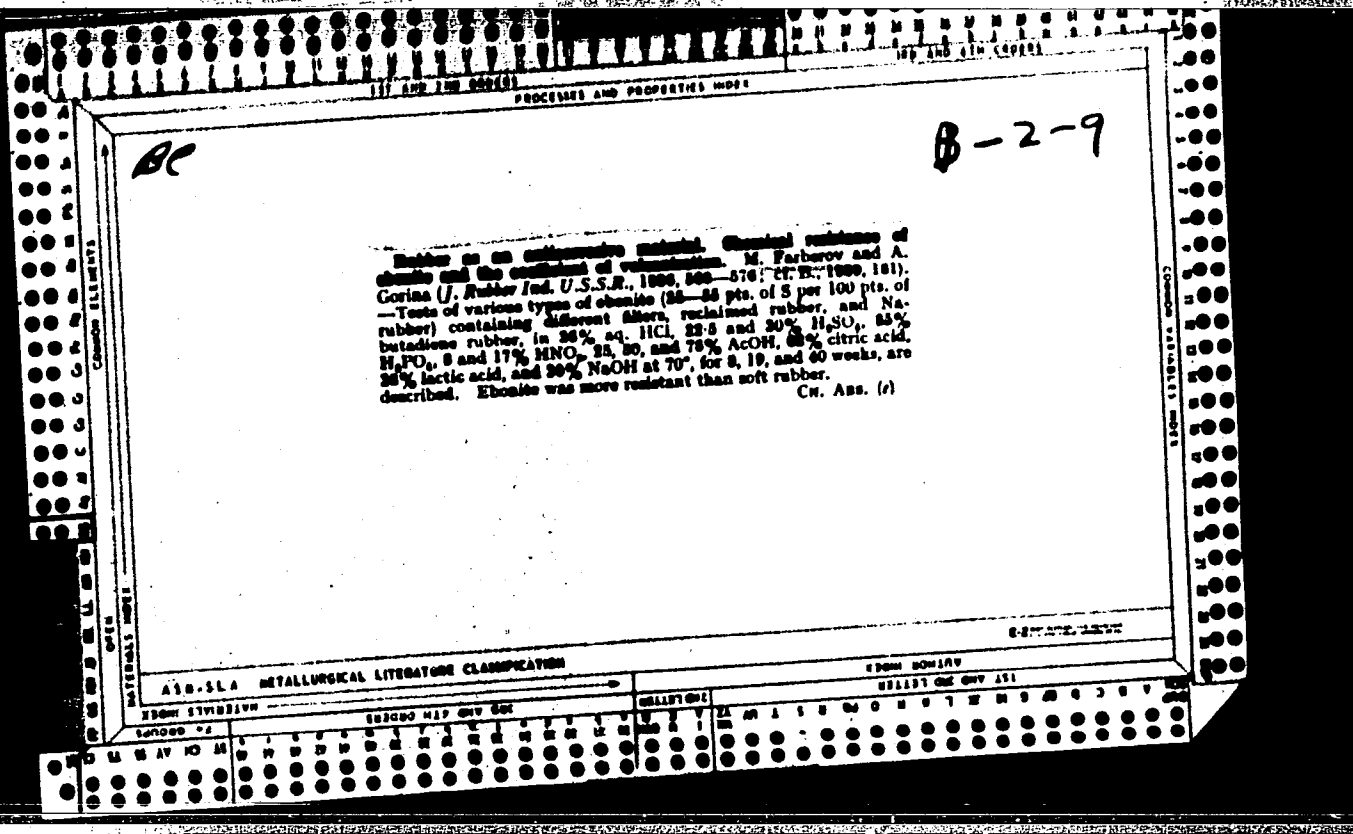
ASTM - SIA METALLURGICAL LITERATURE CLASSIFICATION

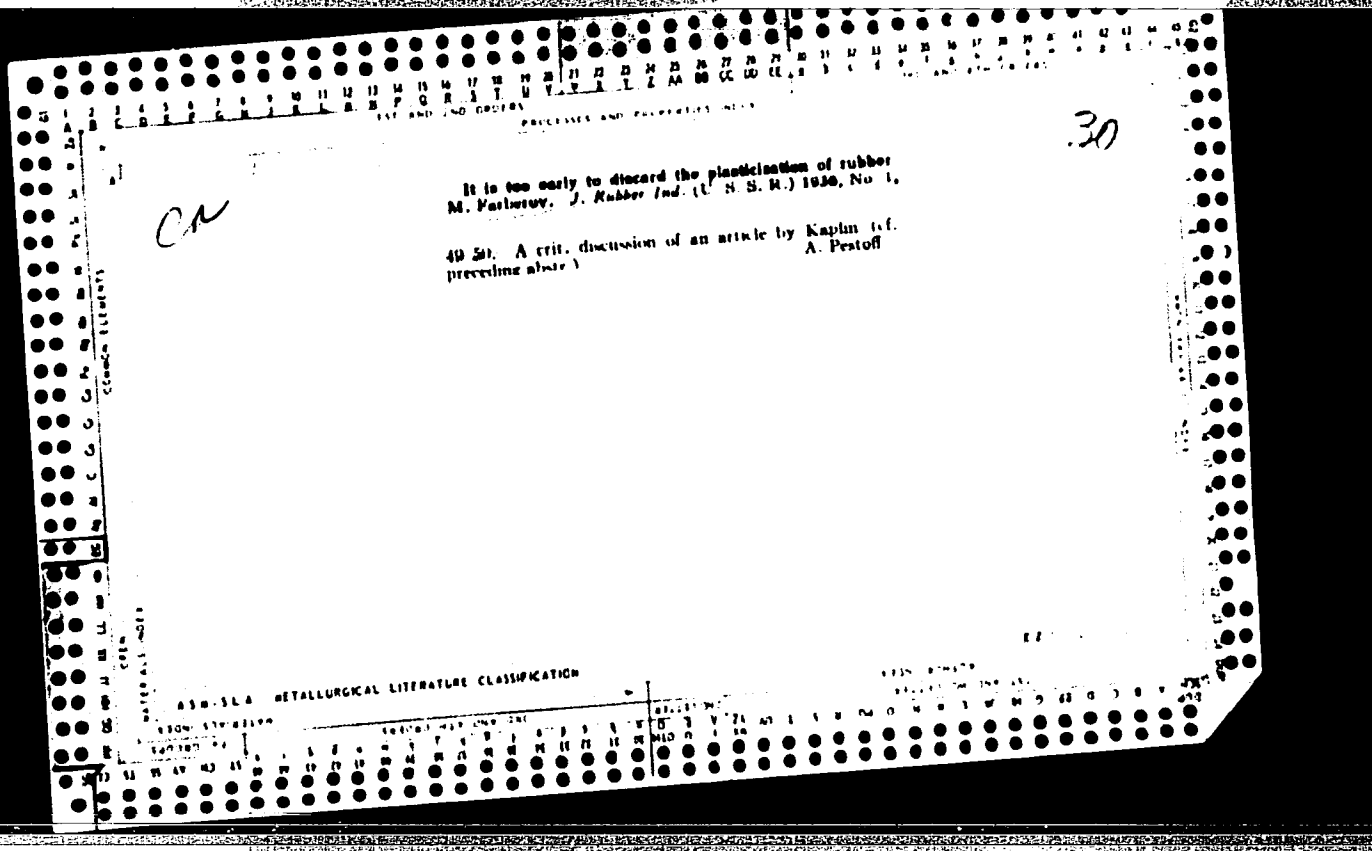
1986 03-179

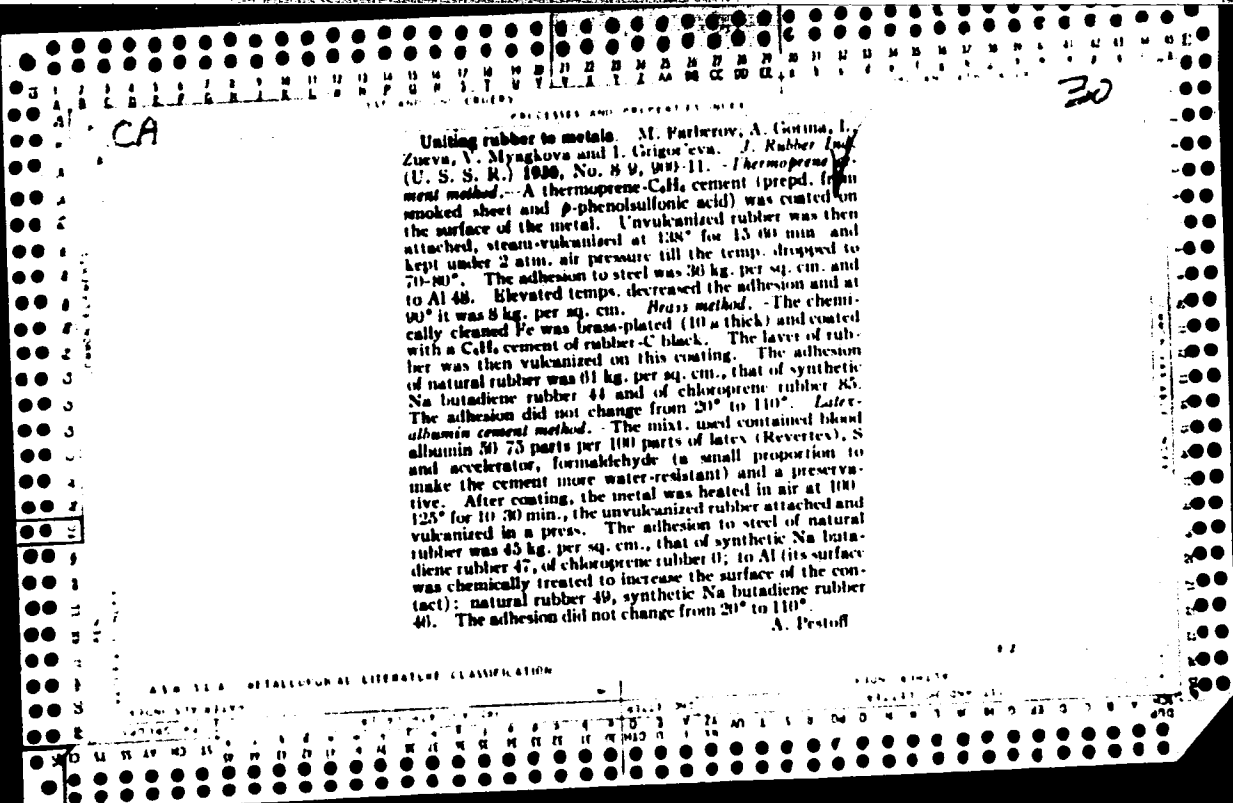
011111 001 151

101000 011 001 001

011111 001 151







191 AND 2ND COVER

PROCESSES AND PROPERTIES INDEX

30

CO

Open vulcanization in lining metallic and wooden apparatus and tanks with rubber. M. Farberov, A. Gorina and L. Antony. *Rubber and Rubber* (U. S. S. R.) 1937, No. 9, 48-51.—A description of the Vukalock process. A. Pestoff

COMMON SUBJECTS

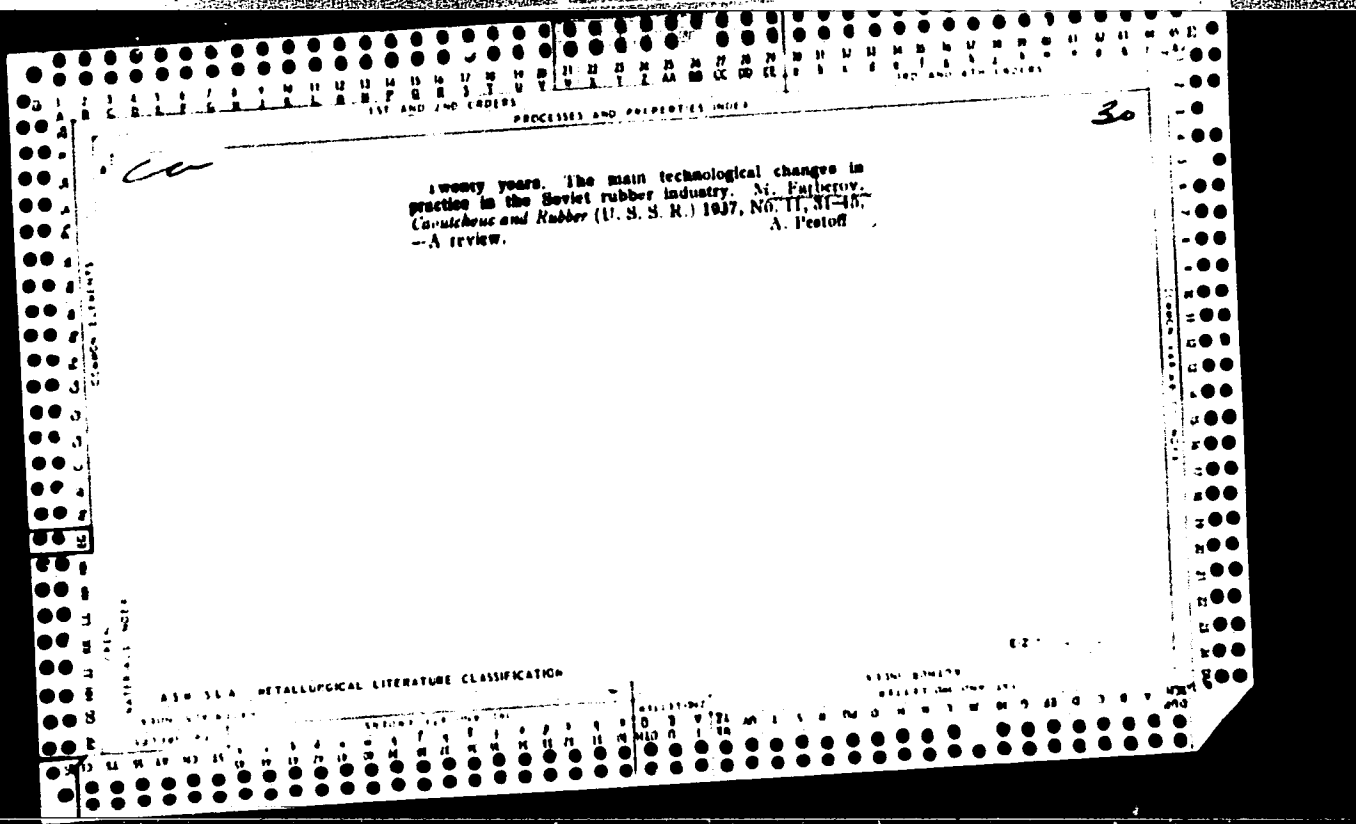
MATERIALS INDEX

OPEN

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

INDEX

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100



FARBEROV, M.I.

15

3

4586. Alkylphenol-aldehyde resins for improving
 the tackiness of synthetic rubbers. Influence of
 structural parameters of the resins upon the tacki-
 ness. A. G. BELORUSSOVA, M. I. FARBEROV and
V. O. EPSHTEIN. 'Prochnost' Soyuzdiz, 1954, p.
 131-42. (Vses. Khim. Obshch. in. D. I.
 Mendeleeva, Dec. 1934). Cf. Rubb. Abs., 1957,
 abs. 2571. 3821/21.542(15)6

Mall's

4E2c
2 MAY

Rm up

FARBEROV, M. I.

Meth
Chem

15
8245. Alkylphenol aldehyde resins for improving the tackiness of synthetic resins. Use of Yarrozin A and B to increase the tackiness of synthetic rubber mixes. V. O. Ershtkin, A. G. Bulokossova and M. I. Farberov. Prochnost Svyazi, 1954, p. 143-50. (Conference of Vses. Khim. Obshch. in D.I. Mendeleeva, Dec., 1954). After a short introduction, the text is as given in Khim. Prom., 1954, 329-33, above. SSR121338

3
4 = 20
2 may

PM
MT

USSR/Chemistry - Synthesis

Card 1/1 Pub. 22 - '33/56

Authors : Farberov, M. I.; Tepenitsyna, E. P.; and Shemyakina, N. K.

Title : Synthesis of hydroxytetrahydropyran and its conversion products

Periodical : Dok. AN SSSR 99/5, 793-796, Dec 11, 1954

Abstract : The derivation of 4-hydroxytetrahydropyran (yield 75%) from the reaction of allyl carbinol with formaldehyde in an aqueous medium in the presence of acid, is described. Oxidation of the reaction product with chromic anhydride resulted in the formation of a ketone - tetrahydro-gamma-pyrone- which was found to be identical to the ketone obtained during the hydrogenation of gamma-pyrone and hydration of divinylketone. Dehydration of the 4-hydroxytetrahydropyran with KHSO_4 produced 2,3-dihydro-alpha-pyran which in turn was hydrogenated into tetrahydropyran. Other cyclic alcohols - tetrahydropyran derivatives - obtained from the reaction of unsaturated alcohols with aldehydes, are listed. Six references: 3-USA; 2-USSR; 1-Scandinavian and 1-German (1918-1952).

