Radioactive Catalysts. The Dehydration of Cyclo- SOV/20-121-1-28/47
hexanol Over the Sulphates of Magnesium and Sodium

of the catalyzer (especially a change of the properties of its surface) and a radiation—chemical influence of radiation on the gaseous reagents even before their contact with the catalyzer. The object of the investigation was the catalytic dehydration of cyclohexanol over the sulphates of magnesium and sodium, in which the sulphur was substituted by various quantities of radioactive sulphur S^{35}. The investigation was carried out by means of a catalytic apparatus of the flowing type with an inserted reactor. This apparatus was placed in a tubular furnace with automatic feeding. The radioactive preparations $MgSO_4$ and the measurement of the radioactivity of the catalysts are then discussed. No gaseous products were generated by this reaction. The apparatus did not indicate the presence of any radioactive contaminants. The more non-radioactive sodium sulphate is added to the magnesium sulphate, the more does catalytic activity decrease. Also anhydrous sodium sulphate is a catalyzer for the dehydration of cyclohexanol, although it is rather less active than magnesium sulphate.

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Radioactive Catalysts. T e Dehydration of Cyclo- SOV/20-121-3-28/47
hexanol Over the Sulphates of Magnesium and Sodium

The degree Δ of the conversion of cyclohexanol into cyclohexene increases with an increase of the radioactivity of the catalyst, but these increases are not proportional which respect to one another The Arrhenius (Arrenius) equation can be applied to tne cases discussed in this paper. The paper showed experimentally that the radioactive radiation of the catalyst has an influence on catalytic activity and on activation energy. Finally, some possible explanations of the results of this paper are discussed. The discussed phenomena are a completely new effect of simultaneous action of the electrons and active centers of the catalyst. It may be assumed that the β-particles act upon the catalytically active centers which had adsorbed cyclohexanol molecules. The β-particles diminish the activation energy of the dehydration of cyclohexanol. Investigations are being continued. There are 4 figures, 1 table, and 8 references, 5 of which are Soviet.

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Radioactive Catalysts The Dehydration of Cyclo- SOV/20-121-3-28/47
hexanol Over the Sulphates of Magnesium and Sodium

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im.M V.Lomonosova (Moscow State University imeni M V Lomonosov)
Institut fizicheskoy khimii Akademii nauk SSSR (Institute of Physical Chemistry, AS USSR)

SUBMITTED: April 23, 1958

Card 4/4

Mikhaylenko, I. Ye.

21(8) 5(0)

AUTHOR: Lapitskiy, A. V.

SOV/55-59-3-29/32

TITLE: The First All-Union Conference of Universities and Colleges on Radiochemistry

PERIODICAL: Vestnik Moskovskogo universiteta. Seriya matematiki, mekhaniki, astronomii, fiziki, khimii, 1959, Nr 3, pp 221-223 (USSR)

ABSTRACT: This conference was convened by the initiative of the laboratoriya radiokhimii khimicheskogo fakul'teta MGU (Laboratory of Radiochemistry of the Department of Chemistry of Moscow State University) and was held in Moscow from April 20 to April 25, 1959. It was attended by professors, teachers, and scientific collaborators of 32 universities and colleges of the Soviet Union. In his opening address, An. N. Nesmeyanov, Doctor of Chemical Sciences, stressed the importance of radiochemistry. 50 lectures were delivered by members of Moscow State University: Laboratoriya yadernoy fiziki (Laboratory of Nuclear Physics): N. P. Rudenko, A. I. Sevast'yanov: Production of Beryllium-7 by the Reaction (T, 2n); [illegible], N. P. Rudenko: Production of Radioactive Isotopes by Extraction as β-Diketonates. Laboratoriya radiokhimii (Laboratory of Radiochemistry): An. N. Nesmeyanov, B. M. Korolev, L. A. Sazonov: Separation of Radioactive Isotopes in the Irradiation of Colloids; An. N. Nesmeyanov,

Card 1/4

Ye. A. Borisov, E. S. Filatov, V. Kondratenko, Chzhan Tszin-Tsyan, K. Panek, B. Shukla: Secondary Reactions of the Recoil Atoms ^{80}Br and ^{82}Br in Methyl Bromides; B. G. Dzantiyev, I. M. Barkalov, V. V. Khrapov: Reactions of "Hot" Sulfur- and Nitrogen Atoms With Hydrocarbons; B. Z. Iofa, L. V. Bobrov, A. N. Batov: The State of Radioactive Isotopes in Extremely Dilute Solutions; N. B. Merukhova, I. V. Melikhov: General Theory of the Coprecipitation of Radioactive Elements With Non-isomorphous Crystalline Precipitates; A. V. Lapitskiy, I. A. Savich, Chzhuan Ts-yu: Coprecipitation of Protactinium With Complex Compounds of Ti, Nb and Ta; V. K. Fadeyev, V. V. Ivanenkov, V. I. Bochkarev: Application of Radioactive Paper Chromatography; K. B. Zaborenko, A. M. Babeshkin, M. S. Aul'chenko: Accumulation and Separation of Recoil Atoms on the Basis of the Example Ra^{224} and Ra^{228}; K. B. Zaborenko, A. M. Babeshkin, V. A. Beyevskaya, I. V. Melikhov: Application of the Emanation Method for the

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Investigation of the Transformation of Solids; V. I. Spitsyn, K. B. Zaborenko, A. M. Babeshkin, M. A. Radicheva: Transformation of Heteropoly-compounds; K. B. Zaborenko, A. M. Babeshkin, I. V. Kovalenko: Geochemistry of Radium; K. B. Zaborenko, V. I. Korobkov: Microanalytical Determination of Uranium by Means of Nuclear Emulsions; An. N. Nesmeyanov, Do Dyk-Man: Partial Vapor Pressure of Co in Alloys With Ni; Yu. A. Priselkov, Yu. A. Sapozhnikov, A. V. Tseplyayeva, V. V. Karelin: The Behavior of a Molecular Metal Beam in the High-frequency Field; I. V. Golubtsov, A. V. Lapitskiy, V. K. Shiryayev: Vapor Pressure of Niobium Dioxide; I. V. Golubtsov, Yu. A. Likhachev, Ye. K. Bakov: Various Constructions of the Scintillation Attachment to the Apparatus of the Type B. Kafedra analiticheskoy khimii (Chair of Analytical Chemistry): I. P. Alimarin, N. P. Borzenkova: Niobium-95 as a Radioactive Tracer; I. P. Alimarin, T. A. Belyavskaya, Khu Bin-vin: Sorption of Zr by Ion Exchangers; A. I. Busev, V. M. Byr'ko: The Use of Complex Pyrazolinedithiocarbamates in Radiometry. Kafedra neorganicheskoy khimii (Chair of Inorganic Chemistry): Ye. A. Ippolitova, Yu. P. Simanov, L. M. Kovba, G. P. Polunina, I. A. Semenov: Uranates of Some Bivalent Metals;

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V. G. Knyazina, O. G. Gorkova: Uranium Compounds With Acids of Low-valence P; V. I. Spitsyn: The Influence of the Radioactive Radiation of Solids on Their Physico-chemical Properties; I. Ye. Mikhaylenko, V. I. Spitsyn: Isotope Exchange in the System K_2SO_4 - SO_3 at High Temperature. Kafedra khimicheskoy kinetiki (Chair of Chemical Kinetics): I. V. Berezin, V. L. Antonovskiy, N. F. Kazanskaya: Application of Tritium for the Purpose of Determining the [illegible] Constants of the Separation of Organo-hydrogen Compounds. An. N. Nesmeyanov delivered a detailed lecture on the methodology of Radiochemical Instruction at the chemical departments of universities.

5.3510 6.221

AUTHORS: Mikhaylenko, I. Ye., Spitsyn, Vikt I. (Academician) S/020/60/131/01/036/060
B004/B011

TITLE: New Data Concerning the Influence of Radioactivity of the Solid Phase on Heterogeneous Processes of Isotopic Exchange

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol 131, Nr 1, pp 129 - 132 (USSR)

ABSTRACT: The authors investigated rate and yield of isotopic exchange of sulfur at 840° in the system K_2SO_4 - SO_3. The specific activity of the K_2SO_4 preparations ranged between 0.02 and 131 millicuries/g. Results are shown in table 1 and figure 1. The yield of the exchange is practically constant in the case of a specific radioactivity of K_2SO_4 in the range 0.02 - 0.03 millicuries/g. It begins rising at 0.05 millicurie/g, attains a maximum at 2 - 2.5 millicuries/g (66% in 10 min) and drops to 25% with a further increase in activity to 35 millicuries/g. A new rise begins at 61 millicuries/g and attains 85% in 10 min at 131 millicuries/g. The authors conclude from these data that

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New Data Concerning the Influence of Radioactivity of the Solid Phase on Heterogeneous Processes of Isotopic Exchange

S/020/60/131/01/036/060
B004/B011

two reaction mechanisms alternate each other. In the range of activities from hundredths of millicurie/g to 3 millicuries/g, the isotopic exchange is increased by the appearance of positive charges on the surface of the solid phase in consequence of continuous irradiation of α-particles. The drop of exchange between 3 - 35 millicuries/g might be explained by partial neutralization of the positive changes by copiously emitted electrons. Pure radiation phenomena appear above 35 millicuries/g: stronger activation of the SO_4^{2-}-ions and individual atoms of the crystal lattice under the action of β-particles. The action of accelerated electrons becomes noticeable in this range (Ref 2). Experiments with KCl addition showed that the presence of chlorine ions has no influence on the isotopic exchange. The authors further studied the change in activation energy with rising radioactive isotope content of the sulfate. As the kinetics of this process was investigated at 1000°, Na_2SO_4 had to be used in the place of K_2SO_4 which undergoes

thermal dissociation at this temperature. Table 2 and figure 2 show the results obtained. The activation energy was calculated according to Arrhenius, the reaction rate constant by the equation ln 100/(100-W) = kt, where W denotes the yield of exchange, and t is the duration of experiment. As is shown by figure 3, the left side of the equation is linearly dependent on t. The exchange rate in the system Na_2SO_4 - SO_3 showed the same dependences on the specific activity as the system K_2SO_4 - SO_3. The process of isotopic exchange may be subdivided into two stages with respect to its rate (Fig 4): an initial quick stage which drops to a lower constant value after 5 min. The exchange between tagged SO_3 and stable K_2SO_4 (Table 5) yielded constant radioactivity of K_2SO_4 after 5 min. Here, the rate is inhibited by the complicated diffusion of SO_3 in the solid phase. Table 4 shows the results of isotopic exchange in

New Data Concerning the Influence of Radioactivity of the Solid Phase on Heterogeneous Processes of Isotopic Exchange

55721
S/020/60/131/01/036/060
B004/B011

the system K_2SO_4 - SO_2 Isotopic exchange begins above 700°, and the course of reaction at 840° does not differ from the one in the system with SO_3 There are 4 figures, 4 tables, and 2 Soviet references

ASSOCIATION: Institut fizicheskoy khimii Akademii nauk SSSR (Institute of Physical Chemistry of the Academy of Sciences, USSR)

SUBMITTED: December 10, 1959

Card 4/4

5.2500
5.4500(B)

68997
S/020/60/131/02/043/071
B004/B007

AUTHORS: Spitsyn, Vikt. I., Academician, Mikhaylenko, I. Ye., Vereshchinskiy, I. V., Glazunov, P. Ya.

TITLE: Investigation of the Influence of External Radiation upon the Rate of the Isotopic Exchange of Sulfur in the System K_2SO_4 - SO_3 at High Temperature

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol 131, Nr 2, pp 360 - 363 (USSR)

ABSTRACT: It was the aim of this paper to investigate the action of the radiation of a betatron upon the isotopic exchange of a weakly traced K_2SO_4-preparation with SO_3-vapors. Figure 1 shows the scheme of the remote-controlled experimental apparatus, which is described. Temperature was kept at 840° with an accuracy of ±3°. The electron beam had an energy of 5 Mev. The course taken by the experiment was followed by means of television. The K_2SO_4-preparation had a specific activity of $4.6.10^{-2}$ millicurie/g. The radiation dose was determined by means of Fe(II) sulfate (spectrophotometric determination of the Fe^{3+} formed). In an experimental

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Investigation of the Influence of External Radiation Upon the Rate of the Isotopic Exchange of Sulfur in the System K_2SO_4 - SO_3 at High Temperature

S/020/60/131/02/043/071
B004/B007

series K_2SO_4 + SO_3, and in a second series only SO_3 was irradiated by means of a betatron. In the determination of the total dose, the specific weight, volume, and ratio between the electron density of the substance concerned and the electron density of water were considered (Table 1). No radiochemical decomposition of K_2SO_4 was observed in any of the experiments. Table 2 gives examples for the change in the activity of K_2SO_4 resulting from irradiation. In table 3, the mean values of all experiments are given. The authors obtained the following results: The external irradiation of the solid phase of the K_2SO_4 - SO_3-system by means of electrons exerts no influence upon the rate of isotopic exchange in the case of a dose of the order of 10^{15} ev/10 min. With an increase of the dose to 10^{16} - 10^{17} ev/10 min, an increase in the exchange yield occurs, which is directly proportional to the logarithm of the dose (Fig 2). The β-radiation of the radioactive K_2SO_4 exerts a much more considerable influence

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Investigation of the Influence of External Radiation Upon the Rate of the Isotopic Exchange of Sulfur in the System K_2SO_4 - SO_3 at High Temperature

68997

S/020/60/131/02/043/071
B004/B007

upon the exchange rate than external radiation. The action of the external β-radiation is explained by the excitation of the sulfate-ions and individual atoms. Likewise, also an activation of SO_3 by the formation of ions occurs. This action is, however, weak. The exchange is increased by it by about 40%, and practically does not change under the experimental conditions chosen ($1 - 2.10^{13}$ ev/10 min). There are 2 figures, 2 tables, and 5 Soviet references.

ASSOCIATION: Institut fizicheskoy khimii Akademii nauk SSSR (Institute of Physical Chemistry of the Academy of Sciences, USSR)

SUBMITTED: December 10, 1959

Card 3/3

BALANDIN, A.A.; SPITSYN, V.I.; RUDENKO, A.P.; DOBROSEL'SKAYA, N.P.; MIKHAYLENKO, I.Ye.; PIROGOVA, G.I.; GLAZUNOV, P.Ya.

