L 25521-66
ACC NR: AR6008997 O

structural diagram of a dispatcher electronic computer designed for the solution of the foregoing problems, and constructed on the block principle out of standard elements. Questions of setting up research and practical realization of the system for marine transport control are considered. 1 illustration. Bibliography of 6 titles. B. A. [Translation of abstract]

SUB CODE: 13, 09

Card 2/2 PB

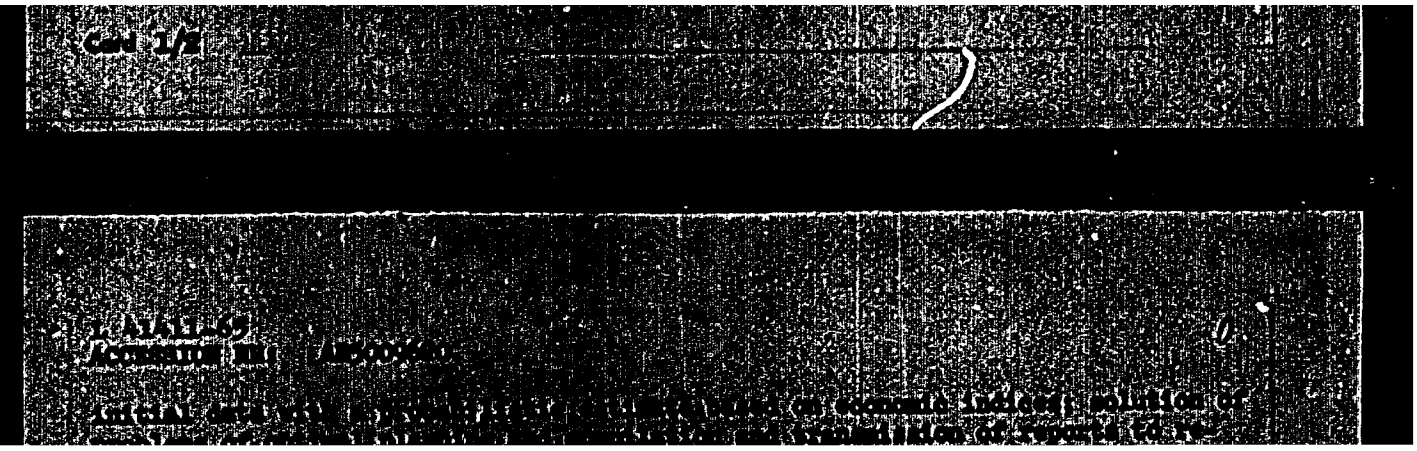
GAS'KOV, L.M., kand. ekon. nauk; KISELEV, A.N.

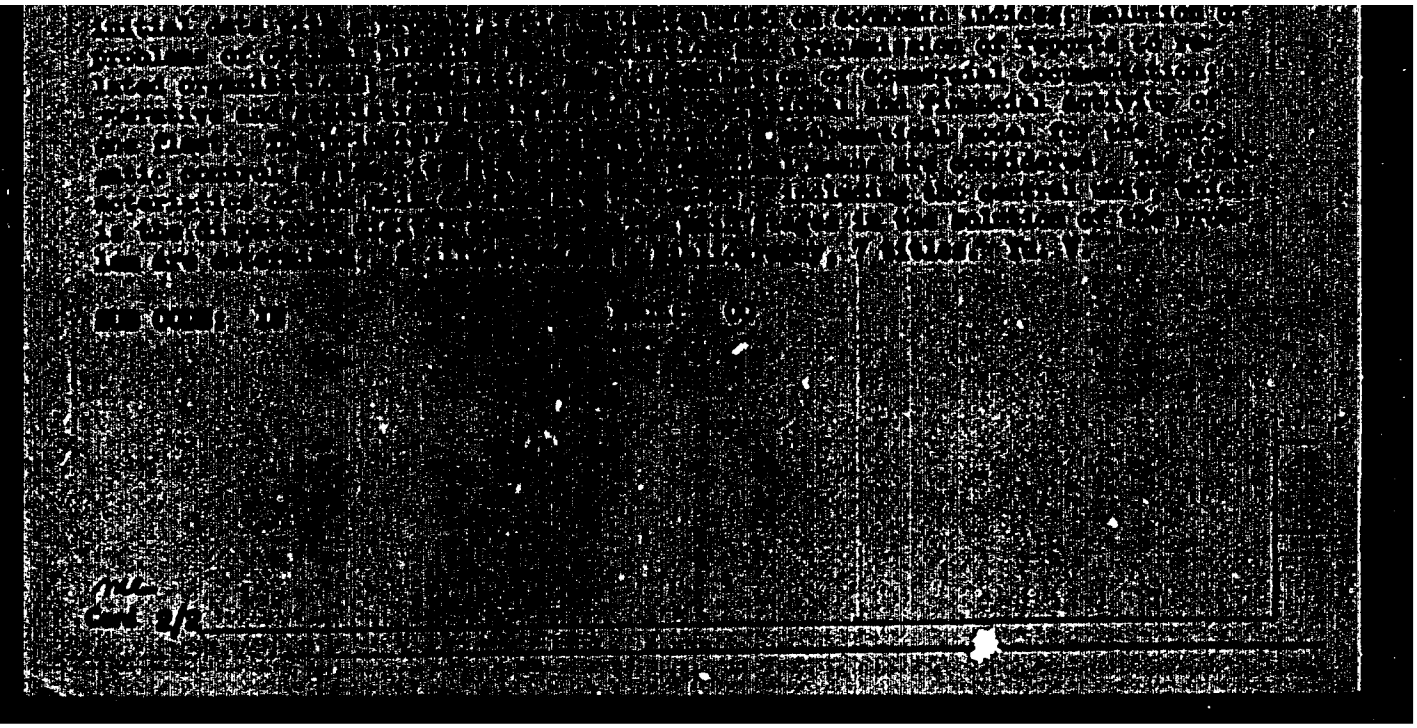
Arrangement of information in solving problems of fleet management by the use of electronic digital computers. Trudy TSNIIMF no.65:52-66 '65. (MIRA 18:12)