Institution : The Technological Institute, Yaroslav

Presented by: Academician I. N. Nazarov, July 5, 1954

FARBEROV, M.I.; TEPENITSYNA, Ye.P.; SHEMYAKINA, N.K.

Synthesis of oxytetrahydropyran and of the products of its conversions.
Zhur.ob.khim.25 no.1:133-136 Ja '55. (MIRA 8:4)

1. Yaroslavskiy tekhnologicheskii institut i opytnyy zavod Ministerstva
khimicheskoy promyshlennosti.
(Pyran)

FARBEROV, M. I.

1000

✓ Reaction of ~~chloroacetylene~~ with formaldehyde. M. I. Farberov and B. F. Ostavchikov (Technol. Inst., Farberovskaya Zaur. Gosakad. Kher. Zs, 2571-51(1955). Gradual addn. of 450 ml. $\text{CH}_2=\text{CHCH}_2\text{Cl}$ to 300 g. paraformaldehyde, 150 ml. concd. H_2SO_4 , and 300 ml. $(\text{CH}_2\text{Cl})_2$ and stirring 3 hrs. at 40° gave after treatment with ice, extr. with $(\text{CH}_2\text{Cl})_2$, and washing th. ext. with Na_2CO_3 , 60.3% 4-chloro-1,3-dioxane, b. $38.5-9^\circ$, d_4^{20} 1.3103, n_D^{20} 1.4532. This (255 g.) refluxed with 175 ml. MeOH and 18.3 g. concd. H_2SO_4 with slow distn. of $\text{MeOH}-\text{MeCH}(\text{OMe})$ azeotrope, gave 49.5% 8-hydroxytetrahydrofuran, b. $60-60.5^\circ$, d_4^{20} 1.0916, n_D^{20} 1.4480, and 10.7 g. 4-chloro-1,3-dioxane, b. $118.6-14.5^\circ$, d_4^{20} 1.2260, n_D^{20} 1.4731. A similar reaction gave in 4 hrs. at 80° from 95 g. paraformaldehyde, 300 ml. $\text{CH}_2=\text{CHCH}_2\text{Cl}$, 100 ml. H_2SO_4 , and 600 ml. AcOH , 20.8% 4-chloro-1,3-dioxane (I), and 28.1% 4-chloro-1,3-dioxane, b. $107-8^\circ$, d_4^{20} 1.1843, n_D^{20} 1.4489, which on methanolysis gave the 2 products listed above. I with SOCl_2 in the presence of ZnCl_2 gave 46.4% 8-chloromethoxy-1,4-dichlorobutane, b. $63.5-7^\circ$, d_4^{20} 1.3261, n_D^{20} 1.4350. Passage of I with 3 parts H_2O at 375° over a catalyst for cleavage of dioxanes (cf. Arundale and Mikaska, C.A., 47, 3353) gave 18.5% $\text{CH}_2\text{Cl}-\text{CHO}$, b. $72-2.8^\circ$, d_4^{20} 1.0684, n_D^{20} 1.4341 (8,4-dinitrophenylhydrazones, m. 84°), and 20.7% vinylacetaldehyde, crude b. $90-100^\circ$ (9,4-dinitrophenylhydrazones, m. 164°). The reaction of 300 ml. $\text{CH}_2=\text{CHCH}_2\text{Cl}$, 450 g. ZnCl_2 , 200 ml. concd. HCl , and 150 g. paraformaldehyde (added gradually) gave in 3 hrs. at 25° with