Apparatus for studying heterogeneous catalysis at high temperature using radioactive catalysts and ionizing radiations. Kin.i kat. 2 no.4:626-632 Jl-Ag '61. (MIRA 14:10)

1. Institut fizicheskoy khimii AN SSSR i Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova.
(Catalysis)

22514

S/062/61/000/004/003/008
B118/B208

5 1190 2209, 1274, 1297

AUTHORS: Balandin, A. A., Spitsyn, Vikt. I., Dobrosel'skaya, N. P., Mikhaylenko, I. Ye., Vereshchinskiy, I. V., and Glazunov, P. Ya.

TITLE: Effect of radioactive radiation of a solid body on its catalytic properties

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, no. 4, 1961, 565-571

TEXT: There are no data available on the effect of the proper radioactive radiation of solids on their catalytic properties. The authors of the present paper investigated the change of catalytic activity as a result of decay of the radioactive isotope, furthermore whether also the β-radiation of a foreign element affects the reaction to be studied, and the effect of irradiating the catalyst by a fast electron beam. The effect of the radioactive catalysts $CaCl_2$, $MgSO_4$, and Na_2SO_4, containing the β-emitters S^{35} and Ca^{45}, on the dehydration of cyclohexanol was studied. The increased catalytic activity of radioactive catalysts, contrary to

Effect of radioactive...

non-labeled catalysts, which had been previously observed by the authors, was confirmed in many cases. The catalytic activity decreases with decreasing radioactivity of the catalyst owing to decay of the isotopes S^{35} and Ca^{45}. Bombardment of the surface of the non-labeled catalyst with 800-kev electrons has no pronounced effect, contrary to the effect of β-particles of labeled S^{35} and Ca^{45} which are constituents of the catalyst. Thus not only the labeled S^{35}, but also the labeled Ca^{45} increases the catalytic activity of magnesium sulfate in the dehydration of cyclohexanol. The radioactive isotope need not be a component of the acting catalyst. It must be concluded that the increased activity of the radioactive catalysts studied is due to a continuous bombardment of the active centers of the catalyst with β-particles. The latter transfer their energy to the adsorbed cyclohexanol molecules and reduce the activation energy of the chemical reaction. It may be concluded from the decrease of the catalytic activity due to the decay of the isotope in the catalyst that the new elements resulting in the radioactive conversion do not increase the activity. Apparently, the activation of the catalyst surface takes place

Effect of radioactive... S/062/61/000/004/003/008
B118/B208

at the expense of the proper radioactive radiation. There are 8 figures, 2 tables, and 4 Soviet-bloc references.

ASSOCIATION: Institut fizicheskoy khimii Akademii nauk SSSR (Institute of Physical Chemistry of the Academy of Sciences USSR).
Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Moscow State University imeni M. V. Lomonosov)

SUBMITTED: January 16, 1960

Card 3/3

S/020/61/137/003/023/030
B101/B208

AUTHORS: Balandin, A. A., Academician, Vikt. I. Spitsyn, Academician, Dobrosel'skaya, N. P., and Mikhaylenko, I. Ye.

TITLE: Radioactive catalysts. Dehydration of cyclohexanol on magnesium sulfate and calcium chloride

PERIODICAL: Doklady Akademii nauk SSSR, v. 137, no. 3, 1961, 628-630

TEXT: The authors reported in a previous paper (Ref. 1: DAN, 121, 495, (1958)) that catalytic dehydration of cyclohexanol was affected by the presence of S^{35} in the catalyst ($MgSO_4$). They have now made a study of the effect of the radiant energy of the isotope on the yield at constant absolute activity of the radioactive catalyst. To compare it with the effect of S^{35} (E_{max} = 0.167 Mev) a beta-emitter, Ca^{45} (E_{max} = 0.254 Mev), was chosen again. Ca^{45} was obtained by irradiating $CaCO_3$ enriched with Ca^{44} with slow neutrons ($0.8 \cdot 10^{13}/cm^2.sec$). The resultant radioactive

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isotopes were identified with a scintillation spectrometer equipped with a 100-channel-pulse height analyzer. The presence of Ca^{45} was confirmed. The low gamma activity (0.010 mg.equ Ra per g $CaCO_3$) was due to an Fe^{59} impurity. $\dot{C}aCO_3$ was dissolved by adding 18% HCl, and $\dot{C}aCl_2$ was annealed at 400°C. The absolute activity of $\dot{C}aCl_2$ was measured by an end-window counter and a 4π counter. Cyclohexanol was dehydrated by a mixture of $MgSO_4$ + $CaCl_2$. $MgSO_4$ was wetted with a certain amount of a solution of radioactive and inactive $CaCl_2$, and heated to 400°C within 2 hr. Table 1 gives the characteristics of the catalysts applied. Dehydration took place at 350-420°C in an apparatus described in Ref. 1. The content of unsaturated hydrocarbons was determined bromometrically in the reaction products collected in the water-cooled receiver. Pure $MgSO_4$ proved to be the most active catalyst. Addition of inactive $CaCl_2$ reduces its activity. Pure $CaCl_2$, both the active and the inactive one, was completely

inert. On the other hand, all mixtures containing Ca^{45} showed an increased catalytic activity as compared with mixtures containing the same amount of inactive Ca. These results are presented in Fig. 2. The numbers correspond to those of the catalysts in Table 1. The radioactive catalysts are denoted by an asterisk. It is concluded that the β-radiation of the isotope does not influence the dehydration kinetics, and that $MgSO_4$ is excited by the β-particles and by secondary electrons knocked-out by them. Fig. 3a represents the degree of cyclohexanol conversion as a function of the logarithm of the specific activity of the catalyst, and compares it with the data obtained in Ref. 1 for $MgSO_4 + Na_2SO_4$ containing S^{35}. Fig. 3 б shows the degree of conversion as a function of radiant power. The increased degree of conversion in the presence of $Ca^{45}Cl_2$ is said to be due to the higher energy of its β-particles.

There are 4 figures, 1 table, and 1 Soviet-bloc reference.

S/020/61/137/003/023/030
B101/B208

Radioactive catalysts. Dehydration ...

ASSOCIATION: Institut fizicheskoy khimii Akademii nauk SSSR (Institute of Physical Chemistry of the Academy of Sciences USSR)

SUBMITTED: December 24, 1960

Fig. 2. Effect of radioactive radiation of the catalyst upon its catalytic activity.
Legend: (a) Degree of conversion.

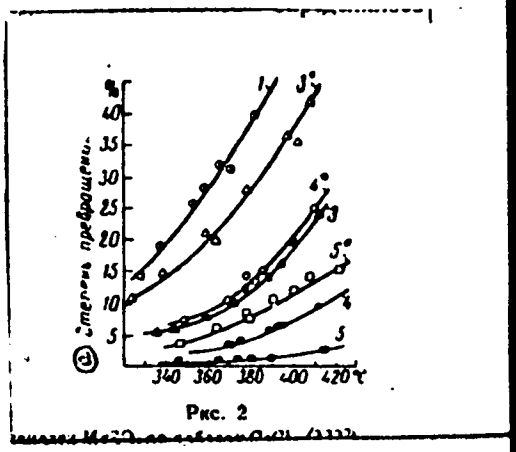

Рис. 2

Card 4/6

27266

S/020/61/139/005/[illegible]/[illegible]
B103/B208

5.4600

AUTHORS: Spitsyn, Viktor I. Academician, Zemlyanova, L. I., Mikhaylenko, I. Ye., Gromov, V. V., and Zimakov, I. Yu.

TITLE: Electron-microscopic examination of the effect of radioactive radiation of solids on the structure of their surface

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 139, no. 5, 1961, [illegible]

TEXT: The crystal lattice of solids is disturbed by the ionizing action of their own radioactive radiation and the appearing recoil atoms, which also changes their surface structure. According to the authors, all this may be one of the causes of the effect exerted on physicochemical properties of solids by their own radiation (sorptive power, solubility in water, kinetics of heterogeneous processes of isotopic exchange, catalysis, etc.). The authors made electron-microscopic studies of the surface structure of radioactive samples of K_2SO_4, $MgSO_4$, $BaSO_4$, and MoO_3 which had been used previously to study adsorption, catalysis, and isotopic exchange. Except for $BaSO_4$, the pictures were obtained by

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S/020/61/139/00[illegible]/[illegible]
B103/B208

Electron-microscopic examination

replication, and for $BaSO_4$ the method of double replicas (silver + carbon replicas) was used. K_2SO_4, $MgSO_4$, and MoO_3 were applied to a [illegible] film in the form of a fine powder. A 200 - 300 Å thick quartz layer was sputtered onto it in vacuo. After dissolution of collodion in amyl acetate, the quartz replica were rinsed in distilled water in the case of K_2SO_4 and $MgSO_4$, and in dilute alcohol in the case of MoO_3. Radioactive samples of K and Mg were obtained by adding small amounts of Na_2SO_4 containing S^{35}. $BaSO_4$ precipitates were isolated by a method previously described by Vikt. I. Spitsyn, V. V. Gromov (DAN 123, 283 (1958); Radiokhimiya 1, 181 (1959)). Radioactive MoO_3 was obtained by adding Mo[illegible] containing sample to ordinary MoO_3 in order to attain the necessary specific radioactivity. The mixture was converted to ammonium molybdate by treating it with aqueous ammonia; it decomposed when heated. The resultant MoO_3 was sublimed at 850°C. When comparing the pictures (magnification: 12,000 times) [Abstracter's note: Not reproducible]

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Electron-microscopic examination

S/020/61/139,00[illegible]
B103/B208

authors found the following differences in the crystal surface of a radioactive and b) non-radioactive samples: a) The surface of b is comparatively smooth, that of a) highly pitted. The crystal surface of $BaSO_4$ is changed to a high extent by incorporation of small radium amounts. K_2SO_4, $BaSO_4$, and MoO_3 also show some changes in their surface structure after an external irradiation with 800-kev electrons. Although the dose was much higher in this case, the changes were less pronounced than those caused by radioactive radiation. The above surface defects appear rather regularly over the whole length of the crystal of the radioactive substance. The deep cavities observed in samples irradiated with neutrons were absent. The surface changes resemble those observed in metal etched by an ion beam. The authors further conclude from the comparison of the photographs that the surface defects of the radioactive samples develop already during the separation of the solid phase from the solution or from the gas. They assume that the radiation of electrons or other charged particles during the crystallization of solid substances gives rise to a great number of new active centers (seed crystals). The particle-size distribution on separation of radioactive salts from

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S/020/61/[illegible]
B102/B208

Electron microscopic examination

solutions differs from a non-radioactive preparation. The [illegible] smaller fractions considerably increases. The authors assume that additional crystallization centers are formed directly on the surface of the radioactive salts owing to radiation. The larger crystals thus formed decompose, and the surface becomes looser. A dendritic structure results in some cases (after separation of MoO_2 from the gaseous phase). The [illegible] development of the surface of solids under the action of [illegible] active radiation reminds of the radiation corrosion rather than [illegible] growth of irradiated crystals, as is the case in neutron bombardment. The adsorption of the radioactive samples is changed in the [illegible] Radioactive samples adsorb far more vapor of methanol, benzene, and hexane per unit surface of $BaSO_4$ precipitate than do non-radioactive samples. This is considered to prove essential differences in the [illegible] structure between these two types of samples. There are [illegible] figures, [illegible] bles, and 16 references: 15 Soviet-bloc and [illegible] non-Soviet bloc. The reference to English-language publications reads as follows: [illegible] H. Newkirk, J. Nucl. Materials, 2, 269 (1960).

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27266

Electron-microscopic examination

S/020/6[illegible]
B103/B208

ASSOCIATION: Institut fizicheskoy khimii Akademii nauk SSSR Institute of Physical Chemistry of the Academy of Sciences USSR

SUBMITTED: April 15, 196[illegible]

Card 5/5

SPITSYN, Vikt. I., akademik; MIKHAYLENKO, I.Ye.; PIROGOVA, G.N.

Dehydration of primary dodecyl alcohol over magnesium sulfate.
Dokl. AN SSSR 140 no.5:1090-1092 O '61. (MIRA 15:2)

1. Institut fizicheskoy khimii AN SSSR.
(Dodecyl alcohol)
(Dehydration)

SPITSYN, Vikt.I., akademik; MAKSIM, Ion; PIROGOVA, G.N.; MIKHAYLENKO, I.Ye.; KODOCHIGOV, P.N.

Effect of different kinds of radiation on the catalytic dehydration of n-decyl alcohol. Dokl. AN SSSR 141 no.5:1143-1146 D '61. (MIRA 14:12)

1. Institut fizicheskoy khimii AN SSSR i Institut atomnoy fiziki AN Rumynskoy Narodnoy Respubliki.
(Decyl alcohol) (Radiation) (Dehydration)

S/844/62/000/000/110/129
D207/D307

AUTHORS: Spitsyn, V. I. and Mikhaylenko, I. Ye.

TITLE: Radiation-chemical activation of the surface of solid potassium sulfate

SOURCE: Trudy II Vsesoyuznogo soveshchaniya po radiatsionnoy khimii. Ed. by L. S. Polak. Moscow, Izd-vo AN SSSR, 1962, 443-445

TEXT: Potassium sulfate was activated with S^{35}. Increase of the activity of the sulfate altered the degree of isotope exchange in the system K_2SO_4-SO_3, which rose first to a maximum at the activity of 2.3 μc/g, passed through a minimum at 61 μc/g and then rose again. The degree of isotope exchange rose also with the duration of storage in spite of the reduction of radioactivity with time. External irradiation with electrons, equivalent to activities up to 50 μc/g, did not produce the effects observed in S^{35}-activated K_2SO_4. The activated sulfate adsorbed more methanol than the un-

Card 1/2

Radiation-chemical activation ... S/844/62/000/000/[illegible]
B207/B307

activated compound, indicating higher defect density in the surface; this conclusion was confirmed by electron microscopy. External irradiation with electrons produced lower surface defect density than did activation. The crystal structure and the particle size of K_2SO_4 were not affected by activation. There are 4 figures and 1 table.