DROZDOV, N.P.; KISELEV, A.N.; IL'INA, L.I.

Purification of the waste waters from wood chemical enterprises. Gidroliz. i lesokhim. prom. 17 no.6:11-13 '64. (MIRA 17:12)

1. TSentral'nyy nauchno-issledovatel'skiy i proyektnyy institut lesokhimicheskoy promyshlennosti.





APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000722730008-2"

KISELEV, A.K., podpolkovnik

Instructor. Vest.Vozd.Fl. no.8:45-49 Ag '60. (MIRA 13:9)
(Flight training)

KNYSH, Petr Timofeyevich, voyennyy letchik pervogo klassa gvardii polkovnik; [redacted]KLEV, A.N., gvardii mayor komandir N'skogo istrebitel'nogo aviatsionnogo polka.

Discipline of flight. Vest. Vozd. Fl. 40 no.12:25-33 D '57. (MIRA 14:12)

(Air pilots)
(Military discipline)

KISELEV A N

86-12-5/29

AUTHOR: Kiselev A.N., Guards Maj

TITLE: Flight Discipline (Distsiplina poleta)

PERIODICAL: Vestnik Vozdushnogo Flota, 1957, Nr 12, pp. 25-32 (USSR)

ABSTRACT: This article is written on the basis of an interview held by the author with Col P.T. Knysh, the commander of a fighter regiment. The views of Col Knysh on military discipline in general and on flight discipline in particular are described by the author. According to the opinion of Col Knysh, every soldier must be firmly convinced that discipline is the decisive factor of all successes both on the ground and in the air. Further, the Colonel relates how the young pilots, after their arrival in the regiment, should be taken care of in every respect, how important it is that the young pilots live together in the officers quarters, and how the commanders must be pedantically exacting toward the young pilots. Three photos appear in this article. The first photo shows the nose part of an aircraft and carries the caption: "On the airfield". The second photo shows

Card 1/2

86-12-5/29

Flight Discipline

Lt Col V.M. Sinyukayev, Military Pilot First Class. Of him it is said that he had achieved good results in the combat training and in the military and political education of his subordinates. The third photo shows Capt M.V. Kalnyshev, Military Pilot First Class, whom it is said, trained a large number of pilots who became masters of air battles and sniping.

AVAILABLE: Library of Congress

Card 2/2

Kiselev, A.N.

86-8-9/22

AUTHOR: Kiselev, A.N., Guards Maj.