CH

2

3

18

Reaction of chloropropenes...

const. passage of dry HCl, 2% 3,2-dichloro-1-butanol (II),
 b_p 90-2°, d₄ 1.2353, n_D 1.4825 (3,5-dinitrobenzoate, with
 1-C₆H₄NH₂, m. 102°) and 58.4% of 60:40 mixt. of (Cl-
 CH₂CHClCH₂CH₂O)₂CH₂, b_p 154-7°, d₄ 1.2948, n_D
 1.4833, and (ClCH₂CHClCH₂CH₂)₂O, b_p 151-2°, d₄
 1.2829, n_D 1.4904; methanolysis of this mixt. gave 3,4-
 dichlorobutanol and the above ether. Heating II with
 KHSO₄ gave 62.5% 3-chlorotetrahydrofuran, b_p 129.1-9.2°,
 d₄ 1.1632, n_D 1.4530, also formed from 3-hydroxytetra-
 hydrofuran and SOCl₂. Treatment of II with SOCl₂
 (excess) gave 1,2-trichlorobutane, b_p 61-2.5°, d₄ 1.2175,
 n_D 1.4820. Heating 13.5 g. this trichloride with 11 g.
 powd. NaOH to 190° gave a distillate contg. 1.5 g. CH₂-
 CCICH:CH₂ and 8.1 g. 1,2-dichloro-3-butene. Reaction
 of 100 g. paraformaldehyde, 280 ml. 1-chloropropene, 100
 ml. concd. H₂SO₄, and 500 ml. AcOH gave in 3 hrs. at 90°
 25% 4-methyl-5-chloro-1,3-dioxane, b_p 79-80°, d₄ 1.1934,
 n_D 1.4611, 8.5% 3-chloro-1,3-butanediol diacetate, b_p 82-4°,
 d₄ 1.1724, n_D 1.4435, and 12.1 g. 1-chloro-2-propanol ace-
 tate, b_p 42-4°, d₄ 1.1480, n_D 1.4375. Methanolysis of
 the 2nd product gave a poor yield of 3-chloro-1,3-butanediol,
 b_p 100-2°, d₄ 1.2406, n_D 1.4700. Reaction of 115 g. para-
 formaldehyde, 250 ml. 1-chloropropene, 400 g. ZnCl₂, and
 450 g. 100% H₃PO₄ gave in 4 hrs. at 40° with const. pas-
 sage of dry HCl, 33.4 g. mixed 1,1-dichloro-1-butanol and
 4-methyl-5-chloro-1,3-dioxane, b_p 70-6°, and 41.5% (Me-
 CH₂CHClCH₂O)₂CH₂, b_p 145-7°, d₄ 1.2703, n_D 1.4790,
 which on methanolysis gave 67.6% 3,2-dichloro-1-butanol,
 b_p 75-6°, d₄ 1.2697, n_D 1.4731 (3,5-dinitrobenzoate with
 1-C₆H₄NH₂, m. 83-102°). Addn. of 100 ml. 2-chloro-

2/3

Reaction of chloropropenes...

propene to 50 g. paraformaldehyde in 30 ml. concd. H₂SO₄ in 1.5 hrs. at 19° gave tar and 10.2% MeCHClCH₂CHO. bp 60-7°, d₄ 1.0823, n_D 1.4351 (2,6-dinitrophenylhydrazone, m. 77-8°). Reaction of 150 g. paraformaldehyde, 300 ml. 2-chloropropene and 1 l. concd. HCl gave after 3 hrs. at 45° 83% (MeCCl₂CH₂CH₂OH)CH₂CHO, b. 123-5°, d₄ 1.2575, n_D 1.4760, 12.7% MeCHClCH₂CHO, and 2% MeCCl₂CH₂CH₂OH, b. 73-5°, d₄ 1.2209, n_D 1.4650 (3,5-dinitrobenzoate with 1-C₆H₅NH₂, m. 105-6°); methanolysis of the formal gave the latter alc. in 68% yield. Heating 25 g. MeCCl₂CH₂CH₂OH with pptd. chalk in aq. suspension 4 hrs. at 130° gave 27.4% 3-chlorocrotyl alc., b. 64-6°, d₄ 1.1135, n_D 1.4620. Reaction of 57.6 g. paraformaldehyde, 400 ml. concd. HCl, and 310 ml. propylene in 50 min. at room temp. gave 18.5% 4-methyl-1,3-dioxane, b. 115.5°, d₄ 0.973, n_D 1.4169, 4.3% 3-chloro-1-butanol, b. 59°, d₄ 1.00416, n_D 1.4428, and 53.3% (MeCHClCH₂CH₂OH)CH₂CHO, b. 151.6°, d₄ 1.08076, n_D 1.4499. Reaction of 1 g. paraformaldehyde with 3 ml. CH₂=CHCH₂Cl or 1-chloropropene, and 4 ml. concd. HCl was run in an ampul at 80° or 90°; similar reactions with p-xylylene and 2-chloropropene were run at 25° in autoclave. After varying time intervals the mixts. were analyzed for CH₂O content. These expts. indicate the following order of reactivity with formaldehyde and HCl: propylene > 2-chloropropene > allyl chloride > 1-chloropropene = 100:143:2:1.3. The above reactions are readily explainable on the basis of carbonium ion mechanism of acid-catalyzed addn.

G. M. K.

3/3

X22

FARBEROV, M.I.

USSR/Chemical Technology - Chemical Products and Their
Application. Industrial Organic Synthesis

I-14

Abs Jour : Referat Zhur - Khimiya, No 4, 1957, 13067

Author : Farberov M.I., Speranskaya V.A.

Title : Concentration of Dilute Solutions of Formaldehyde under
Pressure

Orig Pub : Zh. prokl. khimii, 1955, 28, No 2, 222-226

Abstract : Study of concentration of dilute solutions of formaldehyde (I). Determined was the dependence of composition of vapor and liquid, of the system I - water, at different pressures. With increasing pressure, the curves showing the composition of liquid and vapor are greatly deflected from the diagonal, i.e., the concentration occurs more readily. This deviation is especially pronounced on change in pressure from 2 to 4 atmospheres absolute. With increase in pressure, the content of I in the azeotropic mixture increases. Optimal pressure for concentration

Card 1/2

- 270 -

USSR/Chemical Technology - Chemical Products and Their
Application. Industrial Organic Synthesis

I-14

Abs Jour : Referat Zhur - Khimiya, No 4, 1957, 13067

of I is 3-4 atmospheres absolute. Presented is a graph which shows the correlation between the content of I in the azeotropic mixture and the pressure. Determined was the extent of decomposition of I, depending on the duration of heating of a 22% solution of I with shavings of Cu, Al, EYa-1T steel and steel-3 at 140°. Steel-3 accelerates substantially the decomposition of I according to the equation: $2\text{CH}_2\text{O} + \text{H}_2\text{O} \rightarrow \text{HCOOH} + \text{CH}_3\text{OH}$. Losses of I in the presence of Cu, Al and EYa-1T steel differ but slightly from losses on operation in glass vessels. The action of HCOOH cause strong corrosion of steel-3 and EYa-1t; Cu and Al are sufficient resistant to corrosion caused by dilute solutions of HCOCH.

Card 2/2

- 271 -

FARBEROV, M. I.

USSR/Organic Chemistry - Synthetic Organic Chemistry, E-2

Abst Journal: Referat Zhur - Khimiya, No 19, 1956, 61533

Author: Farberov, M. I., Tepenitsyna, Ye. P., Shchemyakina, N. K.