ASSOCIATION: Institut fizicheskoy khimii AN SSSR (Institute of Physical Chemistry, AS USSR)

Card 1/1

SPITSYN, Vikt.I.; PIROGOVA, G.N.; MIKHAYLENKO, I.Ye.

Effect of ionizing radiation on the catalytic dehydration of n.dodecyl alcohol. Izv.AN SSSR.Otd.khim.nauk no.9:1515-1520 S '62. (MIRA 15:10)

1. Institut fizicheskoy khimii AN SSSR.
(Dodecyl alcohol) (Dehydration (Chemistry)) (Ionization)

SPITSYN, Viktt.I., akademik; MIKHAYLENKO, I.Ye.; PIROGOVA, G.N.

Effect of ionizing radiation on the catalytic activity of aluminum oxide in the dehydration of dodecyl alcohol. Dokl. AN SSSR 143 no.5:1152-1155 Ap '62. (MIRA 15:4)

1. Institut fizicheskoy khimii AN SSSR.
(Dodecyl alcohol) (Dehydration) (Aluminum oxide) (Ionization)

SPITSYN, VIKT, I., akademik; BALANDIN, A.A., akademik; MIKHAYLENKO, I.Ye.; DOBROSEL'SKAYA, N.P.

Dehydration of isopropyl alcohol on a radioactive tricalcium phosphate catalyst. Dokl. AN SSSR 146 no.5:1128-1131 O '62. (MIRA 15:10)

1. Institut fizicheskoy khimii AN SSSR.
(Isopropyl alcohol) (Dehydration (Chemistry)) (Calcium phosphate)

SPITSYN, Vikt. I.; MIKHAYLENKO, I.Ye.; PIROGOVA, G.N.

Catalyst activation by neutron bombardment. Atom. energ. 15 no.6:520-522 D '63. (MIRA 17:1)

S/020/63/148/003/028/037
B117/B186

AUTHORS: Mikhaylenko, Ye. Ye., Spitsyn, Vikt. I., Academician

TITLE: Effect of the radioactive radiation of Na_2WO_4 and Na_2SO_4 on the phase transitions of these compounds

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 148, no. 3, 1963, 613-616

TEXT: The effect of the radioactive radiation of Na_2WO_4 and Na_2SO_4 on their melting points and on the temperature of their phase transitions was investigated. Melting points and temperatures of polymorphous transformations of the Na_2WO_4 and Na_2SO_4 used, which were twice crystallized from water and annealed at 100 and 800°C respectively, agreed with published data. The preparations were treated in a nuclear reactor with slow neutrons ($5 \cdot 10^{12}$ n/cm²·sec) and γ-rays ($4 \cdot 10^7$ r/hr). Thermograms of irradiated and nonirradiated preparations were recorded with an accuracy of ±0.25°. Powdery preparations were investigated first and then the products solidified from their melts. It was established

Card 1/3

Effect of the radioactive ...

that for these preparations irradiation in the reactor does not cause a thermographically detectable change of their melting points or phase transition temperatures. A much stronger effect on the phase transitions is due to the radioactive radiation of the substances investigated. As compared with nonirradiated specimens the radioactive preparations had lower melting points and phase transition temperatures. These temperature reductions were found to be caused neither by the formation of radiochemical admixture nor by the deposition of the isotopes forming in the reactor, but to depend on irradiation time, holding time and specific radioactivity. For Na_2MoO_4, the temperature reduction of the polymorphous transformations could be observed only at relatively high specific radioactivity (~ 25 mCu/g), for Na_2SO_4, however, already at a low one (0.2-0.4 mCu/g). Reduction of the phase transition temperature is obviously connected with the increased free energy of the radioactive substance, owing to continuous emission. By the emission of β-particles, additional electric fields are formed in these substances which excite the electrons in the atoms. Tentative experiments showed a more

Card 2/4

complicated e.p.r. spectra [illegible] than for nonradioactive preparations. The causes of the effect of irradiation and holding time on the phase transition temperature [illegible] investigated. There are 1 figure and 2 tables.

ASSOCIATION: Institut fizicheskoy khimii Akademii nauk SSSR
(Institute of Physical Chemistry of the Academy of Sciences USSR)

SUBMITTED: October 10, 1962

Card 3/3

BALANDIN, A.A.; SPITSYN, Vikt.I.; DOBROSEL'SKAYA, N.P.; MIKHAYLENKO, I.Ye.

Determination of the specific surface of radioactive catalysts. Izv.AN SSSR.Ser.khim. no.2:379-382 F '64. (MIRA 17:3)

1. Institut fizicheskoy khimii AN SSSR i Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova.

SPITSYN, Vi.t.l., akademik; P[illegible]VA, V.[illegible]; [illegible]KHA/[illegible] I.Ye.

Catalytic properties of [illegible] in the dehydration of n-decyl alcohol. Dokl. AN SSSR 149 no.[illegible] D '63. (MIRA 17:1)

1. Institut fizicheskoy khimii AN SSSR.

[illegible], V.kt. [illegible]; [illegible], [illegible].Ye., PETR[illegible]VA, [illegible]M.

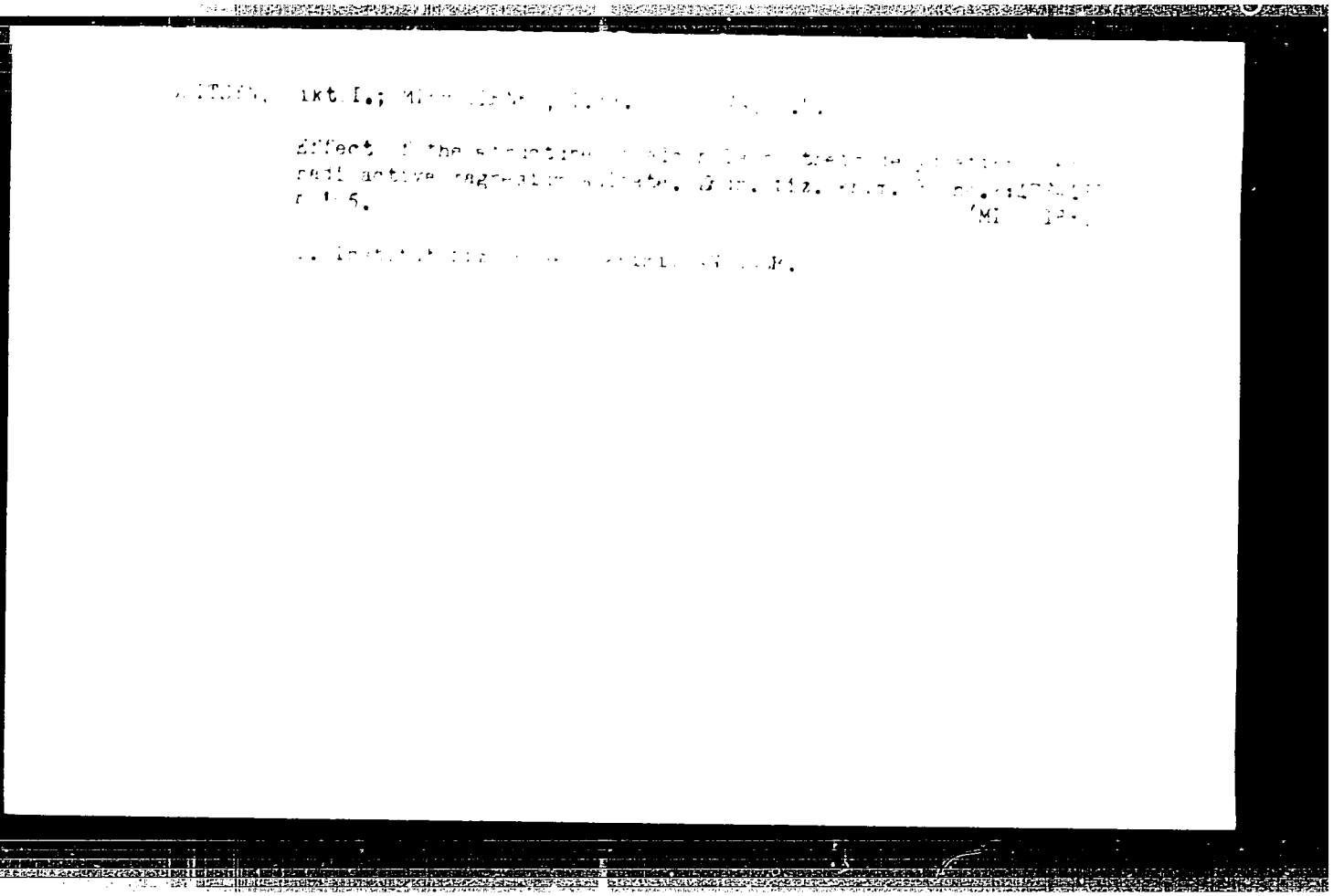
Catalytic dehydration of mono alcohols over [illegible] [illegible] sulfate. Kin. i kat. 6 no.[illegible]:735-736 [illegible] '65. [illegible]

[illegible]

BALANDIN, A.A.; SPITSYN, Vikt.I.; DOBROSEL'SKAYA, N.P.; MIKHAYLENKO, I. Ye.

Effect of the radiation of radioactive S^{35} on the catalytic dehydration of cyclohexanol. Zhur. fiz. khim. 39 no. 1: 258-261 Ja '65 (MIRA 19:1)

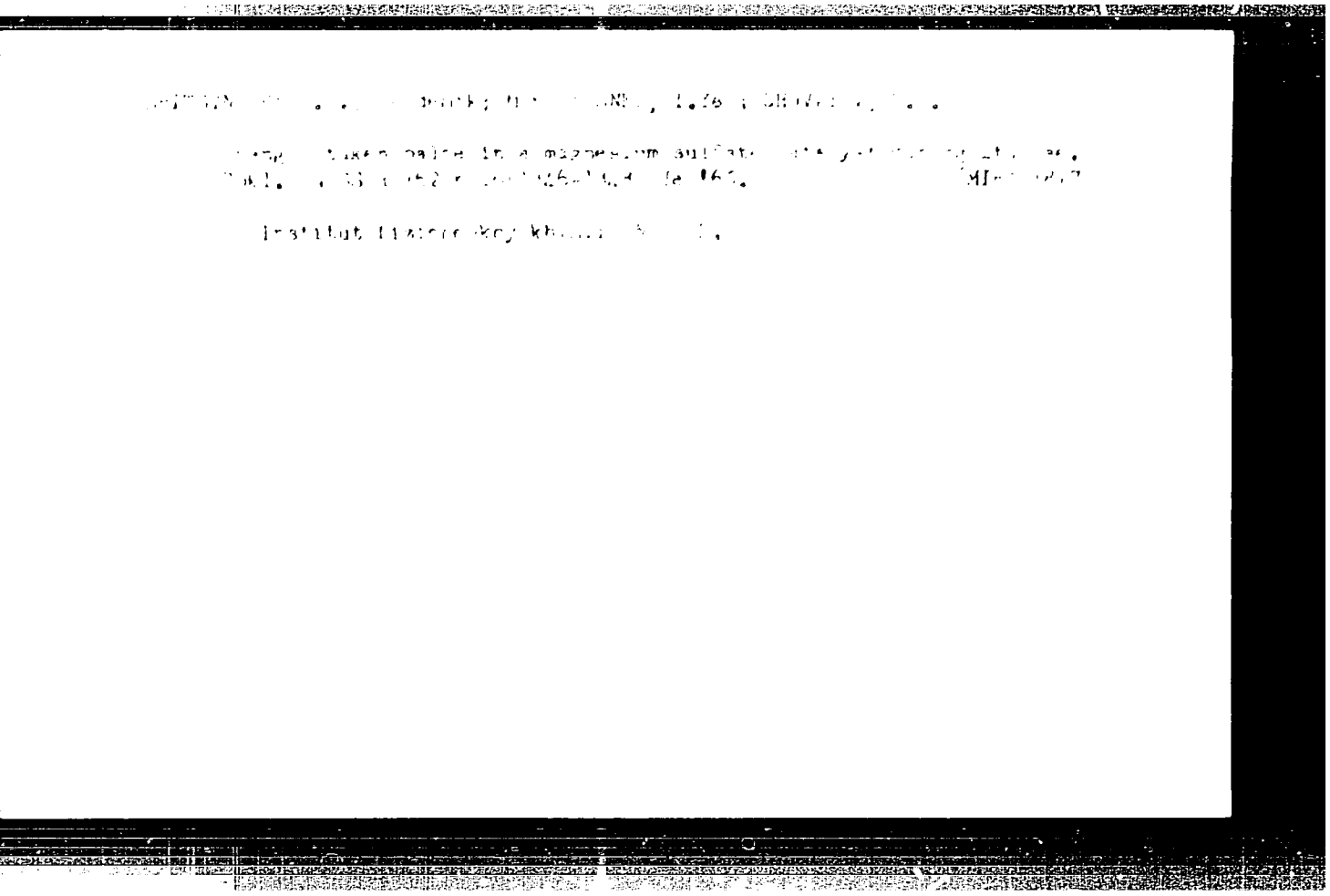
1. Institut fizicheskoy khimii AN SSSR i Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova. Submitted April 11, 1964.



AKHMANOV, M.V.; MIKHAYLENKO, I.Ye.

Infrared spectroscopy method for studying radioactive potassium sulfate. Zhur. fiz. khim. 39 no.9:2273-2275 S '65. (MIRA 18:10)

1. Institut fizicheskoy khimii AN SSSR i Institut geokhimii i analiticheskoy khimii imeni V.I. Vernadskogo.



ACC NR: AP7010694

SOURCE CODE: UR/0089/66/021/004/0277/0281

AUTHOR: Spitsyn, V. I.; Mikhaylenko, I. Ye.