TITLE: A Difficult Test (Trudnyy ekzamen)

PERIODICAL: Vestnik Vozdushnogo Flota, 1957, 40 Nr 8, pp.44-48 (USSR)

ABSTRACT: The article, which is presented by the author in narrative form, is apparently intended to acquaint the readers with two phases of the training of pilots in the Soviet air force units: the training of young pilots, and the training for the title of Pilot Class I. As far as the exact sciences are concerned, the article contains no data of any interest. Here below is summarized the rather scarce factual information offered by the author on the two phases of training he deals with. Information referring to the training of young pilots. - During the period of ground training, young pilots get acquainted with the characteristics of the area where the exercise-flights will take place; they also study the details of the materiel they will have to use. - The program of ground training includes the study of the Regulations on Flying and Navigation; special instruction on re-establishing lost orientation is also mentioned. - The normal number of actual exercise-flights the young pilots carry out in the course of their

Card 1/3

A Difficult Test (Cont.)

training is much less than the possible maximum. According to the author, when "it was decided to speed up the training", young pilots "have, in a few months, carried out 6 to 7 times more flights than have been carried out during the entire previous year." In describing the training of young pilots, the author touches upon the problem of discipline. In the unit he is concerned with "the discipline is strictly observed" and, as a consequence, "the training, although very intensive, proceeds without accidents". In that connection the author relates that two pilots incurred penalties because, on the eve of exercise-flights, they were absent from their quarters at 11 p.m.; another pilot was punished because in his reports during the flight he tried to conceal the fact that he had lost orientation. Information referring to the training for the title of Pilot Class I
- A pilot cannot start training for the title of Pilot Class I without special authorization from his superior commander.
- In order to obtain the necessary authorization, the pilot concerned must prove that his is an expert group flying, air-combat maneuvering, firing at air and ground targets, and in flying at night and under difficult weather conditions.

KISELEV, A.N

AID P - 5463

Subject : USSR/Aeronautics

Card 1/1 Pub. 135 - 9/29

Author : Kiselev, A. N., Guards Major

Title : The flight commander delivers fire

Periodical : Vest. vozd. flota, 2, 38-44, F 1957

Abstract : The article describes in detail how the maneuvering into the initial point of attack, the aiming procedure and the air firing is carried out by a fighter pilot, who is known as an outstanding master of aerial gunnery. This article is of particular interest. One photo.

Institution : None

Submitted : No date

KHUMATOV, Kh.Zh.; KISELEV, A.P.

Increasing the heat resistance of smallpox vaccine virus. Vest AN Kazakh. SSR 11 no.5:65-67 My '55. (MIRA 8:8)
(Smallpox virus)

Kiselev, [illegible]. P., and Kozhevnikova, V. F.

The maximal (permissible) virulence and reactiveness of pox (small pox) vaccines.

Materialy nauchnykh konferentsii, Kiev, 19[illegible] [illegible]
(Kievskiy Nauchno-issledovatel'skiy Institut Epidemiologii i Mikrobiologii)

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000722730008-2"

KISELEV, A.P.; KOZHEVNIKOVA, V.F.

Maximally permissible virulence and reactive properties of smallpox vaccines. Zhur.mikrobiol. epid. i immun. 32 no.4:88 Ap '61. (MIRA 14:6)

1. Iz Kiyevskogo instituta epidemiologii i mikrobiologii.
(SMALLPOX)

. KISELEV, A.P., inzh.

L-6 keeled yacht. Sudostroenie 26 no.3 (209):36-37 Mr '60.
(MIRA 14:11)

(Sailboats)

IRINARKHOVA, A.M.; KLYUYKO, V.I.; KISELEV, A.P., otv. red.; SATAROVA, A.M., tekhn. red.

[Manual on labo- protection, safety engineering and industrial hygiene in the food industry; collection of decrees, regulations and norms in three volumes] Spravochnik po okhrane truda, tekhnike bezopasnosti i proizvodstvennoi sanitarii v pishchevoi promyshlennosti; sbornik postanovlenii, pravil i norm v trekh tomakh. Moskva, Pishcheprcmizdat. Vols.2-3. 1963. (MIRA 16:11)
(Food industry--Safety measures)
(Food industry--Sanitation)

KISELEV, A.P., redaktor; FRIDKIN, L.M., tekhnicheskiy redaktor.

[Norms and rates for construction and installation work. Section 74. Assembly of systems and steam pipes used in heating from central stations] Normy i rastsenki na stroitel'nye i montazhnye raboty. Moskva, Gos.energ.izd-vo. Section 74. Montazh stantsionno-teplofikatsionnykh setei i paroprovodov. 1950. 86 p. (MLRA 8:11)

1. Russia(1923- U.S.S.R.) Ministerstvo stroitel'stva predpriyatii tyazheloy industrii.
(Heat engineering)

KISEL'OV, A.P. KISELEV, A.P.