Institution: None

Title: Synthesis of Hydroxytetrahydropyran and the Products of Its Conversion

Original

Periodical: Zh. obshch. khimii, 1955, No 125, 133-136; Dokl AN SSSR, 1954, 99, No 5, 793-796

Abstract: Description of a new synthesis of some derivatives of tetrahydropyran. Reaction of allyl carbinol (I) with CH_2O gives 4-hydroxy-tetrahydropyran (II) which is oxidized to tetrahydro- γ -pyrone (III). By Beckmann's rearrangement of the oxime of III (IV) was prepared the lactam of β -ethoxypropionic acid (V). Attempts to polymerize V were unsuccessful. By dehydration of II with KHSO_4 was prepared 2,3-dihydro- α -pyran (VI) which was hydrogenated to tetrahydropyran (VII). It is assumed that the primary product of reaction in the

Card 1/3

USSR/Organic Chemistry - Synthetic Organic Chemistry, E-2

Abst Journal: Referat Zhur - Khimiya, No 19, 1956, 61533

Abstract: synthesis of II is pentatriol-1,3,5, which in the presence of acids undergoes ring-closure to II. Mixture of 72 g I, 73 ml 40% solution CH_2O and 2.2 ml H_2SO_4 (d 1.82) heated 3 hours, neutralized solution distilled to get II, yield 74.8%, BP $190^\circ/760$ mm, n_D^{20} 1.4612, d_4^{20} 1.0708; dibenzoate MP $155.5-160^\circ$ (from alcohol). Oxidation of 177 g II with solution of 360 g $\text{K}_2\text{Cr}_2\text{O}_7$ in 200 ml H_2SO_4 (d 1.81) and 1,500 ml water (6 hours, temperature $<30^\circ$) and III is extracted with dichlorethane; yield 26.8%, BP $67-68^\circ/18$ mm, n_D^{20} 1.4510, d_4^{20} 1.0844; 2,4-dinitrophenylhydrazone, MP $186.5-187^\circ$ (from alcohol). 40 g III and 35 g $\text{NH}_2\text{OH}\cdot\text{HCl}$ in mixture of 60 ml alcohol and 320 ml water heated to 75° stirred 24 hours and from neutralized solution IV extracted with ether; yield 100%, BP $99-100^\circ/6$ mm, MP 5° . Heated mixture 70 g II with 70 g KHSO_4 , driving off azeotropic mixture of VI and water boiling at $78-80^\circ$ and separate VI, yield 57.2% BP $93^\circ/760$ mm, n_D^{20} 1.4480, d_4^{20} 0.9394. By hydrogenation of 20.2 g VI over 2 g 5% Pd/C prepared VII, yield 100%, BP $87.5^\circ/764$ mm, n_D^{20} 1.4205, d_4^{20} 0.8853. Into solution of 11.5 g IV in 100 ml 5N solution NaOH added at 100° 19 g p-toluene-sulfochloride and extract with CHCl_3

Card 2/3

USSR/Organic Chemistry - Synthetic Organic Chemistry, E-2

Abst Journal: Referat Zhur - Khimiya, No 19, 1956, 61533

Abstract: the V, yield 20%, BP 165°/15 mm. V also prepared by interaction of 25 g IV in 50 ml $C_2H_4Cl_2$ with 18 ml 25% oleum, yield 30%.

Card 3/3

¹⁵ ~~The use of Yarrezin A and Yarrezin B resins to increase the adhesiveness of synthetic rubber mixes. V. G. Bush-
¹⁵ ~~tein, A. G. Belorossaya, and M. I. Farberov (Soviet
 Inst. Tech. and Fire Plant, Yaroslavl) Kolloid. Zh. 1956, 329-33. The synthetic rubber mixes to which the
 alkylphenol-aldehyde resins, Yarrezin A and Yarrezin B
 were added were sufficiently adhesive, and could be used
 in automobile tire manuf. without the use of other plas-
 ticizers. Unlike other plasticizers, their addn. does not in-
 crease the tackiness of the finished products, nor reduce their
 mech. strength, while improving bonding between the phos-
 phor. - Yarrezin A was found preferable in butadiene-styrene rub-
 ber, Yarrezin B with sodium-butadiene rubber, and they
 were used in a concn. of 3-5 parts/100 parts by wt. of the
 rubber.~~~~

7
 1 pm
 2 may

W. M. Sternberg

EM me

FINDING

1991. Alkyl phenol aldehyde resins of various structures as tackifiers for synthetic rubbers: A. G. *10/20*
Brazhnikova, M. I. Farnsuy and V. G. Esaurin. *11/19*
Uch. Zap. Yaroslav. Tekhn. Inst., 1956, 1, 85.
Kauch. i Rezina, 1957, No. 1, 47. *285241616*

CM
NET

FARBEROV, M. I.

15
 ✓ Alkyphenol-aldehyde resins as enhancers of the ad-
 hesiveness of synthetic rubbers G. A. G. Belorussiya, M. I. Farberov,
 and C. G. Bessyria (Chemol. Inst. Vuzkhim, Kishinev, ZSSR, 19, 145, 54, 1958) 100 parts of butadiene
 mixed with 100 parts of Na butadiene rubber. The tack of the mat was
 increased quantitatively by the addition of 100 parts of resin. The
 tack of the mat was increased quantitatively by the addition of 100
 parts of resin. The tack of the mat was increased quantitatively by the
 addition of 100 parts of resin. Among the resins made by condensation of a
 phenol with AcH, those derived from Me₂COH, Me₂COH, Me₂COH, Me₂COH,
 OH imparted the greatest tack; they were followed by Me₂C-
 CH₂OH resins > EtMeCH₂OH > BuC₄H₉OH > Me-
 CH₂CH₂OH, m-cresol, or PhOH. HCHO and MeCH₂CH-
 CHO could be substituted for AcH. Acetylation of the
 OH group eliminated the tack-enhancing action of the resin.
 The mol. ratio of aldehyde to phenol must be near 1 for the
 best tack. The method of condensation (acid, alk., or in
 NH₃) was irrelevant for I, but the tack of butadiene
 styrene rubber was best improved by acid-condensed resins.
 The most efficient resins had mol. wts. between 500 and 700.
 The resin mols. bridge the gap between the 2 rubber sur-
 faces.

1820
 2700

PM
 MIT

USSR/Organic Chemistry. *FARBEROV, M.I.* Synthetic Organic Chemistry. E-2

Abs Jour : Ref Zhur - Khimiya, No. 8, 1957, 26690.

Author : Farberov, M.I.; Shemyakina, N.K.

Inst :
Title : Hydrolysis of Alkyldioxanes.

Orig Pub : Zh. obshch. khimii, 1956, 26, No. 10, 2749 - 2754.

Abstract : The hydrolysis of the following was studied: of 4-methyldioxane-1,3 (I), 4,5-dimethyldioxane-1,3 (II), 4,4-dimethyldioxane-1,3 (III) and 2,4,4,6-tetramethyldioxane-1,3 (IV), all in presence of 1 to 5% of 92%-ual H₂SO₄ and 3 to 5 mols of CH₃OH (for binding the separating CH₂O as methylal (V)). Butanediol-1,3 (VI) was received from I, and 2-methylbutanediol-1,3 was received from (VII). III was hydrolyzing with the formation of ...

Card 1/3

Information regarding the above mentioned article is being furnished to the appropriate agencies for their information.

USSR/Organic Chemistry. Synthetic Organic Chemistry. E-2

Abs Jour : Ref Zhur - Khimiya, No. 8, 1957, 26690.

3-methylbutanediol-1,3 (VIII), 3-methyl-3-methoxybutanol-1 (IX), isoprene and 3-methylbutene-2-ol-1. IV yielded a mixture of 2-methylpentadiol-2,4 (X), 4-methyl-4-metoksy-pentanol-2 (XI), 2-methylpentadiene-1,3 and 4-methyl-pentene-3-ol-2. V or acetal (at the reaction with IV) is slowly distilled off from the mixture of alkyldioxanes, CH_3OH and H_2SO_4 , the residue is neutralized and distilled. The products of the reaction, the yield in %, the

boiling point in $^{\circ}\text{C}/\text{mm}$, n_D^{20} , d_4^{20} are enumerated:

VI - 82, 92/3, 1.4420, 10027; VII - 80, 92/6, 1.4478, 0.9919; VIII - 38.7, 95/7, 1.4420, 0.9763; IX - 27.7, 63/7, 1.4272, 0.9220; X - 18.2, 101/9, 1.4280, 0.9311;

Card 2/3

MARK HL RDL, M. I.

7 7 5

Dual reactivity in the reaction of olefins with aldehydes
M. I. Eshcherov (Technol. Inst. Vsesoyuz. Nauch. Tsentr. Akad. Nauk S.S.S.R. 116, 1045-8(1958). Heating appropriate olefins with CH_3O or AcH in aq. soln. in an autoclave with 1-5% H_2SO_4 at 85-115° at 40-50 atm. pressure for C_3H_6 8-14 atm. for butylenes resulted in isolation of the following products, indicative of reactions typical of 1,2- or 1,4-additions of the aldehyde to the alkene. C_3H_6 and CH_3O gave 3-5% 1,3-butanediol and 80-95% 4-methyl-1,3-dioxane, with 0.4-0.6% allylcarbinol and 7-8% 4-hydroxytetrahydropyran; 2-butene and CH_3O gave 90-92% 4,5-dimethyl-1,3-dioxane and 7-9% 3-methyl-4-hydroxypyran; isobutylene and AcH gave 88-92% 2,4,4,6-tetramethyl-1,3-dioxane and 3-5% 2,4,6-trimethyl-4-hydroxytetrahydropyran; isobutylene and CH_3O gave 7-10% 2-methyl-1,3-butanediol, 73-80% 4,4-dimethyldioxane, 7-8% 5-methyl-6,6-dimethyl-1,3-dioxane, bp 115-10°, d_4^{20} 1.0905, n_D^{20} 1.4644, and some $\text{HOCH}_2\text{CH}(\text{CH}_3)_2$, b. 150°, n_D^{20} 1.4627, 1.4755.

Chlor 1

RM AT

FARBEROV, M.I.

~~Methyleneplactone, M. I. Farberov and S. I. Kevakov. U.S.P. 1,906,647, Aug. 20, 1937. Propylene's converted into 2-methyl-1-pentene by selective dimerization and then into the diene by dehydrogenation.~~
M. Hesch

4
1-4E4
1-4E302
1-4E90 (10)
2-MSY

Summary of M.I.