ORG: none

TITLE: Application of radioactive catalysts to dehydration of spirits

SOURCE: Atomnaya energiya, v. 21, no. 4, 1966, 277-281

TOPIC TAGS: radiation effect, catalysis, heterogeneous catalysis, catalyst, dehydration

SUB CODE: 07

ABSTRACT: Radiation effects on catalytic processes were analyzed. It is shown that radioactive admixtures to the catalyst considerably altered the rate and energy of the apparent alcohol dehydration and in some cases the direction of the heterogenous-catalytic reactions. Radiation changed the quality of the catalyst and strongly influenced the adsorbed layer of molecules on the catalyst surface by inducing their polarization. The polarization magnitude depended on the structure of reacting molecules. Orig. art. has: 7 figures and 1 formula. [NA]

Card 1/1

UDC: 541.128.3:553.76

0930 2890

ACC NR: AP 1971 SOURCE CODE: UR/0020/66/171/004/0907/0910

AUTHOR: [illegible], (Academician); Shuykin, N. I. (Corresponding member [illegible]); Mikhaylenko, I. Ye.; Kotrova, O. M.

ORG: [illegible] of Physical Chemistry, AN SSSR (Institut fizicheskoy khimii AN SSSR)

TITLE: Conversion of n-hexane over alumina-chromia-potassia catalyst in a nuclear reactor

SOURCE: AN SSSR. Doklady, v. 171, no. 4, 1966, 907-910

TOPIC TAGS: gamma irradiation, neutron irradiation, catalyst, dehydrogenation, chemical energy conversion, hexane

SUB CODE: 07

ABSTRACT: A study was made of the behavior of alumina-chromia-potassia catalyst under the action of ionizing radiation. It was previously reported that in the dehydrogenation of methylcyclohexane to telvene in the presence of alumina-chromia catalyst promoted with potassia and cerium oxide, preliminary irradiation of the catalyst increases its catalytic activity. In the present work, a catalyst was chosen having a composition of 90.7 mole percent alumina, 5.6 mole percent chromia, and 3.7 percent potassia. It was used in the conversion of N-Hexane. The catalyst samples were irradiated

Card 1/2

UDC: 542.97

0930 2916

ACC NR: AP7010710

[illegible] clear reactor with slow neutrons and gamma rays. The experimental data show that irradiation of the catalyst results in significant increases in the yield of benzene. With repeated use of the catalyst, the benzene yield remained at a level corresponding to that of the unirradiated catalyst. Irradiation also appeared to affect the selectivity of the catalyst. The authors thank Ye. A. Timofeyev for providing the catalyst. Orig. art. has: 3 tables. /SUB: 40,351/

Card 2/2

ACC NR: AT7001789 SOURCE CODE: UR/3119/66/000/004/0107/0111

AUTHOR: Akhmanova, M. V.; Mikhaylenko, I. Ye.

ORG: Institute of Physical Chemistry, AN SSSR (Institut fizicheskoy khimii AN SSSR); Institute of Geochemistry and Analytical Chemistry im. Vernadskiy, AN SSSR (Institut geokhimii i analiticheskoy khimiii AN SSSR)

TITLE: Use of infrared spectroscopy for the investigation of defects in radioactive inorganic compounds

SOURCE: AN LatSSR. Institut fiziki. Radiatsionnaya fizika, no. 4, 1966. Ionnyye kristally (Ionic crystals), 107-111

TOPIC TAGS: ir spectroscopy, crystal lattice defect, radioactivity effect, balence band, inorganic anion

ABSTRACT: The purpose of the investigation was to check on the assumption that long-lived defects can be produced in a crystal lattice of a compound (specifically, K_2SO_4) by introducing a radioactive isotope in it (S^{35}). To this end, a number of radioactive K_2SO_4 samples were prepared and stored for a long time (698 - 1067 days), after which their infrared spectra were determined with a Zeiss UR-10 spectrometer to check the presence of long-lived defects. Out of the five expected absorption frequencies, only one, corresponding to the maximum of the valence band in the short-wave region of the spectrum (1200 cm^{-1}), exhibited noticeable splitting as a result of the increase in the absorbed dose of the radioactive samples. This maximum increased in intensity

Card 1/2

ACC NR: AT7001789

with increasing initial specific radioactivity of the compound. This can be interpreted as being due to the loss of one valence electron and consequently to a change in the total electron cloud of the SO_4 group. It is expected that similar changes occur in ionic compounds of this type, which include a complex anion group. Orig. art. has: 1 figure and 2 tables.

SUB CODE: 20/ SUBM DATE: 00/ ORIG REF: 005

Card 2/2

GENDENSHTEYN, E.I. [[illegible], E.I.]; IVANYUK, Ya.G. [[illegible]];
MI[illegible], [illegible] [Mykhailenko, L.[illegible]]

[illegible]tudy of the antiarrhythmic effect of cyclic [illegible]ylamino acetals.
Farmatsev. zhur. 19 no.[illegible]:57-5[illegible] '64. (MIRA 18:4)

1. Khar'kovskiy nauchno-issledovatel'skiy khimiko-farmatsevticheskiy
institut.

GENDENSHTEYN, E.I.; MIKHAYLENKO, L.A.

Antiarrhythmic action of serpentine in some experimental [illegible] of the auricular and ventricular rhythm. Biul. eksp. biol. i med. 57 no.4:70-73 Ap '64. (MIRA 18:3)

1. Laboratoriya [illegible] (zav. - kand. med. nauk Ye.I. Gendenshteyn) Khar'kovskogo nauchno-issledovatel'skogo khimiko-farmatsevticheskogo instituta. Submitted April 4, 1963.

GENDENSHTEYN, E.I.; MIKHAYLENKO, L.A.

Antiarrhythmic action of serpentine and its effect on the cardiac conduction system. Farm. i toks. 28 no.1:42-46 Ja-F '65. (MIRA 18:12)

1. Laboratoriya obshchey farmakologii (zav. - kand.med.nauk Ya.I.Khadzhay) Khar'kovskogo nauchno-issledovatel'skogo khimiko-farmatsevticheskogo instituta. Submitted September , 1963.

MIKHAYLENKO, M.A.

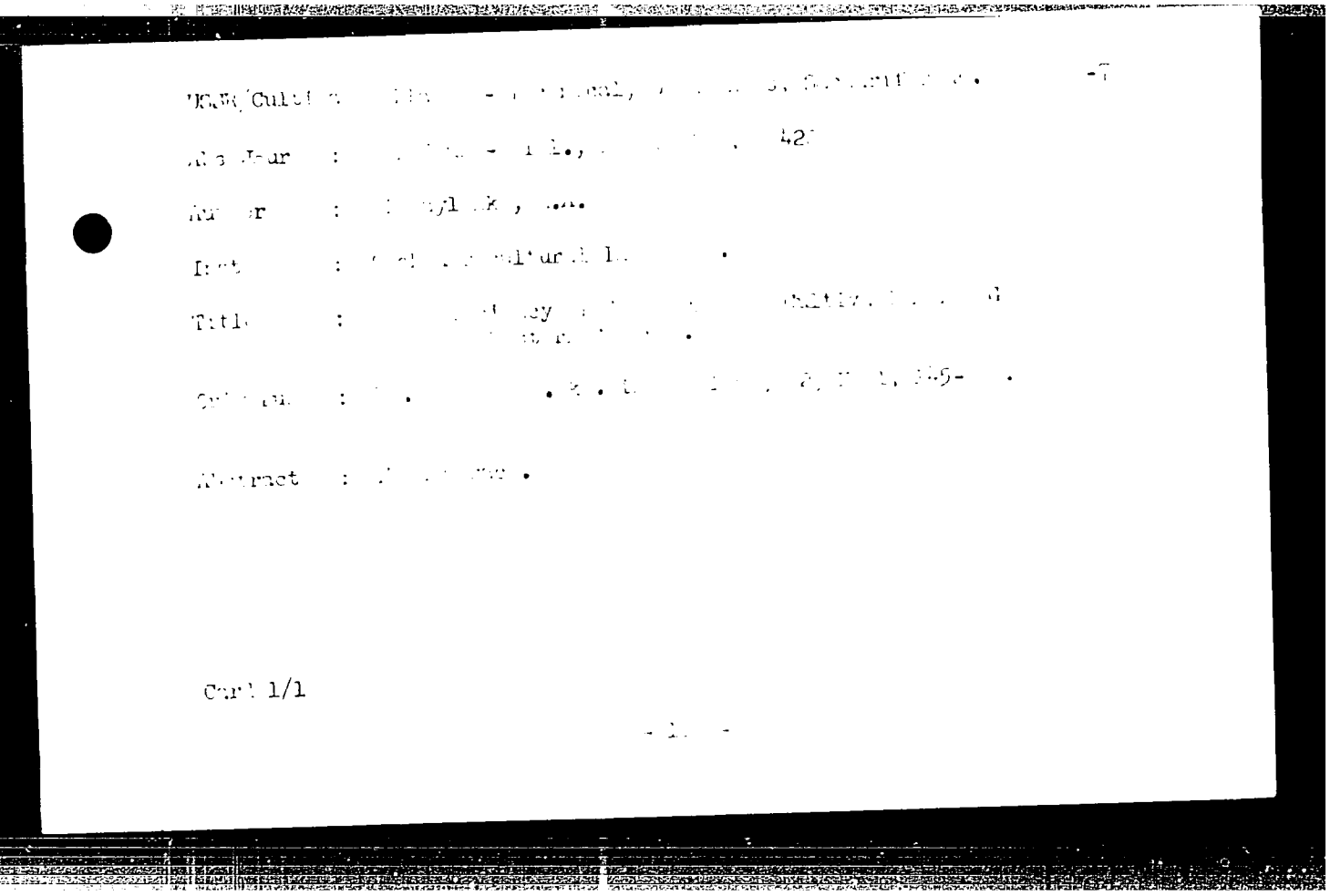
AFANAS'YEVA, A.L., kand.biol.nauk; BAYERTUYEV, A.A., kand.sel'skokhozyaystvennykh nauk; BAL'CHUGOV, A.V., kand.sel'skokhozyaystvennykh nauk; BELOZEROVA, N.A., agronom; BELOZOROV, A.T., kand.sel'skokhozyaystvennykh nauk; MAKSIMENKO, V.P., agronom; BERNIKOV, V.V., doktor sel'skokhozyaystvennykh nauk; BOGOMYAGKOV, S.T., kand.sel'skokhozyaystvennykh nauk; VOLYNETS, O.S., agronom; BODROV, M.S., kand.sel'skokhozyaystvennykh nauk; BOGOSLAVSKIY, V.P., kand.tekhn.nauk; KHRUPPA, I.F., kand.tekhn.nauk; VERNER, A.R., doktor biol.nauk; VOZBUTSKAYA, A.Ye., kand.sel'skokhozyaystvennykh nauk; VOINOV, P.A., kand.sel'skokhozyaystvennykh nauk; VYSOKOS, G.P., kand.biol.nauk; GALDIN, M.V., inzhener-mekhanik; GERASIMOV, S.A., kand.tekhn.nauk; GORSHENIN, K.P., doktor sel'skokhozyaystvennykh nauk; YELENEV, A.V., inzhener-mekhanik; GERASKEVICH, S.V., mekhanik [deceased]; ZHARIKOVA, L.D., kand.sel'skokhozyaystvennykh nauk; ZHEGALOV, I.S., kand.tekhn.nauk; ZIMINA, Ye.A., agronom; BARANOV, V.V., kand.tekhn.nauk; PAVLOV, V.D.; IVANOV, V.K., kand.sel'skokhozyaystvennykh nauk; KAPLAN, S.M., kand.sel'skokhozyaystvennykh nauk; KATIN-YARTSEV, L.V., kand.sel'skokhozyaystvennykh nauk; KOPYRIN, V.I., doktor sel'skokhozyaystvennykh nauk; KOCHERGIN, A.Ye., kand.sel'skokhozyaystvennykh nauk; KOZHEVNIKOV, A.R., kand.sel'skokhozyaystvennykh nauk; KUZNETSOV, I.N., kand.sel'skokhozyaystvennykh nauk; LAMBIN, A.Z., doktor biol.nauk; LEONT'YEV, S.I., kand.sel'skokhozyaystvennykh nauk; MAYBORODA, N.M., kand.sel'skokhozyaystvennykh nauk; MAKAROVA, G.I., kand.sel'skokhozyaystvennykh nauk; MEL'NIKOV, G.A., inzhener; ZHDANOV, B.A., kand.sel'skokhozyaystvennykh nauk; MIKHAYLENKO, M.A., kand.sel'skokhozyaystvennykh nauk; MAGILEVTSEVA, N.A., kand.sel'skokhozyaystvennykh nauk;

(Continued on next card)

AFANAS'YEVA, A.L.... (continued) Card 2.

NIKIFOROV, P.Ye., kand.sel'skokhozyaystvennykh nauk; NENASHEV, M.I., lesovod; PERVUSHINA, A.M., agronom; PLOTNIKOV, N.A., kand.biol.nauk; L.G.; kand.sel'skokhozyaystvennykh nauk; PAVLOV, V.D., kand.tekhn. nauk; PRUTSKOVA, M.G., kand.sel'skokhozyaystvennykh nauk; GURCHENKO, V.S., agronom; POPOVA, G.I., kand. sel'skokhozyaystvennykh nauk; PORTYANKO, A.F., agronom; RUCHKIN, V.N., prof.; RUSHKOVSKIY, T.V., agronom; SAVITSKIY, M.S., kand.sel'skokhozyaystvennykh nauk; BOLDIN, D.T., agronom; NESTEROVA, A.V., agronom; SERAFIMOVICH, L.B., kand. tekhn.nauk; SMIRNOV, I.N., kand.sel'skokhozyaystvennykh nauk; SEREBRYANSKAYA, P.I., kand.tekhn.nauk; TOKHTUYEV, A.V., kand. sel'skokhozyaystvennykh nauk; FAL'KO, O.S., izobr.; FEDYUSHIN, A.V., doktor biol.nauk; SHEVLYAGIN, A.I., kand.sel'skokhozyaystvennykh nauk; YUFEROV, V.A., kand.sel'skokhozyaystvennykh nauk; YAKHTENFEL'D, P.A., kand.sel'skokhozyaystvennykh nauk; SEMENOVSKIY, A.A., red.; GOR'KOVA, Z.D., tekhn.red.