KISEL'OV, A.P.

[Algebra; textbook for classes 6-8 of seven-year secondary schools] Alhebra; pidruchnik dlia VI-VIII klasiv semyrichnoi i seredn'oi shkoly. Kyiv, "Radians'ka shkola." Part I 1952. (MLRA 7:5)
116 p.
(Algebra--Textbooks)

KISELEV, A.P.

KYSIL'OV, A.P.

[Algebra; manual for the 8th-10th classes of secondary schools] Algebra; pid ruchnyk dlia VIII-X klasiv seredn'noi shkoly. Vol.2. Izd.18. Kyiv, Derzhavne Uchbovo-pedagogichne vydavnytstvo "Radians'ka shkola," 1952. 238 p. (MLRA 7:4)
(Algebra)

KISELEV, A.P., redaktor; SKVORTSOV, I.M., tekhnicheskiy redaktor.
[Rules for the layout installation and inspection of vessels operated under pressure] Pravila ustroistva, ustanovki i osvidetel'stvovaniia sosudov, rabotaiushchikh pod davleniem; obiazatel'ny dlia vsekh ministerstv i vedomstv. Moskva, Gos. energeticheskoe izd-vo, 1953. 70 p. (MLRA 8:2)

1. Russia (1923- U.S.S.R.) Ministerstvo elektrostantsii.
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KISELEV, A.P.; PAZEL'SKIY, S.V., redaktor; MAKHOVA, N.N., tekhnicheskiy redaktor; SHIKIN, S.T., tekhnicheskiy redaktor

[Geometry; textbook for the 6-9th classesof 7-year and secondary schools] Geometriia; uchebnik dlia 6-9-go klassov semiletnei i srednei shkoly. Pod red. i s dop. N.A.Glagoleva. Izd. 15. Moskva, Gos. uchebno-pedagog. izd-vo Ministerstva prosveshcheniia RSFSR. Pt. 1. [Planimetry] Planimetriia. 1954. 182 p. (MLRA 7:10)
(Geometry, Plane--Study and teaching)

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[Geometry. Textbook for classes 6-9 of the primary and secondary schools] Geometriia. Uchebnik dlia 6-9-go klassov semiletnei i srednei shkoly. Pod red. i s dop. N.A.Glagoleva. Izd. 6-e. Moskva, Gos.uchebno-pedagog.izd-vo Ministerstva prosveshcheniia RSFSR. Pt.1 [Plane geometry] Planimetriia, 1955. 182 p. (MLRA 8:5)
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[Geometry; textbook for classes 9-10 of the secondary school] Geometriia; uchebnik dlia 9-10 klassov srednei shkoly. Pod red. i s dopolneniem N.A.Glagoleva. Izd. 17-e Moskva, Gos. uchebno-pedagog. izd-vo Ministerstva prosveshcheniia RSFSR. Pt. 2 [Solid geometry] Stereometriia. 1955. 102 p. (MLRA 8:7)
(Geometry, Solid)

KISELEV, Andrey Petrovich; LEPESHKINA, N.I., redaktor; MIRONTSEVA, M.I., tekhnicheskiy redaktor

[Arithmetic; textbook for classes 6 and 7 of the seven-year and secondary schools] Arifmetika. Uchebnik dlia 5-go i 6-go klassov semiletnei i srednei shkoly. Pererabotka A.IA.Khinchina. Moskva, Gos. uchebno-pedagog. izd-vo Ministerstva prosveshcheniia RSFSR, 1955. 167 p. (MLRA 8:7)
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KISELEV, A.P.; IGNAT'YEVA, A.V., redaktor; MIRONTSEVA, M.I., tekhnicheskiy redaktor.

[Algebra; textbook for classes 6-8 of the seven-year and secondary school] Algebra; uchebnik dlia 6-8 klassov semiletnei i srednei shkoly. Izd. 29-e Moskva, Gos. uchebno-pedagog. izd-vo Ministerstva prosveshcheniia RSFSR. Pt. 1. 1955. 111 p. (MLRA 8:7)
(Algebra)

KISELEV, Andrey Petrovich; IGNAT'YEVA, A.V., redaktor; MAKHOVA, N.N., tekhnicheskiy redaktor

[Algebra; textbook for classes 8-10 of the secondary schools] Uchebnik dlia 8-10 klassov srednei shkoly. Izd. 32-e. Moskva, Gos. uchebno-pedagog. izd-vo Ministerstva prosveshchenilia RSFSR. Pt.2. 1955. 231 p. (MLRA 8:7)
(Algebra)

KISELEV, Andrey Petrovich; GLAGOLEV, N.A., prof., red.; PAZEL'SKIY, S.V., red.; GOLOVKO, B.N., tekhn.red.; KORNEYEVA, V.I., tekhn.red.