⁷
~~Propylene tetramer. M. I. Kuznetsov, S. I. Kuznetsov, P. I. Pospelov, and A. M. Kulis. USSR 167121 Aug. 23, 1976. First the dimer is obtained by selective isomerization of the monomer in the presence of an alkyl metal. The dimer is then polymerized in the presence of a metal halide as catalyst.~~

80623

SOV/81-59-5-16377

53200

Translation from: Referativnyy zhurnal, Khimiya, 1959, Nr 5, p 376 (USSR)

AUTHORS: Bondarenko, A.V., Bogdanov, M.N., Farberov, M.I.

TITLE: The Industrial Synthesis of Vinyl Toluene [†]

PERIODICAL: Uch. zap. Yaroslavsk. tekhnol. in-ta, 1957, Vol 2, pp 33 - 46

ABSTRACT: The process of catalytic dehydrogenation of ethyl toluene (I) to vinyl toluene (II) was investigated at 540 to 600°C with a volumetric rate of 200 - 800 ml per 1 liter of the catalyst per hour and with dilution by H₂O vapors in the molar ratio of 1:8 - 1:16. With an increase in the temperature to > 580°C and a drop in the volumetric rate to < 400, the yield of II is reduced considerably. The optimum conditions of the dehydrogenation process are: temperature 560 - 580°C, volumetric rate 400 - 800 ml per 1 liter of catalyst per hour, dilution with H₂O vapors 1:12 - 1:16. The standard catalyst for dehydrogenation K₂Cr₂O₇ was used as catalyst. A thermodynamic calculation of the dehydrogenation reaction was made. The equilibrium constants and the equilibrium composition were computed at 427 - 727°C, and also

Card 1/2

The Industrial Synthesis of Vinyl Toluene

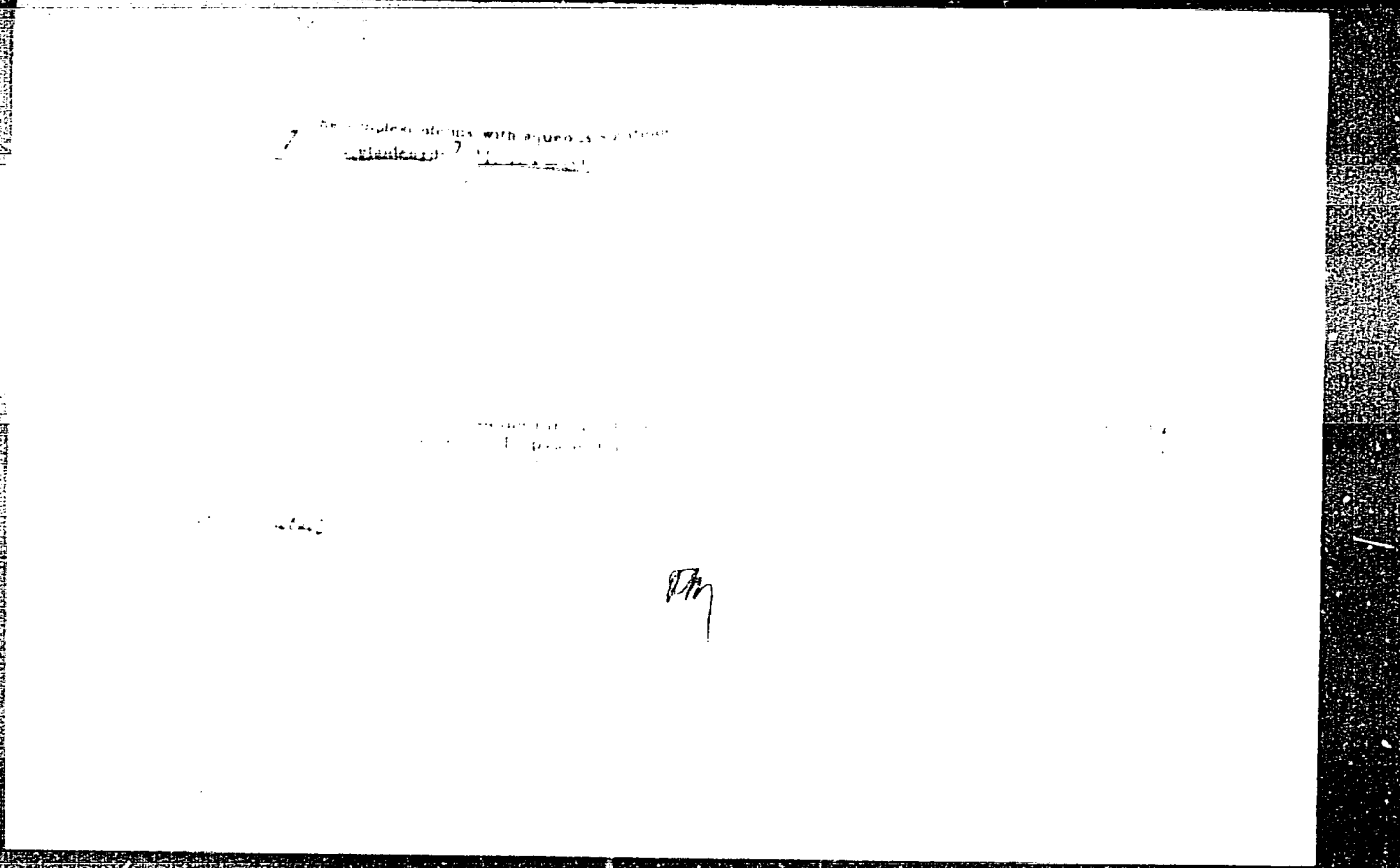
30627

SOV/81-59-5-16377

the apparent energy of activation of the dehydrogenation reaction, being 32,700 cal on the average. It is shown that, in addition to I and II, toluene, xylene, ethyl benzene and styrene are part of the catalysate composition. A circuit diagram of the contact installation is submitted. H

L. Volkova

Card 2/2



PARBEROV, M. I.

75-11-10/5

AUTHORS: Parberov, M. I., Maletina, K. A.

TITLE: Synthesis of Methylpentadiene by Means of Isobutylene and Acetic Aldehyde (Sintez metilpentadiyena na osnove izobutilena i atsetal' degida)

PERIODICAL: Zhurnal Obshchey Khimii, 1957, Vol. 27, Nr 11, pp.3001-3005 (USSR)

ABSTRACT: Methylpentadiene is commercially little accessible. The method where methylpentadiene is obtained from acetone over a number of stages of development seems to be the only method of a certain industrial importance. But industry has a certain interest in this product, as its polymers and copolymers are characterized by a number of valuable properties. In the present paper it is shown that methylpentadiene with a 75 % yield, calculated on the basis of decomposed tetramethyldioxane, is obtained on passage of alkyl-dioxane together with water-vapors at 300 - 325°C over a phosphate-catalyst. It is possible that two isomeric dienes, 2-methylpentadiene-1,3 and 4-methylpentadiene-1,3 whose properties are little different, form in the contact-decomposition. The quantitative determination of the mixture of isomers is based on the different behavior toward the maleic acid anhydride, where the presence of an inhibitor causes a complete separation of the isomers (45 - 55%).

Card 1/2

75-11-19/56

Synthesis of Methylpentadiene by Means of Isobutylene and Acetic Aldehyde

Thus a mixture of isomers of methylpentadiene with a 75 % yield was obtained in the contact-decomposition of 2,4,4,6-tetramethyldioxane. Beside the dienes some isomers of the methylpentenols were produced. A reaction mechanism is suggested. There are 3 figures, 1 table, and 10 references, 5 of which are Slavic.

ASSOCIATION: Yaroslavl' Technological Institute
(Yaroslavskiy tekhnologicheskiiy institut)

SUBMITTED: November 15, 1956

AVAILABLE: Library of Congress

1. Methylpentadiene-Synthesis
2. Diene synthesis
3. Isobutylene-Chemical reactions
4. Acetic aldehyde-Chemical reactions
5. Tetramethyldioxane-Decomposition

Card 2/2

FARBEROV, M. I.

~~Alkylation of toluene with ethylene. A. V. Bondarenko, M. L. Bogdanov, and M. I. Farberov (Technol. Inst. Yuzhnyy Zhur. Priklad. Khim. 33, 781-6 (1957).~~
 Alkylation of PhMe with C_2H_4 was studied under the following optimum conditions detd. by a series of preliminary expts. in a stirrer rate of 1200 r.p.m. at 85° with 5-6% of anhyd. Al_2Cl_3 and an 10-15% excess of C_2H_4 . The products were sepd. by fractionation (33 theoretical plates) in 3 fractions: PhMe, b. $102-115^\circ$, ethyltoluene, b. $150-65^\circ$, and polyethyl toluene above 165° . The rate of C_2H_4 absorption V_{ar} , moles C_2H_4 /moles PhMe, increased hyperbolically with the molar ratio $x = Al_2Cl_3/PhMe$ so that V_{ar} was directly proportional to \sqrt{x} , up to $x = 0.3$. The best value of x was 0.5-0.6. The temp. coeff. in the $75-85^\circ$ range was 1.45. The 3rd fraction contained about 70% *er*- and 30% *p*-isomers.
 I. Bencowitz

6
457

131

FABHEROV, M. I.