[Handbook for Siberian agriculturists] Spravochnaia kniga agronoma Sibiri. Moskva, Gos. izd-vo sel'khoz. lit-ry. Vol.1. 1957. 964 p. (Siberia--Agriculture) (MIRA 11:2)



Card 1/1

A-58-1-23/55

AUTHOR: Mikhaylenko, M.A., Dotsent, Candidate of Agricultural Sciences Director of the Omsk Agricultural Institute imeni S.M. Kirov

TITLE: The First Agricultural Vuz of Soviet Siberia (Pervyy sel'skokhozyaystvennyy vuz sovetskoy Sibiri)

PERIODICAL: Vestnik Vysshey Shkoly, 1958, Nr 1, pp [illegible]

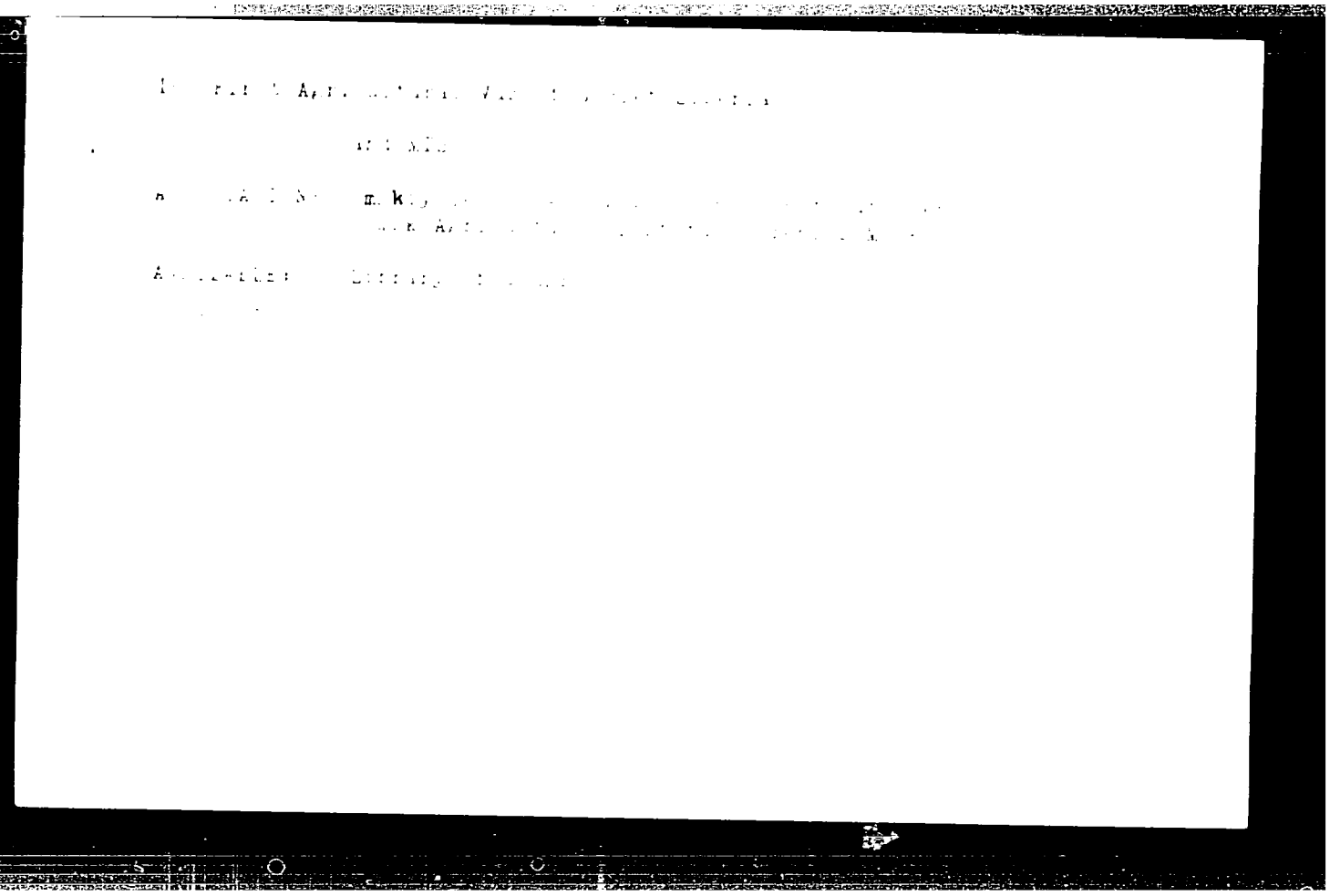
ABSTRACT: The author gives a review of his institute's development, since its founding 40 years ago. At present it is one of the largest agricultural vuzes in the USSR. At its [illegible] faculties, over 5,000 students are being trained (1,500 by correspondence) in 9 specialties: agronomics husbandry and fruit and vegetable growing), melioration and geodesy, zootechnics, economics of agriculture, dairy industry, agricultural mechanization and hydromelioration. During its existence the institute has trained over 7,000 specialists. Many of them have been awarded the Stalin Prize, as e.g., Professor and Member-Correspondent of the USSR Academy of Sciences I.Ya. Bey-Biyenko, Doctor of Agricultural Sciences, Professor P.A. Znamenskiy, Candidate of Agricultural Sciences I.N. Smirnov, Engineer-Cartographer N.F. Nikolenko, and others. Extensive scientific-research work is being conducted at the institute. The workers of the Chair of Soil Science, headed by the Laureate of the Lenin Prize,

Card 1/3

The First Agricultural Va[illegible]

Professor [illegible] have drawn up [illegible] an area of about [illegible] were [illegible] a soil map of Siberia [illegible] of Doctor of Agricultural [illegible] Professor [illegible] are a most valuable [illegible] Soviet [illegible] a scientific [illegible] proved by [illegible] horticulture in Siberia [illegible] The Chair of Agri[illegible] culture has generalized [illegible] experience in cultivating soil according [illegible] Professor N.L. [illegible] of fallow land [illegible] the spring wheat [illegible] the effect of [illegible] strontium on the [illegible] plants has been [illegible] A.Z. Lamkin. [illegible] conducted by [illegible] and Meteorology [illegible] assistance given by [illegible]

[illegible] 2/3



PORTNOV, A.I.; MIKHAYLENKO, M.I.

Use of aromatic acids in pharmaceutical analysis. Apt. delo 9 no. 4:11-15 Jl-Ag '60. (MIRA 13:8)

1. Kafedra farmatsevticheskoy khimii (zav. - prof. A.I. Portnov) Odesskogo farmatsevticheskogo instituta (dir. - dotsent A.G. Trotsenko).

(ACIDS, ORGANIC)

MIKHAYLENKO, M.I.

Use of p-hydroxy -m-nitrophenylphosphinic acid in the analysis for zirconium. Zhur. VKHO 6 no.2:232-233 '61. (MIRA 14:3)

1. Zaporozhskiy farmatsevticheskiy institut.
(Zirconium—Analysis) (Phosphinic acid)

SOV/169-59-5-5048

Translation from: Referativnyy zhurnal, Geofizika, 1959, Nr 5, p 106 (USSR)

AUTHOR: Mikhaylenko, M.M.

TITLE: On the History of Studying the Progressive Motion of Cyclones

PERIODICAL: Geogr. zb. Geogr. t-vo UkrSSR, 1958, Nr 2, pp 137 - 148 (Ukr. res. Russian)

ABSTRACT: The author, using record materials and literature sources, aims to deal with the role of the Russian and Soviet scientists in investigating the problems of the progressive motions of cyclones. The ingenious Russian scientist M.V. Lomonosov expressed important ideas connected with the problems of weather forecasting. A.I. Voyeykov developing the ideas of M.V. Lomonosov, expressed the conception on the dependence of the weather conditions on the movements of cyclones and anticyclones, the progressive motion of which is closely connected with the predominant main current of air, and I.P. Brounov supposed that the velocity of the progressive motion of cyclones depends directly on the velocity of air currents in the upper layers of the atmosphere

Card 1/3

On the History of Studying the Progressive Motion of Cyclones

These main assumptions were a basis for the development of investigations of the progressive motion of cyclones. Already in beginning of the second half of the XIX century, the Main Physical Observatory (at present the Main Geophysical Observatory imeni A.I. Voyeykov) performed the first studies using the charts for investigating the ways of displacement of regions with high and low pressures. In the second half of the XIX century, a detailed study of the courses and velocities of cyclone shifts over the territory of the European part of Russia was begun. At this time, based mainly on the work of P.I. Brounov and B.I. Sreznevskiy, the first forecasting rules were compiled. The mentioned scientists founded the isallobar method applied widely abroad and came back to the homeland merely in 1912 in somewhat varied form under the foreign name. In 1882, Brounov formulated the law on the shift of cyclones along the isotherms of a warm section; this law attained wide application in practice. Moreover, Brounov determined the dependence of the velocity of motion of cyclones on the magnitude of the horizontal gradient of temperature. Academician M.A. Rykachev performed a large work on the study of the courses of shift of cyclones; the scientist discerned 12 predominant trajectories of cyclones and determined the mean twenty-four-hour

On the History of Studying the Progressive Motion of Cyclones

velocity for days, months, and seasons. The work of the Russian scientists surpassed by far the level of development of science in those times Toward the end of XIX century, the connection between the cyclon shift and the characteristics of distribution of pressure, wind, and temperature in the region of a cyclone was determined and the greater mobility of the cyclones becoming deeper in comparison with the filling up and the anomal cyclones was observed. The Soviet scientists continue the investigations begun by their predecessors. The work on the theoretical and applied meteorology carried out by the Soviet scientists Fridman, Kochin, Kibel', Troitskiy, Lyubyuk, Mikhel', Khromov, and others, won the world recognition At present the existing methods are being made more precise and new methods are being developed on the basis of the last achievements of the theoretical and synoptic meteorology.

A Z Chekirda

MIKHAYLENKO, M.V.

Clarification of pulp waters in oil shale preparation plants.
Khim. i tekh. gor. slan. i prod. ikh perer no.13:74-79 '64.
(MIRA 18:9)

MIKHAYLENKO, M.V.

Investigating [illegible] shales in the first shale-[illegible] plant [illegible]. Trudy [illegible] perer no. [illegible] [illegible]

BURSHTEYN, M.P., inzh.; MIKHAYLENKO, M.V., inzh.; SETAROV, F.S., inzh.; TSOGOYEV, N.A., inzh.

Use of "igdanit" in composite chamber charges. Vzryv. delo no.51/8:133-143 '63. (MIRA 16:6)

1. Uzbekvzryvprom.
(Explosives) (Blasting)

MIKHAYLENKO, N.N.

ZHURAVKOV, M.G., doktor filosofskikh nauk, polkovnik, nauchnyy sotrudnik,; BELYY, B. A., dots, polkovnik, nauchnyy sotrudnik,; SHABAYEV, G.Ye., kand. istoricheskikh nauk, polkovnik, nauchnyy sotrudnik,; ZAKHAROV, V.A., kand. istoricheskikh nauk, polkovnik, nauchnyy sotrudnik,; MIKHAYLENKO, N.N., kand. istoricheskikh nauk, polkovnik, nauchnyy sotrudnik,; MARYGANOV, I.V., dots, polkovnik, nauchnyy sotrudnik,; ARISTOV, A.D., polkovnik, red.; KONOVALOVA, Ye. K., tekhn. red.

[Moral and political factors in modern war] Moral'no-politicheskii faktor v sovremennoi voine. Moskva, Voen. izd-vo M-va obor. SSSR, 1958. 310 p. (MIRA 11:12)

1. Voenno-politicheskaya krasnoznamennaya akademiya imeni V.I. Lenina (for all except Aristov, Konovalova). (Morale)

MIKHAYLENKO, N.P., inzh.; YAROVAYA, R.L., inzh.

Experience of the Poltava Oils and Fats Combine. Masl.-zhir. prom. 26 no.2:37-39 F '60. (MIRA 13:5)

1. Poltavskiy maslozhirovoy kombinat.
(Poltava--Oil industries)

MIKHAYLENKO, Nikolay Terent'yevich; ALEKSANDROV, N.G., doktor yurid. nauk, prof., nauchn. red.; RADVOGIN, A.V., red.; TIKHONOVA, L.I., tekhn. red.

[Consolidation of socialist labor discipline in the period of the large-scale building of communism; based on materials from Kirghizistan] Ukreplenie sotsialisticheskoi distsipliny truda v period razvernutogo stroitel'stva kommunizma; na materialakh Kirgizii. Frunze, Kirgizskii gos.univ., 1962. 154 p. (MIRA 17:1)

MIKHAYLENKO, O.O. [Mykhaylenko, O.O.]

Work on improving the design of cutting tools during the Great Patriotic War. Mar.s ist.tekh. no.5:82-95 '59. (MIRA 13:5)

(Metal cutting tools)

MIKHAYLENKO, O.O. [Mykhailenko, O.O.]

History of the development in the U.S.S.R. of the design of metal-cutting tools with an automatically turning cutting edge. Nar. z ist. tekh. no.6:123-134 '60. (MIRA 13:11)
(Metal-cutting tools)

MIKHAYLENKO, O.O. [Mykhailenko, O.O.]

History of the development of metal-cutting tools in connection with the automation of metal cutting processes. Nar.z ist.tekh. no.7:67-73 '61. (MIRA 15:2)

(Metal-cutting tools)
(Automation)

MIKHAYLENKO, O.T. [Myhailenko, O.T.], rayonnoy akusher-ginekolog

Rare case of abdominal full-term pregnancy. Ped., akush. i gin. 22 no.6:67-68 '60. (MIRA 14:10)

1. Dil'nichna likarnya (golovniy likar - F.D.Ligirda [Lihydra, F.D.], naukoviy konsul'tant - prof. M.S.Baksheyev [Baksheiev, M.S.]) S.N.Vorota, Volovets'kogo rayonu, Zakarpats'koi oglasti URSR.
(PREGNANCY, EXTRA-UTERINE)

BAKSHEYEV, M.S. [Baksheiev, M.S.], prof.; TIMOSHENKO, L.V. [Tymoshenko, L.V.], dotsent; MIKHAYLENKO, O.T. [Mykhaĭlnenko, O.T.]; LYAVINETS, O.S. [Liavynets', O.S.]