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KISELEV, A.P., dotsent, kand. tekhn.nauk

Threshold values in the safety of electrical current with commercial frequencies. Trudy MIIT no. 171:47-58 '63.

Comparative electrical safety of systems with different frequencies. Ibid.:59-67 (MIRA 17:5)

SHATELEN,M.A.; MESHKOV,V.V.; PETROV,G.N.; KISELEV,A.S.; BEL'KIND,L.D.

S.O.Maizel'. Elektrichestvo no.10:85 O'55. (MLRA 8:12)
(Maizel', Sergei Osipovich, 1882-1955)

GORDOVA, Tat'yana Nikolayevna; KISELEV, A.S., red.; LYUDKOVSKAYA, N.I., tekhn.red.

[Clinical aspects and course of progressive paralysis treated with malaria] Klinika i techenie progressivnogo paralicha, lechennogo maliariei. Moskva, Gos.izd-vo med.lit-ry Medgiz, 1959. 126 p. (MIRA 14:5)

(PARALYSIS) (MALARIOTHERAPY)

KISELEV, A.S.

Diagnosis of pathological alcoholism. Prak.sudebnopsikh. ekspert. no.5:78-82 '61. (MIRA 16:4)
(ALCOHOLISM AND CRIME) (FORENSIC PSYCHIATRY)

KISELEV, A.S.

Characteristics of the disorders of the interaction of analysors in schizophrenia with a psychopathoid defect and in psychopathy. Prob.sud.psikh.10: 201-209'61. (MIRA 16:7)
(SENSES AND SENSATION) (SCHIZOPHRENIA)
(PSYCHOLOGY, PATHOLOGICAL)

KISELEV, A.S.; MELIK-MKRTYCHYAN, V.A.; SVIRINOVSKIY, Ya.Ye.; SHOSTAKOVICH, B.V.

Analysis of the repeated actions of mental patients which are dangerous to society. Trudy Gos.nauch.-issl.inst.psikh. 27:383-388 '61. (MIRA 15:10)

1. TSentral'nyy nauchno-issledovatel'skiy institut sudebnoy psikhiatrii imeni V.P.Serbskogo. Dir. - dotsent G.V.Morozov. Nauchnyy rukovoditel' - dotsent G.V.Morozov.
(MENTALLY ILL) (FORENSIC PSYCHIATRY)

VANGENGEYM, Kira Alekseyevna; KISELEV, A.S., red.; LYUDKOVSKAYA, N.I., tekhn. red.

[Somatogenic psychoses] Somatogennye psikhozy. Moskva, Medgiz, 1962. 165 p. (MIRA 15:4)
(MEDICINE, PSYCHOSOMATIC) (PSYCHOSES)

KISELEV, A.S.

Simulated schizophrenia. Prak.sudebnopsikh.ekspert. no.7:21-27 '62.
(SCHIZOPHRENIA) (MALINGERING) (MIRA 16:2)

MELEKHOV, Dmitriy Yevgen'yevich; KISELEV, A.S., red.; MATVEYEVA, M.M., tekhn. red.

[Clinical foundations for the prognosis of working ability in schizophrenia] Klinicheskie osnovy prognoza trudosposobnosti pri shizofrenii. Moskva, Medgiz, 1963. 197 p.
(MIRA 16:10)

(SCHIZOPHRENIA) (DISABILITY EVALUTATION)

AVRUTSKIY, Grigoriy Yakovlevich; KISELEV, A.S., red.

[Modern psychotropic drugs and their use in the treatmetn of schizophrenia] Sovremennye psikhotropnye sredstva i ikh primenenie v lechenii shizofrenii. Moskva, Izd-vo "Meditsina," 1964. 301 p. (MIRA 17:5)

OSTAPYUK, Lidiya Spiridonovna; PEVZNER, Temma Solomonovna; KISELEV, A.S., red.