Dehydrogenation of ethyltoluene to vinyltoluene. A. V. Soudarenko, M. I. Bogdanov, and M. I. Fabherov (Technol. Inst. Yaroslavl). *Zhur. Priklad. Khim.* 30, 927-32 (1957); cf. *C.A.* 51, 17782b.---When $\text{MeC}_6\text{H}_4\text{Et}$ (I) dild. with steam was passed over ZnO at $340\text{-}600^\circ$, the yield of vinyltoluene (II) decreased with the temp. and increased with the rate of passage of I and the dildn. The optimum conditions were a rate of $400\text{-}800$ ml. I/l. catalyst/hr. at $560\text{-}80^\circ$ with a $1/11\text{-}1/18$ dildn. giving a yield of II up to 89.6% based on reacted I (35.3% based on I passed over the catalyst). Under the optimum exptl. conditions mixts. of I with 40.5% II were stable without the catalyst; only 2% decompd. In the presence of ZnO , 8.4% decompd. and with richer mixts., contg. 78% II, 25% decompd. The apparent energy of activation, calcd. by Arrhenius' equation, is 32,700 cal./mol.

I. Reingold

6
 1-4Bnd
 1-4B4j
 1-4E2c
 2-MAY
 112

3(1) PAPER I P-A-K DEPUTATION 304/2827

Technological, Technological Institute
 Klyuzev, V.I., Scientific Notes, Vol. 3
 Thomsen, H., and J. Thomsen, *Journal of Polymer Science*, 1957, 2, 1-10
 Mitroshin, A.I., Candidate of Chemical Sciences; Doctor
 M.M. Muzayev, Candidate of Chemical Sciences; Doctor
 Doctor of Technical Sciences; Professor N.I. Puzanov,
 Resp. Sci.; Professor Yu.S. Masburov, Doctor of Chemical Sciences
 Secretary-Scientist: B.F. Detshevskiy, 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.
 CONTENTS: 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 methods related to these processes, and with
 industrial chemical equipment. No precedents are mentioned. References
 are given after each article.

TABLE OF CONTENTS:

CHEMISTRY

Parfomov, M.I., and E.A. Makulina... Interaction of Emulsions with Acrylonitrile and the Synthesis of Methyl Methacrylate on This Basis	5
Belokobyl, A.G., and M.I. Puzanov... Synthesis of Alkyl Phenols	19
Belokobyl, A.G., M.I. Puzanov and M.I. Puzanov... Industrial Synthesis of Vinyl Toluene	33
Belokobyl, B.F., B.I. Kravchik, V.Ib. Fel'dman and V.D. Shchukin... New Transformation of a "Froplene" Dimer" (2-methyl-1-pentene). Report 1 and 2 as Independent Method of Research	47
Ernststein, I.L. Stereification Capacity as a Means of Thermal Analysis	55
Vishniakov, B.M. Analytical Use of the Organic Reagent 2-aminonaphthalene-1-sulfonamide-3-sulfonic Acid	65
Semits, B.F., Bagrov, V.P., and B.A. Orlov... The Oxidation Coupling of Magnesium	75
Shchegolev, Yu.S., and I.A. Vasiluk... The Energy of Final Decomposition Products of Nitrogen-containing Substances	81
CHEMICAL TECHNOLOGY, PROCESSES AND EQUIPMENT	
Smolov, P.I. Effectiveness of Wetting Agent B8 for Recovering Lead Filings	91
Smolov, P.I. Adsorption of Wetting Agent B8 on Lead Oxide Under Static Conditions	103
Prolov, A.F., and G.B. Boykova... Separation of Mixtures of Methyl-Dioxane and Allyl Carbonate	113
Makarov, M.M., and P.P. Chernobrovskiy... Detection and Polarization of Pristion Molecules by High-Frequency Current	117
Makarov, M.M., and P.P. Chernobrovskiy... Dielectric Properties of Pristion Molecules	121
Penicher, A.B. The Problem of the Distribution of Rubber in Different Parts of Automobile Tires	171
Penicher, V.G., and V.G. Prityayev... The Influence of the Amount and Stability of Crystallites on the Strength of Rubbers With II (General Rubber) Base in the Case of Using Various Accelerators	193
Penicher, V.G., and B.A. Salimov... Synthetic Alkyl Phenyl-alkylate Latex as Rubber Strengtheners	209
REVIEW OF CHEMISTRY	
Masburov, Yu.S. Development of the Chemistry of Heterocyclic Compounds and Alkaloids in Russia	209
Masburov, Yu.S., and V.Y. Voronovskiy... Yu.Y. Lavrentyev's Research in Petroleum Pyrolysis	221

BEGLROSSON, A.G.; WARBROV, F.I.

Synthesis of alkylphenols. Uch.zap. Krosn. tekhnol. inst. 2:19-32
197.
(Phenols) (Alkylation) (MIRA 12:7)

BONDARENKO, A.V.; BOGDANOV, M.I.; FARBEROV, M.I.

Industrial synthesis of vinyltoluene. Uch.zap. I Arosi. tekhnol. inst.
2:33-46 '57. (MIRA 12:7)
(Chemistry, Technical) (Styrene)

AUTHORS: Farberov, M. I., Machtina, K. A., Kryukov, S.I., 20-114-4-35/63

TITLE: Two Methods for a Commercial Scale Production of Methylpentadiene (Dva metoda tekhnicheskogo sinteza metilpentadiyena)

PERIODICAL: Doklady Akademii Nauk SSSR, 1957, Vol. 114, Nr 4, pp. 807-810 (USSR)

ABSTRACT: Hitherto methylpentadiene is a commercially little accessible diene. The only method of some technical value was proposed by American authors and produces methylpentadiene from acetone. Because of the properties of its polymers and co-polymers methylpentadiene is of a certain interest. The present paper describes two methods of its technical synthesis. 1.) The authors thoroughly investigated the interaction reactions of olefines with aldehydes. Thus the chief reaction product from the interaction of isobutylene and acetaldehyde in the presence of 1-2% sulphuric acid is 2,4,4,6-tetramethyldioxane-1,3 (denoted TMD/I/ in the following; 90% yield of the aldehyde reacted through). Published works report that the alkyldioxanes-1,3 may be serve as initial substances for the dienesynthesis. The authors' experiments proved that by the passage of TMD with vapor over a ca-

Card 1/3

Two Methods for a Commercial Scale Production of Methylpentadiene

20-114-4-35/63

talyst, metapentadiene with a 75% mol. yield of the decomposed TMD/I/ is obtained. On this occasion two isomeric dienes develop: 2-methylpentadiene-1,3/II/ and 4-methylpentadiene-1,3/III/. Their physical properties are very similar. Their quantitative determination in the mixture is based upon their different behaviour towards maleic anhydride: II gives an adduct, III a co-polymer. In the presence of inhibitors the polymerization inclination of III may be suppressed, so that it can be separated from II, II and III were obtained in the proportion 45:55. Beside methylpentadiene a small amount (3%) of a mixture of two isomeric methylene pentanols (IV and V) results from contact cracking. There occurs also a cracking reaction of I, giving the original substances: acetaldehyde and isobutylene. A diagram of contact cracking of TMD/I/ in time is given in the paper. The water apparently participates in the reaction and favours the hydrolysis of I into an intermediate diol on the surface of the catalyst. In the moment of its formation VI dehydration under liberation of one or two water molecules and under according formation of a mixture of two isomeric methylpentanols IV, V or dienes II, III. 2) The second technical method of methylpentadiene synthesis is the dehydration of the

Card 2/3

Two Methods for a Commercial Scale Production of Methyl-
pentadiene

20-114-4-35/63

propylene-dimer: 2-methylpentene-1/VII/. The experiments with catalytic dehydration of VII show that methylpentadiene can be produced in this manner. Here, too a mixture of the isomers II and III is obtained in about the same amounts and with a yield of 35-38% of the VII sent through and 70-75% of the VII decomposed. There are 2 figures, 2 tables, and 11 references, 4 of which are Soviet.

ASSOCIATION: Yaroslavl' Technological Institute (Yaroslavskiy tekhnologicheskii institut)

PRESENTED: January 15, 1957 by I. N. Nazarov, Member, Academy of Sciences, USSR

SUBMITTED: November 14, 1956

Card 3/3

AUTHORS: Kryukov, S. I., Kut'in, A. M., Levskaya, G. S., 153-58-1-13/29
Tepenitsyna, Ye. P., Ustavshchikova, Z. F., Farberov, M. I.

TITLE: An Improved Method of the Synthesis of Triethyl-Aluminum
(Uluchshenny sposob sinteza trietilalyuminiya)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy,
Khimiya i khimicheskaya tekhnologiya, 1958, Nr 1,
pp. 86-93 (USSR)

ABSTRACT: The authors give a survey on the publications of trialkyl-
aluminum as specific catalyst, both alone, as well as with
cocatalysts for olefinic polymerization (references 1 to 3),
and they compare with each other the known methods of
production of aluminum-organic compounds (references 4 to 6).
The authors selected the method by Grosse and Meviti
(Mavity, ref. 5) as the most convenient one. A) - Production
of ethylaluminum sesquichloride (mixture of ethylaluminum-
-dichloride and diethyl-aluminum-chloride). The first stage
of the process according to reference 5 proved to be rather
incomplete. It is difficult to be controlled, has a long
period of induction and often leads to the complete
destruction of the products, sometimes with explosion. The

Card 1/4

An Improved Method of the Synthesis of Triethyl-Aluminum

153-56-1-13/29

authors tried various initiators at atmospheric pressure (crystalline iodine, ethylaluminum-sesquichloride, ethylbromide and a mixture of these substances). Table 1 shows the influence of individual initiators on the period of reaction. Ethylbromide acted most efficiently. Table 2 shows the influence of the initial temperature with the supply of ethylchloride on the reaction-period. Optimum conditions for the carrying out of the process were selected from the obtained test results. Further tests were carried out on an enlarged plant (figure 1). The laboratory results were confirmed: It was possible to reduce the reaction-period to from 2 to 3 hours. B)- Reaction of symmetrization of ethylaluminum-sesquichloride. In order to obtain triethylaluminum, the above reaction must be carried out with the participation of metallic sodium. According to reference 5, various insufficiencies exercised a disturbing effect in this connection. The authors found the conditions for removing them: 1)- Sodium ought to be used in fine dispersion, the surplus of Na must not exceed 5 to 10% of the theoretically required quantity. 2) - Sesquichloride must be introduced in portions as a 20 to 30% solution in hydrocarbons. 3) - The temperature of reaction must not

Card 2/4

An Improved Method of the Synthesis of Triethyl-Aluminum 153-58-1-13/29

exceed 130° and an intense agitation should be guaranteed. The gasoline-fraction "galosha" (boiling above 100°) proved most effective among several tested solvents. The yield of triethylaluminum amounted to 70 to 76% of the charged sesquichloride under the selected optimal conditions. A certain quantity of partly oxidized triethylaluminum was proved in the produced triethylaluminum. The inactive part of the catalyst formed a mixture of all 3 possible ethoxy-compounds. An experimental part follows. C) - Production of aluminum sesquichloride. According to the method described here, a 99% yield of that theoretically possible was obtained. The two (paragraph A) components were present in the mixture in approximately equimolar quantities. D) - The reaction of symmetrization was carried out in a device shown in figure 3. A filter required for this purpose is shown in figure 4. There are 4 figures, 2 tables, and 12 references, 3 of which are Soviet.