Use of a new preparation, ataractic andaxin, in obstetrics and gynecology. Ped., akush. i gin. 23 no.6:35-39 '61. (MIRA 15:4)

1. Kafedra akusherstva i ginekologii No.1 (zav. - prof. M.S.Baksheyev [Bakshéiev, M.S.]) Kiyevskogo meditsinskogo instituta im. akad. Bogomol'tsa Irektor - dotsent V.D.Bratus').
(MEPROBAMATE) (OBSTETRICS) (GYNECOLOGY)

BAKSHEYEV, M.S. [Baksheiev, M.S.], prof.; TIMOSHENKO,L.V. [Tymoshenko,L.V.] dotsent; MIKHAYLENKO, O.T. [Mykhailenko, O.T.], aspirant.

Analysis of the causes of maternal mortality from hemorrhages in labor according to materials from some maternity hospitals in the Ukrainian S.S.R. Ped., akush. i gin. 24 no.1:38-42'62. (MIRA 16:8)

1. Kafedra akusherstva i ginekologii No.1 (zav. - prof. M.S. Baksheyev [Baksheiev, M.S.] Kiyevskogo meditsinskogo instituta (rektor - dotsent V.D.Bratus).

(UKRAINE--MOTHERS--MORTALITY) (HEMORRHAGE, UTERINE)

MIKHAYLENKO, O.T. [Mykhailenko, O.T.]

Some current problems in the biochemistry of the contraction of uterine muscle. Ped., akush. i gin. 25 no.1:50-54 '63. (MIRA 16:5)

1. Kafedra akusherstva i ginekologii No.1 (zav.-prof. M.S. Baksheyev [M.S.Baksheiev]) Kiivs'kogo medichnogo institutu (rektor - dotsent V.D.Bratus').

(LABOR (OBSTETRICS)) (UTERUS, PREGNANT)
(BIOCHEMISTRY)

MIKHAYLENKO, P.

Two innovations. Sov.shakht. 11 no.4:30-31 Ap '62. (MIRA 15:3)
(Coal mining machinery--Technological innovations)

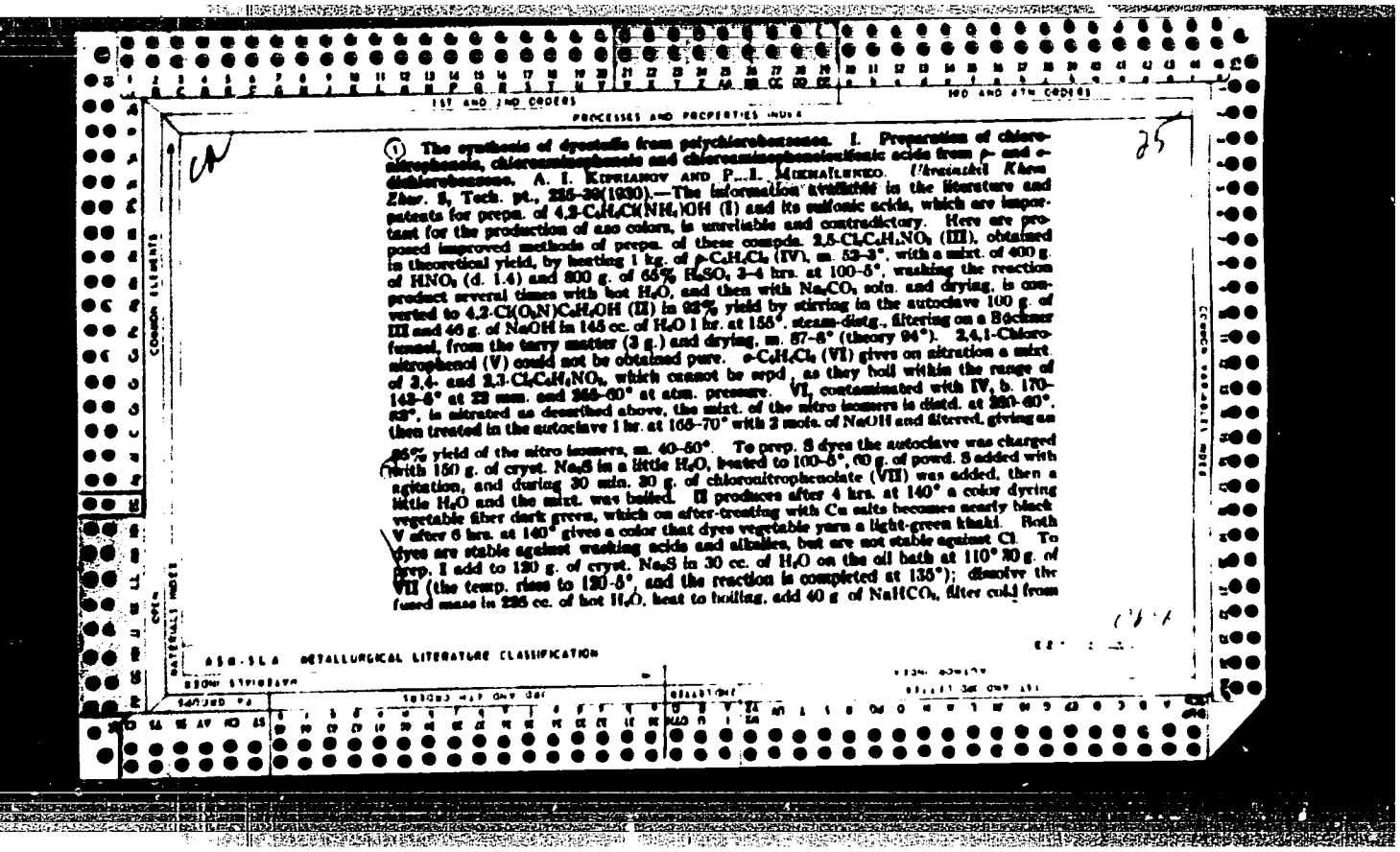
MOSKALETS, A.A., insh.; MIKHAYLENKO, P.A., tekhnik

Circuit for conveyor stopping by means of control push buttons mounted on the cutter loader. Ugol.prom. no.5:68-69 S-O '62. (MIRA 15:11)

1. Shakhta No.6-14 Krasnogvardeyskogo tresta ugol'nykh predpriyatiy Donbassa.
(Conveying machinery) (Remote control)

MIKHAY'ENKO, P.A., gornyy tekhnik

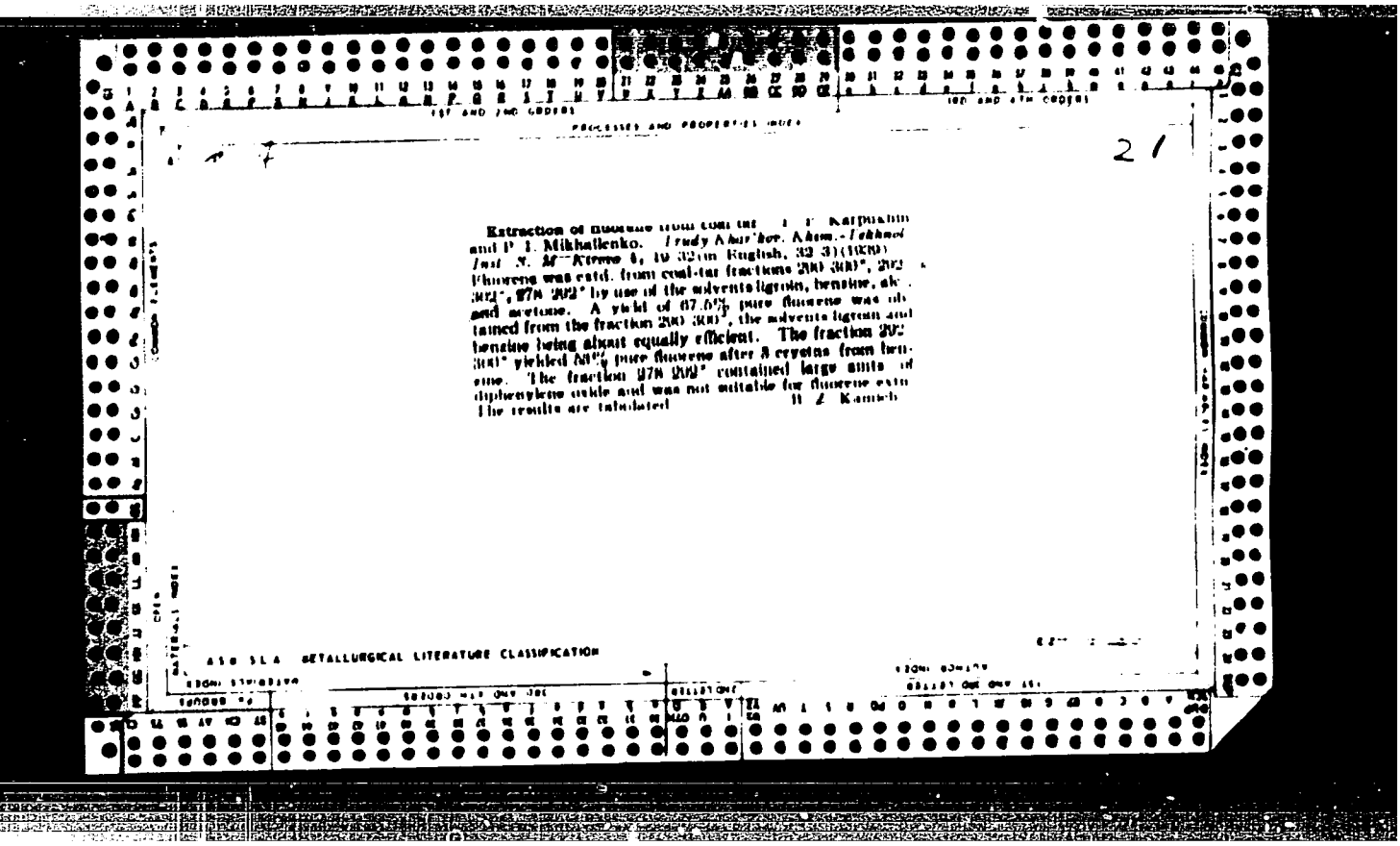
Connecting a reserve electric motor. Ugol' Ukr. 7 no.1 [illegible]
[illegible]. (MIRA [illegible])



① The synthesis of dyestuffs from polychlorobenzenes. I. Preparation of chloronitrophenols, chloroaminophenols and chloroaminophenolsulfonic acids from p- and o-dichlorobenzenes. A. I. Kiprianov and P. I. Mikhalenko. *Ukrainskii Khim. Zhur.* 5, Tech. pt., 225–39(1930).—The information available in the literature and patents for prepn. of 4,2-$C_6H_3Cl(NH_2)OH$ (I) and its sulfonic acids, which are important for the production of azo colors, is unreliable and contradictory. Here are proposed improved methods of prepn. of these compds. 2,5-$Cl_2C_6H_3NO_3$ (III), obtained in theoretical yield, by heating 1 kg. of p-$C_6H_4Cl_2$ (IV), m. 52–3°, with a mixt. of 400 g. of HNO_3 (d. 1.4) and 800 g. of 65% H_2SO_4 3–4 hrs. at 100–5°, washing the reaction product several times with hot H_2O, and then with Na_2CO_3 soln. and drying, is converted to 4,2-$Cl(O_2N)C_6H_3OH$ (II) in 92% yield by stirring in the autoclave 100 g. of III and 46 g. of NaOH in 145 cc. of H_2O 1 hr. at 155°, steam-distg., filtering on a Büchner funnel, from the tarry matter (3 g.) and drying, m. 67–8° (theory 94°). 2,4,1-Chloronitrophenol (V) could not be obtained pure. o-$C_6H_4Cl_2$ (VI) gives on nitration a mixt. of 2,4- and 2,3-$Cl_2C_6H_3NO_3$, which cannot be sepd., as they boil within the range of 142–5° at 23 mm. and 265–60° at atm. pressure. VI, contaminated with IV, b. 170–85°, is nitrated as described above, the mixt. of the nitro isomers is distd. at 260–80°, then treated in the autoclave 1 hr. at 165–70° with 2 mols. of NaOH and filtered, giving an 86% yield of the nitro isomers, m. 40–50°. To prep. S dyes the autoclave was charged with 150 g. of cryst. Na_2S in a little H_2O, heated to 100–5°, 60 g. of powd. S added with agitation, and during 30 min. 30 g. of chloronitrophenolate (VII) was added, then a little H_2O and the mixt. was boiled. II produces after 4 hrs. at 140° a color dyeing vegetable fiber dark green, which on after-treating with Cu salts becomes nearly black. V after 6 hrs. at 140° gives a color that dyes vegetable yarn a light-green khaki. Both dyes are stable against washing acids and alkalies, but are not stable against Cl. To prep. I add to 120 g. of cryst. Na_2S in 30 cc. of H_2O on the oil bath at 110° 30 g. of VII (the temp. rises to 120–5°, and the reaction is completed at 135°); dissolve the fused mass in 225 cc. of hot H_2O, heat to boiling, add 40 g. of $NaHCO_3$, filter cold from

Na_2SO_4, again treat the filtrate with 10 g. of $NaHCO_3$ while boiling, filter off I, and wash sparingly with cold H_2O; yield of I 15.6 g. (76.5%), m. 138°. The filtrate on concn. and pptn. with $NaHCO_3$ yields addnl. 2.6 g. of I, or a total of 89.5%. To prep. the sulfonic acids (1) heat a mixt. of 20 g. of $NaHSO_3$ in 20 cc. of H_2O with 4 g. of I 30 min. on the water bath, pour onto ice, filter off the ppted. acid and dry (yield 80%); (2) reflux a mixt. of 20 g. of II and 200 g. of 31% $NaHSO_3$ (5 mols.) until all dissolves (about 3.5 hrs.), add 22 cc. of 10% HCl, and filter off the ppt. cold. The filtrates on concn. ppt. addnl. sulfonic acid; thus in all 17.7 g. (68.6%) of the acid is obtained. The 2 sulfonic acids appear to be isomers; presumably by direct sulfonation of I is obtained 4,2,1,5-, and by the action of $NaHSO_3$ on II is produced 4,2,1,6-$C_6H_2Cl(NH_2)(OH)SO_3H$. They differ in solv. in H_2O, and in giving different shades in dyeing. Attempts to obtain with VI results analogous to those with IV have failed. II. Preparation of chloronitroanilines from *p*- and *o*-dichlorobenzene. A. I. Kiprianov and M. M. Dashevskii. *Ibid* 241–8.—*4,2-Chloronitroaniline* (I) was prepd. by heating with a free flame in an iron autoclave at 175° for 6 hrs., or at 200° for 3 hrs., 60 g. of 2,1,4-$C_6H_3(NO_2)Cl_2$ (II) with 120 cc. of 27% aq. NH_3, continuing the stirring (150 r. p. m.) while cooling, filtering through a Buchner funnel, washing with water and drying in a vacuum desiccator over H_2SO_4; the yield was 99.3% of light colored I, m. 113–6° and after recrysta. m. 116–7°. A lower concn. of NH_3 impairs the yield and the purity of I, and so does the addn. of Cu. *2,4-Chloronitroaniline* (III) was prepd. from 4,1,2-$C_6H_3(NO_2)Cl_2$ (IV), obtained by nitration of *o*-$C_6H_4Cl_2$, on treating with aq. NH_3 in an autoclave as described above, and after recrysta. from alc. it m. 106–7°. The process is complicated by the difficulty of obtaining IV free from II.