ASSOCIATION: Yaroslavskiy tekhnologicheskii institut i opytnyy zavod
Card 3/4 Ministerstva khimicheskoy promyshlennosti. Kafedra

An Improved Method of the Synthesis of Triethyl-Aluminum 153-58-1-13/29

tehnologii osnovnogo organicheskogo sinteza i SK
(Yaroslavl Technological Institute and
the Experimental Plant of the Ministry for Chemical Industry.
Chair for the Technology of General Organic Synthesis
and SK)

SUBMITTED: September 23, 1957

Card 4/4

AUTHORS: Farberov, M. I., Kut'in, A. M., SOV/156 58-1-36/46
Vernova, T. P., Shemyakina, N. K.

TITLE: Industrial Synthesis of Allylcarbinol and Standard Butyl Alcohol on the Basis of Propylene and Formaldehyde (Tekhnicheskiy sintez allilkarbinola i normal'nogo butilovogo spirta na osnove propilena i formal'degida)

PERIODICAL: Nauchnyye doklady vysshey shkoly, Khimiya i khimicheskaya tekhnologiya, 1958, Nr 1, pp. 148 - 152 (USSR)

ABSTRACT: In their laboratory the authors have for years studied syntheses based on olefine and formaldehyde (Refs 1,2). Allyl dioxanes-1,3 are converted into dienes. Catalysts and conditions were developed by means of which 80 - 90% of the theoretically possible diene yield could be obtained (Ref 2). By passing it over a catalyst in the presence of water vapor, 4-methyl dioxane-1,3 can be easily converted into divinyl. As further investigations have shown, the allylcarbinol yield can be substantially increased by carrying out the contact process under less severe conditions (lower temperatures, shorter contact time; Fig 1). Figure 2 shows the influence of temperature upon the allylcarbinol yield, given in molar per cent

Card 1/3

Industrial Synthesis of Allylcarbinol and Standard
Butyl Alcohol on the Basis of Propylene and Formaldehyde

SOV 156-58-1-36/46

related to methyl dioxane. Table 1 shows the results of a typical balance experiment; under such conditions as were chosen here, the weight ratio of the allylcarbinol and divinyl yields, related to the decomposed methyl dioxane, may be even a little greater than unity. The author's idea about the mechanism of this reaction is as follows: The catalyst (a calcium phosphate mixture) possesses hydrolyzing and at the same time dehydration properties (Ref 9). With the same catalyst, and under the same conditions, trimethyl carbinol is dehydrated to isobutylene with a quantitative yield. The 1. reaction stage is therefore the hydrolysis of methyl dioxane (I) in the presence of water vapor to butandiol-1,3 (II), with separation of formaldehyde. Butandiol is further dehydrated, being converted to allylcarbinol (III) and divinyl (IV). Propylene is formed in small quantities due to a cracking reaction. Allylcarbinol may itself be of interest as a starting material for syntheses. From an industrial viewpoint, however, its use in hydration in standard butyl alcohol is of greater importance. There are 3 figures, 2 tables, and 13 references, 8 of which are Soviet.

Card 2/3

Industrial Synthesis of Allylcarbinol and Standard SOV/156-58-1-36/46
Butyl Alcohol on the Basis of Propylene and Formaldehyde

ASSOCIATION: Kafedra tekhnologii osnovnogo organicheskogo sinteza i SK
Yaroslavskogo tekhnologicheskogo instituta (Chair of
Technology of Basic Organic Synthesis and Sk of the Yaroslavl'
Institute of Technology)

SUBMITTED: October 3, 1957

Card 3/3

177/1000/120

82147

SOV/81-59-6-20403

Translation from: Referativnyy zhurnal. Khimiya, 1959, Nr 6, pp 384-385 (USSR)

5.3831

AUTHORS: Farberov, M.I., Ustavshchikov, B.F., Kut'in, A.M., Vernova, T.P., Yarosh, Ye.V.

TITLE: The Methods of Technical Synthesis and the Application of 2-Methyl-5-Ethylpyridine and 2-Methyl-5-Vinylpyridine

PERIODICAL: Yaroslavsk. prom-st' (Sovnarkhoz Yaroslavsk. ekon. adm. n-ra), 1958, Nr 3, pp 15 - 21

ABSTRACT: In the condensation of 1 mole of paraldehyde and 4 moles of 40-60% (better 50%) aqueous solution of NH₃ in the presence of a catalyst (organic or inorganic salt) taken in the quantity of 1-2% based on the weight of the paraldehyde (20-30 min, 260°C, pressure 80-100 atm) 99% pure 2-methyl-5-ethylpyridine¹(-) is obtained, yield 75-80%, b. p. 176.7°C, n_D²⁰ 1.4974, d₄²⁰ 0.9189; as impurities α- and γ-picoline, higher pyridines and resins are formed. The reaction proceeds in the following order: $4\text{CH}_3\text{CHO} + \text{NH}_3 \rightarrow \text{N}=\text{C}(\text{CH}_3)\text{CH}=\text{CHC}(\text{C}_2\text{H}_5)=\text{CH} + 4\text{H}_2\text{O}$. I, diluted by water steam in the molar ratio 1:12-1:20 is dehydrogenated in the presence of industrial dehydrogenation catalysts¹(K-10 and K-12) consisting of Zn, Cr, Fe and Al oxides activated by K₂O for 2

Card 1/3

X

82147

SOV/81-59-6-20403

The Methods of Technical Synthesis and the Application of 2-Methyl-5-Ethylpyridine and 2-Methyl-5-Vinylpyridine

hours at 575-600°C and a volumetric rate of 500-600 ml per 1 l of catalyst in 1 hour, 97-99% pure 2-methyl-5-vinylpyridine (II) is obtained, yield 20-25% based on I having passed through, or 70-75% based on I decomposed, b. p. 75°C/15 mm, n_D^{20} 1.5454, d_4^{20} 0.9579. The content of II in the catalyzate is 23-27%, the yield of the catalyzate 89-91%. Pyridine, picolines, 2,5-dimethyl-, 3-ethyl- and 3-vinylpyridine are formed as impurities. II is very inclined to polymerization. S, $C_6H_2(OH)(NO_2)_3$, α -nitroso- β -naphthol and methol (sulfate salt of methylaminophenol) are used as stabilizers of II. In the process of II separation S is used as stabilizer and methol for storing (in concentrations of up to 0.001 weight %). In the case of oxidizing I by $KMnO_4$ or $Cu(NO_3)_2$, 2,5-pyridine-carboxylic acid (yield 60-70%, m. p. 236°C) is obtained which is converted to nicotinic acid by decarboxylizing with a yield of ~100% (m. p. 163°C). The dimethyl ester of 2,5-pyridine-dicarboxylic acid (m. p. 163°C) after reesterification by ethyleneglycol is condensed in the presence of $ZnCl_2$ into a high-polymeric resin. I with CH_2O forms 5-ethyl-2-vinyl- and 5-ethyl-2-(β -oxyethyl)-pyridine with a high yield. I is easily hydrogenated with a yield of ~100% by Na in butyl alcohol.

Card 2/3

X

82147
SOV/81-59-6-20403

The Methods of Technical Synthesis and the Application of 2-Methyl-5-Ethylpyridine and 2-Methyl-5-Vinylpyridine

and also catalytically (in the presence of Ni-catalysts) in 2-methyl-5-ethyl-piperidine, b. p. 160-161°C, n_D^{20} 1.4530, d_4^{20} 0.8559. It is a monomer for the industry of synthetic rubber, it can be used in the production of plastics and synthetic fibers.

Ya. Danyushevskiy

Card 3/3

5(1,3)

AUTHORS:

Prokof'yev, Ya. N., Epshteyn, V. G.,
Farberov, M. I.