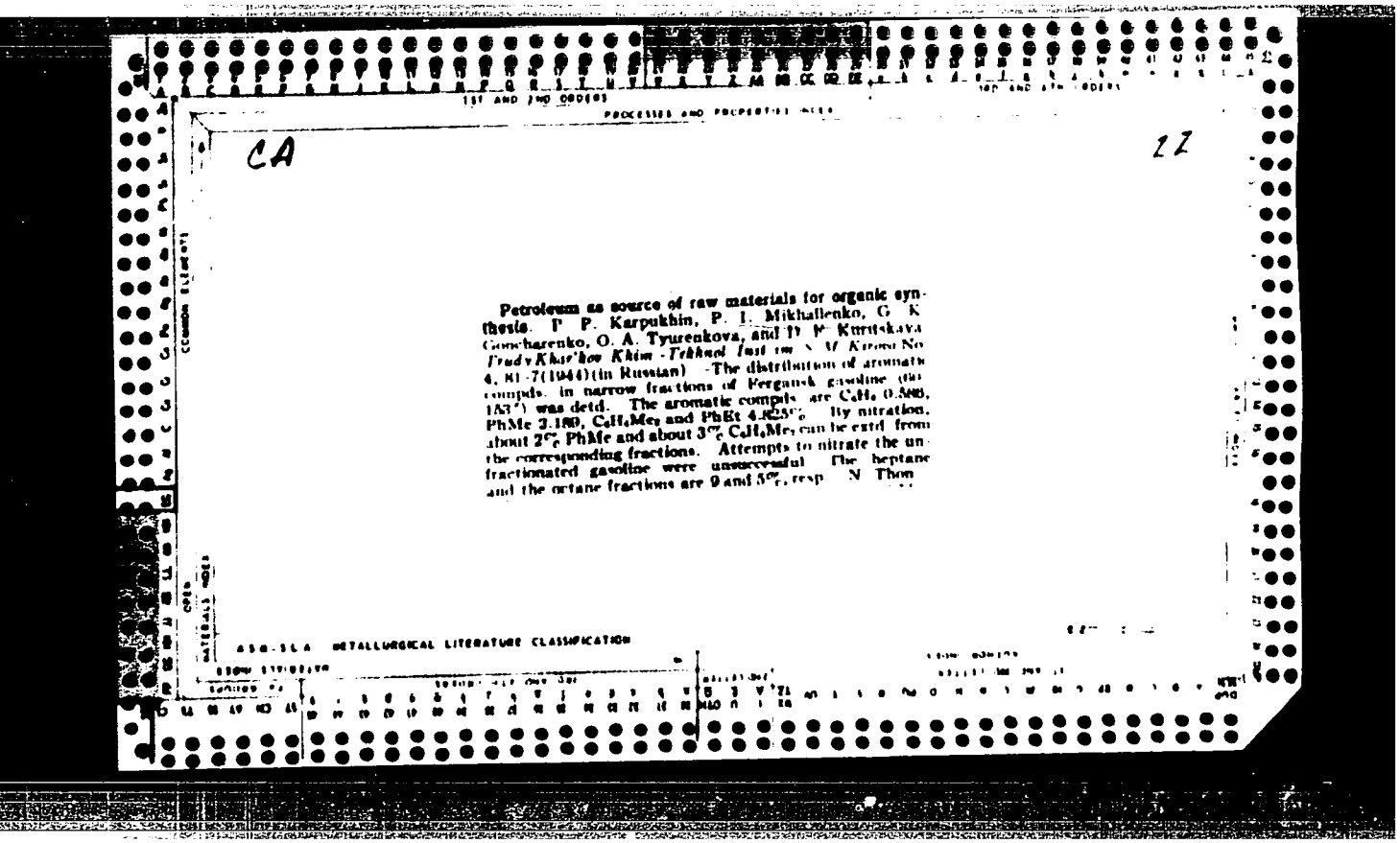
Chas. Blanc



21

Extraction of fluorene from coal-tar [illegible] Karpukhin and P. I. Mikhailenko. *Trudy Khar'kov. Khim.-Tekhnol. Inst. S. M. Kirova* 6, 19-32 (in English, 32-3) (1958). Fluorene was extd. from coal-tar fractions 200-300°, 202-302°, 278-302° by use of the solvents ligroin, benzine, alc. and acetone. A yield of 67.6% pure fluorene was obtained from the fraction 200-300°, the solvents ligroin and benzine being almost equally efficient. The fraction 202-300° yielded 80% pure fluorene after 3 crystns from benzine. The fraction 278-302° contained large amts. of diphenylene oxide and was not suitable for fluorene extn. The results are tabulated. M. Z. Kamich

A 50 51 A METALLURGICAL LITERATURE CLASSIFICATION



CA

11

Petroleum as source of raw materials for organic synthesis. P. P. Karpukhin, P. I. Mikhailenko, G. K. Goncharenko, O. A. Tyurenkova, and P. P. Kurtskava. *Trudy Khar'kov. Khim.-Tekhnol. Inst. im. S. M. Kirova* No. 4, 81-7(1944)(in Russian). The distribution of aromatic compds. in narrow fractions of Fergansk gasoline (to 183°) was detd. The aromatic compds. are C_6H_6 0.8%, PhMe 3.1%, $C_6H_4Me_2$ and PhEt 4.8-5%. By nitration, about 2% PhMe and about 3% $C_6H_4Me_2$ can be extd. from the corresponding fractions. Attempts to nitrate the unfractionated gasoline were unsuccessful. The heptane and the octane fractions are 9 and 5%, resp. N. Thon

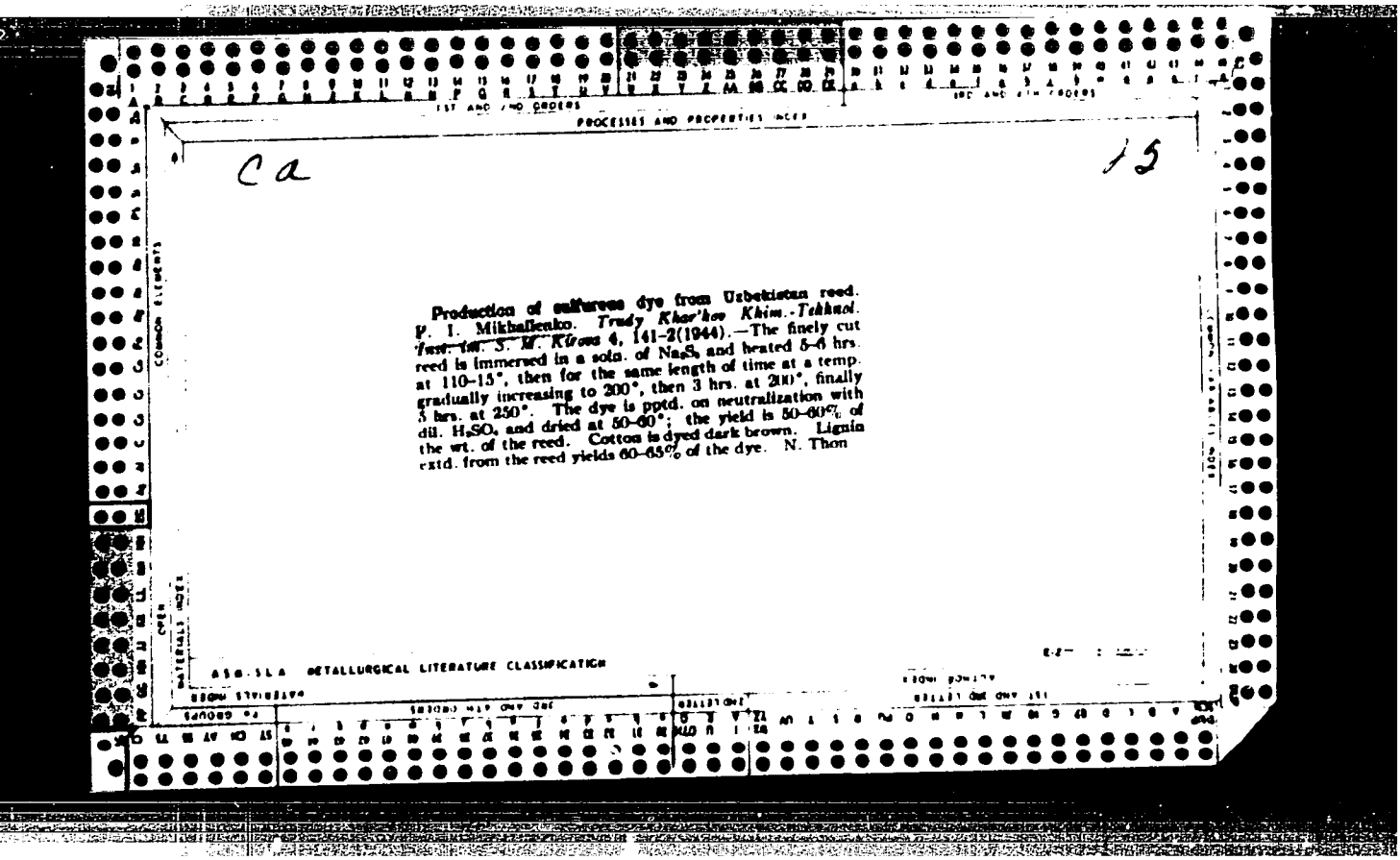
PROCESSES AND PROPERTIES

CA

9

Preparation of Neozone D antioxidant. P. I. Karpukhin, P. I. Mikhailenko, O. A. Tverenkova, and B. S. ... *Trudy Khar'kov. Khim. Tekhnol. Inst. im. S. M. Kirova* 4, 140-1 (1944). Heating of a mixt. of 2-naphthol with aniline and 0.5 mole $KHSO_4$ at 180-200° for 2 hrs. gave a 93% yield. With 0.04 mole H_2SO_4 per mole Neozone, the yield was 90%. Corrosion of the iron app. was 0.5 g./sq. m./hr.

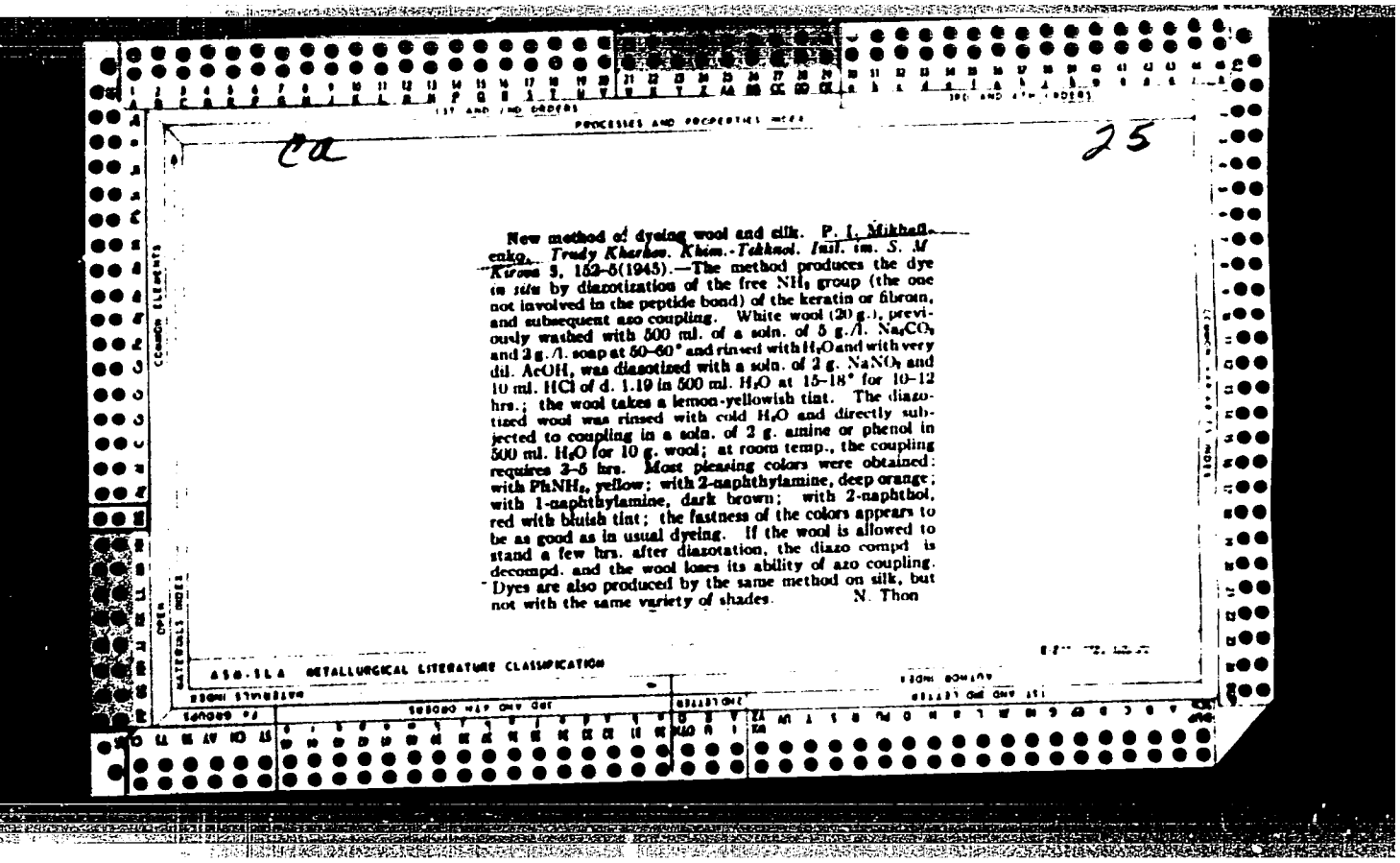
ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



Ca 15

Production of sulfurous dye from Uzbekistan reed. V. I. Mikhailenko. *Trudy Khar'kov Khim.-Tekhnol. Inst. im. S. M. Kirova* 4, 141-2(1944).—The finely cut reed is immersed in a soln. of Na_2S and heated 5-6 hrs. at 110-15°, then for the same length of time at a temp. gradually increasing to 200°, then 3 hrs. at 210°, finally 5 hrs. at 250°. The dye is pptd. on neutralization with dil. H_2SO_4 and dried at 50-60°; the yield is 50-60% of the wt. of the reed. Cotton is dyed dark brown. Lignin extd. from the reed yields 60-65% of the dye. N. Thon

A56-11A METALLURGICAL LITERATURE CLASSIFICATION



New method of dyeing wool and silk. P. I. Mikhaĭlenko. *Trudy Kharkov. Khim.-Tekhnol. Inst. im. S. M Kirova* 3, 152–5(1945).—The method produces the dye *in situ* by diazotization of the free NH_2 group (the one not involved in the peptide bond) of the keratin or fibroin, and subsequent azo coupling. White wool (20 g.), previously washed with 500 ml. of a soln. of 5 g./l. Na_2CO_3 and 2 g./l. soap at 50–60° and rinsed with H_2O and with very dil. AcOH, was diazotized with a soln. of 2 g. $NaNO_2$ and 10 ml. HCl of d. 1.19 in 500 ml. H_2O at 15–18° for 10–12 hrs.; the wool takes a lemon-yellowish tint. The diazotized wool was rinsed with cold H_2O and directly subjected to coupling in a soln. of 2 g. amine or phenol in 500 ml. H_2O for 10 g. wool; at room temp., the coupling requires 2–5 hrs. Most pleasing colors were obtained: with $PhNH_2$, yellow; with 2-naphthylamine, deep orange; with 1-naphthylamine, dark brown; with 2-naphthol, red with bluish tint; the fastness of the colors appears to be as good as in usual dyeing. If the wool is allowed to stand a few hrs. after diazotation, the diazo compd is decompd. and the wool loses its ability of azo coupling. Dyes are also produced by the same method on silk, but not with the same variety of shades. N. Thon

MIKHAYLENKO, P.I., kand.tekhn.nauk

Dyeing protein fibers with nitroso dyes developed on them. Tekst. prom. 18 no.4:34-38 Ap '58. (MIRA 11:4)
(Dyes and dyeing--Chemistry)

MIKHAYLENKO, P.I.

Studying the structure of metal-containing complexes of nitroso and azo dyes produced directly on protein and polyamide fibers. Report No.1: Study of the interaction of chrome salts with wool keratins. Izv. vys. ucheb. zav.; tekh. teks. prom. no. 2:104-114 '61. (MIRA 14:5)

1. Khar'kovskiy politekhnicheskiy institut imeni V.I. Lenina.
(Dyes and dyeing)

MIKHAYLENKO, P.I.; BUTENKO, V.I.

Studying the structure of metallized dye complexes. Report No.3: Formation of color complex compounds from 1,8 dioxynaphtalene-3-6 disulfonic acid (chromotropic acid). Izv.vys.ucheb.zav.; tekh. tekst.prom. no.6:103-110 '62. (MIRA 16:2)

1. Khar'kovskiy politekhnicheskiy institut imeni V.I.Lenina.
(Dyes and dyeing--Chemistry) (Naphtalenesulfonic acid)

MIKHAYLENKO, P.I. [Mykhailenko, P.I.]; BUTENKO, V.I.; KHAVKINA, P.S.
GUTINA, G.L. [Hutina, H.L.]

Dyeing of lavsan fibers with dispersion dyes. Leh. prom. no.2:
27-29 Ap-Je '64 (MIRA [illegible])

MIKHAYLENKO, I.I., BUTENKO, V.I.

Studying the structure of metallized dye complexes. Izv. vys. ucheb. zav.; tekh. tekst. prom. no.6:85-91 '64.

(MIRA 18:3)

1. Khar'kovskiy politekhnicheskiy institut imeni Lenina.

MIKHAYLENKO, P.I.; BUTENKO, V.I.

Using the leuconic acid method in dyeing lavsan and nitron synthetic fibers with vat dyes. Izv. vys. uchebn. zav.; tekh. tekst. prom. no.4:98-102 '65. (MIRA 18:9)

1. Khar'kovskiy politekhnicheskiy institut imeni Lenina.

OLEYNIKOVA, A.I.; DZHALALOV, A.N.; MIKHAYLENKO, P.N.

Mine filling with a scraper. Ugol'.prom. no.3:83-84 My-Je '62.
(MIRA 18:3)

MIKHAYLENKO, P.P.

(Petr Petrovich)

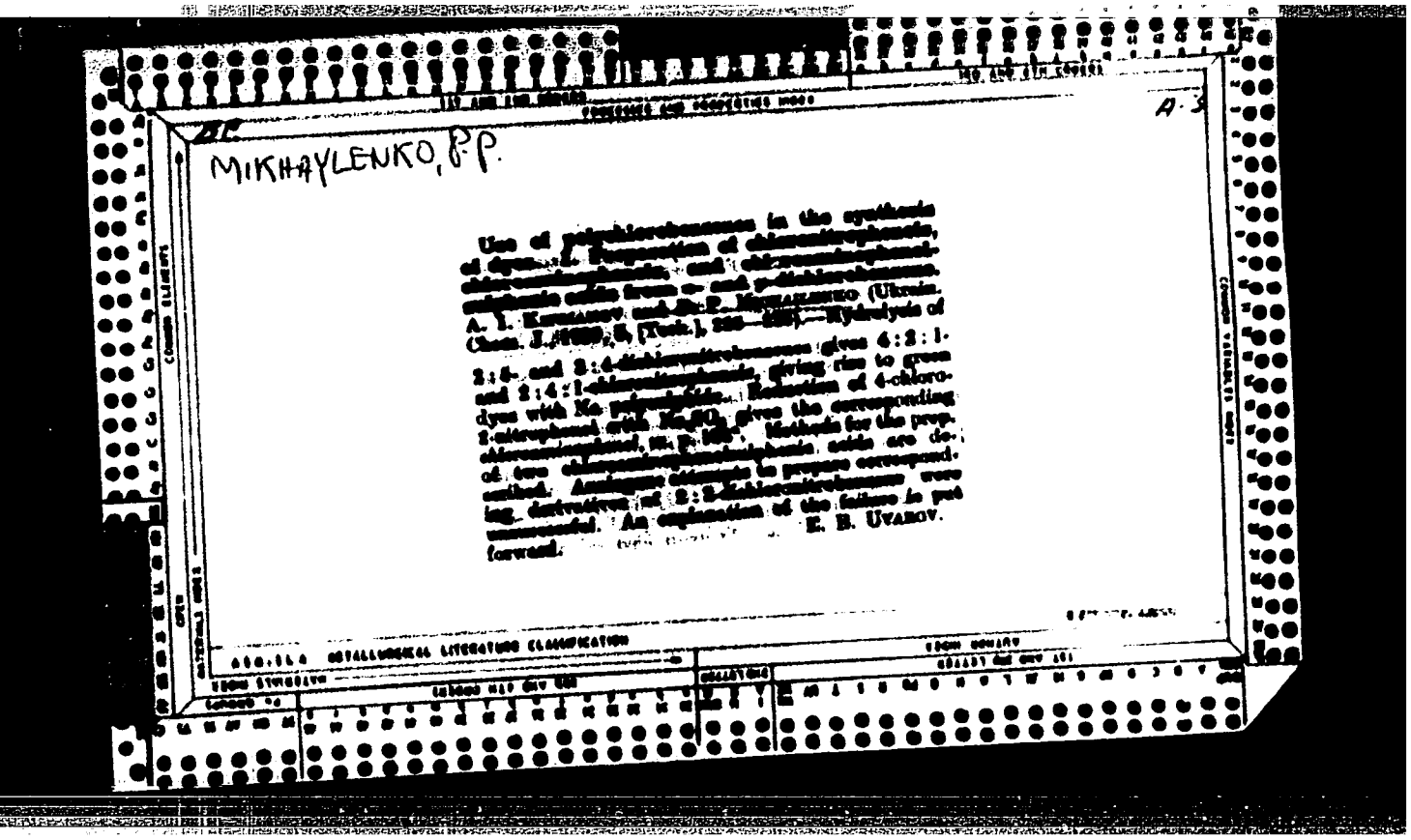
"Criminal Legislation in the Soviet Ukraine in the First Main Phase of Development of the Socialist State," (Dissertation), Academic degree of Doctor in Juridical Sciences, based on his defense, 29 December 53, in the Council of the Institute of Law, Acad Sci USSR.

L'vov State U.

-M- 3,054,778, 2 Oct 57

MIKHAYLENKO, P.P. [Mykhaylenko, P.], doktor yurid.nauk, prof.

Our people help to strengthen Soviet law and order. Nauka i zhyttia 10 no.2:11-13 F '60. (MIRA 13:5)
(Police patrol)



MOGILEVSKIY, Ye.M.; KHOR'KOVA, O.G.; FINGER, G.G.; PREDVODITELEVA, A.D.; KUZ'MINA, G.P.; MIKHAYLENKO, P.P.; TUMAYAN, S.A.

Continuous process for producing viscose rayon and for its finishing. Khim. volok. no. 6:25-27 '60. (MIRA 13:12)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo volokna (for Mogilevskiy, Khor'kova, Finger). 2. Vsesoyuznyy nauchno-issledovatel'skiy institut trikotazhnoy promyshlennosti (for Predvoditeleva, Kuz'mina). 3. TSentral'nyy nauchno-issledovatel'skiy institut shelka (for Mikhaylenko, Tumayan).
(Rayon)

Jul 49

USSR/Chemistry
Water Purification
Electric Power Stations

"Exploitation of H-Na-Cationite Water Purifiers," P. S. Mikhaylenko, V. M. Chernyavskiy, Engineers, 5 pp

PA 51/49T8

"Elek Stants" No 7

Exploitation of first three H-Na-cationite units in system of the Min of Elec Power Plants has shown that the arrangement for regenerating H-cationite filters by adding a 1.5% sulfuric acid solution to them is cumbersome, requires acid-resisting [redacted]

51/49T8

USSR/Chemistry (Contd) Jul 49

equipment protection and causes difficulties in exploitation. Discusses more efficient exploitation using parallel H-H-Na cationization and concentrated sulfuric acid.

51/49T8

MIKHAYLENKO, P. S.

MIKHAYLENKO, P.S.

Ammonia method of trapping sulfur compounds from flue gases. P. S. Mikhaylenko. *Elek. Stantsii* 24, 20–4 (July, 1953); *Fuel. Abstr.* 15, 130(1954).—Tests by the method described show that the scrubbing of flue gases down to an ultimate SO_2 content of 0.01% is possible if in the spraying of the upper absorptive section a satn. of approx. $S/C = 0.76$ (where S is total SO_2 content and C the active NH_3 content) is used at incoming flue-gas temp. of about 30°. K. L. C.

MIKHAYLENKO, P.S.

USSR/Chemical Technology - Chemical Products and Their Application. Water treatment. Sewage water. I-11

Abs Jour : Referat Zhur - Khimiya, No 4, 1957, 12753

Author : Mikhaylenko P.S
Inst : Moscow Power Installations
Title : Hydrogen-Sodium Cathionite Procedure of Water Treatment and Corrosion of Feed Lines Associated Therewith.

Orig Pub : Inform. meterialy Mosenergo, 1955, No 8, 26-29

Abstract : Presented are the results of observations of the corrosion of individual elements of the feed system (pipes, tanks) at one of the [illegible] power plants of Mosenego system.

Card 1/1 - 176 -

M: L Mayfenko P S.

USSR /Chemical Technology. Chemical Products and Their Application
Water treatment. Sewage water. H-5

Abs Jour: Referat Zhur - Khimiya, No 1, 1958, 1732

Author : Mikhaylenko P.S.

Title : Experience with Operation of a Unit for Thorough Chemical Desalination and Desilication of Water

Orig Pub: Teploenergetika, 1957, No 5, 24-30

Abstract: The unit having an output capacity of 100 tons per hour is designed to feed drum- and uniflow boilers of 130 atmospheres. Composition of the initial water (in mg/liter): Solids 60-284; SiO_3^{--} 2.9--13.8; oxidability 2.3-5.8 (O_2); SO_4^{--} 10.0-41.3; Cl^- 1.8-4.8; hardness (in mg-equivalent/liter): total 2.68-5.12; carbonate 0.36-0.94. The unit consists of 3 stages of H-cathionite and OH-anion-

Card 1/6

USSR /Chemical Technology. Chemical Products and Their Application
Water treatment. Sewage water. H-5

Abs Jour: Referat Zhur - Khimiya, No 1, 1958, 1732

ite filters with an aeration decarborbonizer after the H-filters of the second stage. The cathionites are sulfonated coal and Wofatit R (3-rd stage), the anionites are AN-2F and EDS-10P (2-nd and 3-rd stage). H-filters are regenerated with 1.0-1.5% H_2SO_4, the OH-filters with NaOH in the 1-st and 2-nd stage and with NH_4OH in the 3-rd stage. The 3-rd stage of ionite treatment is designed only for the feed of uniflow boilers. Exchange capacity (in g-equivalent /m^3): H-cathionite of 1-st stage, with H_2SO_4 expenditure of 58.9-69.0 g per g-equivalent, up to passage of Na^+, 354-484, up to passage of hardness, 438-569. Regeneration of

Card 2/6