SOV/193-58-4-21/22

TITLE:

Styrene Butadiene Resins as Reinforcing Additions to Rubbers, and the Possible Reinforcing Mechanism (Stirol'no-butadiyenovyye smoly kak usilivayushchiye ingredienty dlya kauchukov i vozmozhnyy mekhanizm usileniya)

PERIODICAL:

Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya tekhnologiya, 1958, Nr 4, pp 128 - 137 (USSR)

ABSTRACT:

Styrene butadiene resins are copolymers of styrene and butadiene, with styrene prevailing. They form a new class of the reinforcing agents of rubber mixtures. Abroad they are used as floor covering (linoleum substitute), rubber linings, electric insulation, ebonite etc. (Refs 1-3). A further use of these resins is that of main additions in high-quality shoe soles made of one piece, heels, and other products of synthetic leather (Refs 2-8). The properties of the resins depend on the ratio styrene: butadiene in the polymerization. A

Card 1/4

Styrene Butadiene Resins as Reinforcing Additions to Rubbers, and the Possible Reinforcing Mechanism SSV/153-53-4-21/22

higher quantity of styrene increases the specific weight, the tensile strength, and decreases the relative expansion (Ref 8). The vulcanizates to which the resins in question are added become stronger, harder, higher resistant to friction and to repeated deformations. All these properties connected with the low specific weight and the dyeability in any shade open great possibilities for these styrene butadiene resins in the imitation leather industry. In the experimental part, the production method (Refs 10-11) as well as polymerization recipe are mentioned (Table 1). The characterization of the resins in dependence on the styrene content is given in table 2. Based on their investigations the authors arrived at the following conclusions: 1) The styrene butadiene resins are the best for reinforcing vulcanizates of styrene and nitril rubber; those of natural and sodium butadiene rubber are reinforced to a smaller extent. 2) With respect to several properties the said resins have the same effect as the

Card 2/4

Styrene Butadiene Resins as Reinforcing Additions to Rubbers, and the Possible Reinforcing Mechanism

SOV/153-58-4-21/22

addition of active soot. They are better than soot with respect to the increase of the resistance to repeated deformation. This is of great importance in using these resins for the production of shoe soles and imitation leather. 3) The reinforcing by styrene butadiene resins is higher if they are added in the latex stage of the rubber. This difference in the physical and mechanical properties of the vulcanizates is greater the higher the content of the bound styrene in the resin is (if added in the latex stage and on the rolls). Resins containing 85-95% styrene have the best effect. Resins having less than 70% styrene do not cause any noticeable reinforcement. 5) The cause of the reinforcing effect probably is the intermolecular interaction of resins and rubbers. A high resistance to tearing and abrasion can be explained by a fibrous structure formed by complexes of rigid, expanded resin molecules; these molecules are arranged between the flexible rubber agglomerates. There are 6 figures, 5 tables, and 22 references, 10 of which are Soviet.

Card 3/4

Styrene Butadiene Resins as Reinforcing Additions to Rubbers, and the Possible Reinforcing Mechanism SC7/153-50-4-21/22

ASSOCIATION: Yaroslavskiy tekhnologicheskii institut i opytnyy zavod Ministerstva khimicheskoy promyshlennosti (Yaroslavskiy Tekhnological Institute and Experimental Plant of the Ministry of Chemical Industry) Kafedra tekhnologii osnovnogo organicheskogo sinteza i SK (Chair of Organic Basic Synthesis and Synthetic Rubber)

SUBMITTED: October 26, 1957

Card 4/4

AUTHORS: Tepenitsyna, Ye. P., Farberov, M. I. SOV/1958-59-4040/49

TITLE: The Determination of the Activity of Trialkyl Aluminum in the Reaction of Stereoregular Polymerization (Opredeleniye aktivnosti trialkilalyuminiya v reaktsiyakh stereoregulyarnoy polimerizatsii)

PERIODICAL: Nauchnyye doklady vysshey shkoly. Khimiya i khimicheskaya tekhnologiya, 1958, Nr 4, pp 765-767 (USSR)

ABSTRACT: A new method of determining the activity of trialkyl aluminum in the reactions of the stereoregular polymerization was described. The method is based on the capability of the AlR_3 to reduce titanium tetrachloride quantitatively into titanium-(III)-chloride under special working conditions. The dependence of the degree of reduction Ti^{4+} upon the molar ratio $AlR_3 : TiCl_4$ at $20^\circ C$ was investigated. In the ratio 1 the reduction occurs to trivalent titanium and in the ratio higher than 1 bivalent titanium is formed. The method suggested was compared with the quinoline method developed by Bonits (Bonits) and it was ascertained that the results of both methods are equal to each other. The calculation of the active Al_{act} is

Card 1/3

SOV 41608-1-40/49

The Determination of the Activity of Trialkyl Aluminum in the Reaction of Stereoregulatory Polymerization

carried out according to the following formula:

$$Al_{act.} = \frac{V_{KMnO_4} \cdot F_{KMnO_4} \cdot 0.0027}{V_{AlR_3}} \text{ g/ml}$$

V_{KMnO_4} - ml 0.1 n $KMnO_4$ - consumption in the titration;

F_{KMnO_4} - factor of the $KMnO_4$ solution; 0.0027 - the amount of aluminum in grams, corresponding to 1 ml 0.1 n-solution;

V_{AlR_3} - volume of the solution AlR_3 in ml to be investigated.

There are 3 figures, 1 table, and 9 references, 2 of which are Soviet.

ASSOCIATION: Kafedra tehnologij osnovnogo organicheskogo sinteza i SK Yaroslavskogo tehnologicheskogo instituta (Chair of Technology of Elements for Organic Synthesis and SK at the Yaroslavl Technological Institute)

Card 2/3

SOV, 196-58-4-40/49

The Determination of the Activity of Trialkyl Aluminum in the Reaction of
Stereoregular Polymerization

SUBMITTED: May 14, 1958

Card 3/3

82844

S/081/60/000/008/001/001
A006/A001

15.9220

Translation from: Referativnyy zhurnal, Khimiya, 1960, No. 8, p. 544, # 33151

AUTHORS: Tsaylingol'd, V.L., Farberov, M.I., Epshteyn, V.G., Lazaryants,
E.G., Boguslavskiy, D.B., Bugrova, G.A., Uzina, R.V. ✓TITLE: Vinyl-Pyridine Rubbers and Latexes and Outlooks on Their UsePERIODICAL: Yaroslavsk. prom-st' (Sovnarkhoz Yaroslavsk, ekon. adm. r-na),
1958, No. 5, pp. 22-25

TEXT: Copolymers of butadiene and 2-methyl-5-vinyl pyridine (VPK) were obtained at 50 and 5°C polymerization temperature and studied. Resistance to wear and heat generation of VPK-vulcanized rubbers exceeds considerably that of vulcanized products from butadiene-styrene rubbers (SKS). Rubbers containing 10-15% 2-methyl-5-vinyl-pyridine have high quality characteristics. Impregnation of cords with VPK latexes ensures high adhesion strength of viscose and caprone cords with natural, SKB and SKS rubbers. Compared to standard SKS impregnation, VPK impregnation increases the adhesion strength of rubber and

Card 1/2

82844

S/081/60/000/008/001/001
A006/A001

Vinyl-Pyridine Rubbers and Latexes and Outlooks on Their Use

cord by a factor of 1.5-2 under static conditions and much more under dynamic conditions. VPK, polymerized at 5°C exceeds the quality of analogous polymers obtained at 50°C.

O.T.

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

Card 2/2

5(1, 3)

SOV/153-58-5-16/28

AUTHORS:

Farberov, M. I., Ustavshchikov, B. F., Kut'in, A. M.,
Vernova, T. P., Yarosh, Ye. V.

TITLE:

Technical Synthesis of 2-Methyl-5-Ethyl Pyridine and
2-Methyl-5-Vinyl-Pyridine, and Their Fields of Application
(Tekhnicheskiye sintezy 2-metil-5-etilpiridina i 2-metil-5-
vinilpiridina i oblasti ikh primeneniya)

PERIODICAL:

Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya
tehnologiya, 1958, Nr 5, pp 92-99 (USSR)

ABSTRACT:

The authors took the synthesis of 2-methyl-5-ethyl pyridine
(MEP) from acetaldehyde and ammonia with a further dehydro-
genation to 2-methyl-5-vinyl pyridine (MVP) as a basis for
the working out of technical synthesis of these two substances.
The papers recently published in patents (Refs 11-13) tend to
show an intense elaboration of these reactions. There are,
however, no publications on the first, and especially on the
second stage of this process. The authors first clarified the
most important rules governing the reaction between acetaldehyde
and ammonia for the purpose of an industrial utilization.

Card 1/4

1) S y n t h e s i s o f 2 - m e t h y l - 5 - e t h y l
p y r i d i n e. Acetaldehyde is used as paraldehyde. This

Technical Synthesis of 2-Methyl-5-Ethyl Pyridine and 2-Methyl-5-Vinyl Pyridine,
and Their Fields of Application

107/153-58-5-16/28

offers much higher yields. Stoichiometric ratios (1.33 mol paraldehyde per 1 mol ammonia) could, however, not secure a sufficiently high MEP yield. The optimum ratio amounts to at least 4 mol ammonia per 1 mol paraldehyde. The presence of larger quantities of water has a favorable effect. The opinions on the formation mechanism of MEP in literature contradict each other (Ref 14). Up to 30 different salts, among them $ZnCl_2$, $FeCl_2$, $SbCl_3$, $CoCl_2$, $NiCl_2$, CH_3COONa , NH_4Cl , CH_3COONH_4 , NH_4F , $NH_4F \cdot HF$, KF , KHF_2 and others served as catalysts. A catalyst was selected which corresponds to the technical process. Its concentration usually amounts to 1-2% of the paraldehyde. The reaction takes also place without catalyst, however, with much smaller yields.

2) Dehydrogenation of 2-methyl-5-ethyl pyridine. Synthesis of 2-methyl-5-vinyl pyridine. The best industrial dehydrogenating catalysts served for dehydrogenation: K-10 and K-12, which consist of zinc oxide, chromium oxides, iron and aluminum oxides, activated with potassium oxide. The partial pressure is

Card 2/4