[Care of mental patients and mental diseases] Ukhod za dushevnobol'nymi i psikhicheskie bolezni. Moskva, Meditsina, 1964. 174 p. (MIRA 17:6)

LUKOMSKIY, Iosif Il'ich; KISELEV, A.S., red.

[Manic-depressive psychosis] Maniakal'no-depressivnyi psikhoz. Moskva, Meditsina, 1964. 114 p.
(MIRA 17:8)

FREYYEROV, Oskar Yevgen'yevich; KISELEV, A.S., red.

[Light stages of oligophrenia (retardation); clinical aspects and expertise] Legkie stepeni oligofrenii (debil'nost'); klinika i ekspertiza. Moskva, Meditsina, 1964. 222 p. (MIRA 17:12)

LUKOMSKIY, Iosif Il'ich; KISELEV, A.S., red.

[Manic-depressive psychosis] Maniakal'no-depressivnyi psikhoz. Moskva, Meditsina, 1964. 114 p. (MIRA 18:3)

REMEZOVA, Yevfrosin'ya Savvishna; KISELEV, A.S., red.

[Differentiated treatment of epilepsy patients] Differentsirovannoe lechenie bol'nykh epilepsiei. Moskva, Meditsina, 1965. 238 p. (MIRA 18:2)

MOROZOV, G.V., red.; KISELEV, A.S., red.

[Forensic psychiatry] Sudebnaia psikhiatriia. Moskva, Meditsina, 1965. 422 p. (MIRA 18:9)

AYZENBERG, D.Ye.; BELEVTSEV, Ya.N.; BORDUNOV, I.N.; BORISENKO, S.T.; BULKIN, G.A.; GORLITSKIY, B.A.; DOVGAN', M.N.; ZAGORUYKO, L.G.; KAZAKOV, L.R.; KALYAYEV, G.I.; KARASIK, M.A.; KACHAN, V.G.; KISELEV, A.S.; LAGUTIN, P.K.; LAZARENKO, Ye.K.; LAZARENKO, E.A.; LAPITSKIY, E.M.; LAPCHIK, F.Ye.; LAS'KOV, V.A.; LEVENSHTEYN, M.L.; MALAKHOVSKIY, V.F.; MITKEYEV, M.V.; PRUSS, A.K.; SKARZHINSKIY, V.I.; SKURIDIN, S.A.; SOLOV'YEV, F.I.; STRYGIN, A.I.; SUSHCHUK, Ye.G.; TEPLITSKAYA, N.V.; FEDYUSHIN, S.Ye.; FOMENKO, V.Yu.; SHKOLA, T.N.; SHTERNOV, A.G.; YAROSHCHUK, M.A.; ZAVIRYUKHINA, V.N., red.

[Problems of metallogeny in the Ukraine] Problemy metallogenii Ukrainy. Kiev, Naukova dumka, 1964. 254 p. (MIRA 18:1)

1. Akademiya nauk URSR, Kiev. Instytut geologichnykh nauk.

KOGAN, D.I.; KISELEV, A.T.; ZAKIROV-ZIYEV, A.

Introducing rock-breaking bits in hydraulic percussion drilling. Biul. tekh.-ekon. inform. Gos. nauch.-issl. inst. nauch. i tekh. inform. 18 no.3:15-17 Mr '65.
(MIRA 18:5)

KISELEV, A.T.; KUSHELEVICH, A.B.

Boring prospect holes with a steel-shot hydraulic percussive instrument in rocks of great hardness. Izv. vys. ucheb. zav.; geol. i razv. 7 no.11:108-113 N '64. (MIRA 18:5)

1. Gosudarstvennyy geologicheskiy komitet.

KISELEV, A.V.

KISELEV, A.V.

Automatic bag counter. Sakh. prom. 31 no.12:48 D '57. (MIRA 11:1)

1. Zhordevskiy sakharnyy zavod.
(Sugar industry--Equipment and supplies)
(Counting devices)

KISELEV, A.V.

New method for attaching the rotor of the RMK vacuum pump to the shaft. Sakh. prom. 32 no.4:40-41 Ap '58. (MIRA 11:6)

1.Zherdevskiy sakharnyy zavod.
(Pumping machinery)

KISELEV, A.V.

Spinning Machinery

Perfecting shredding and scutching machinery. Tekst. prom., 12, No.4, 1952.

Monthly List of Russian Accessions, Library of Congress, June 1952. UNCLASSIFIED.

KISELEV, A.V.

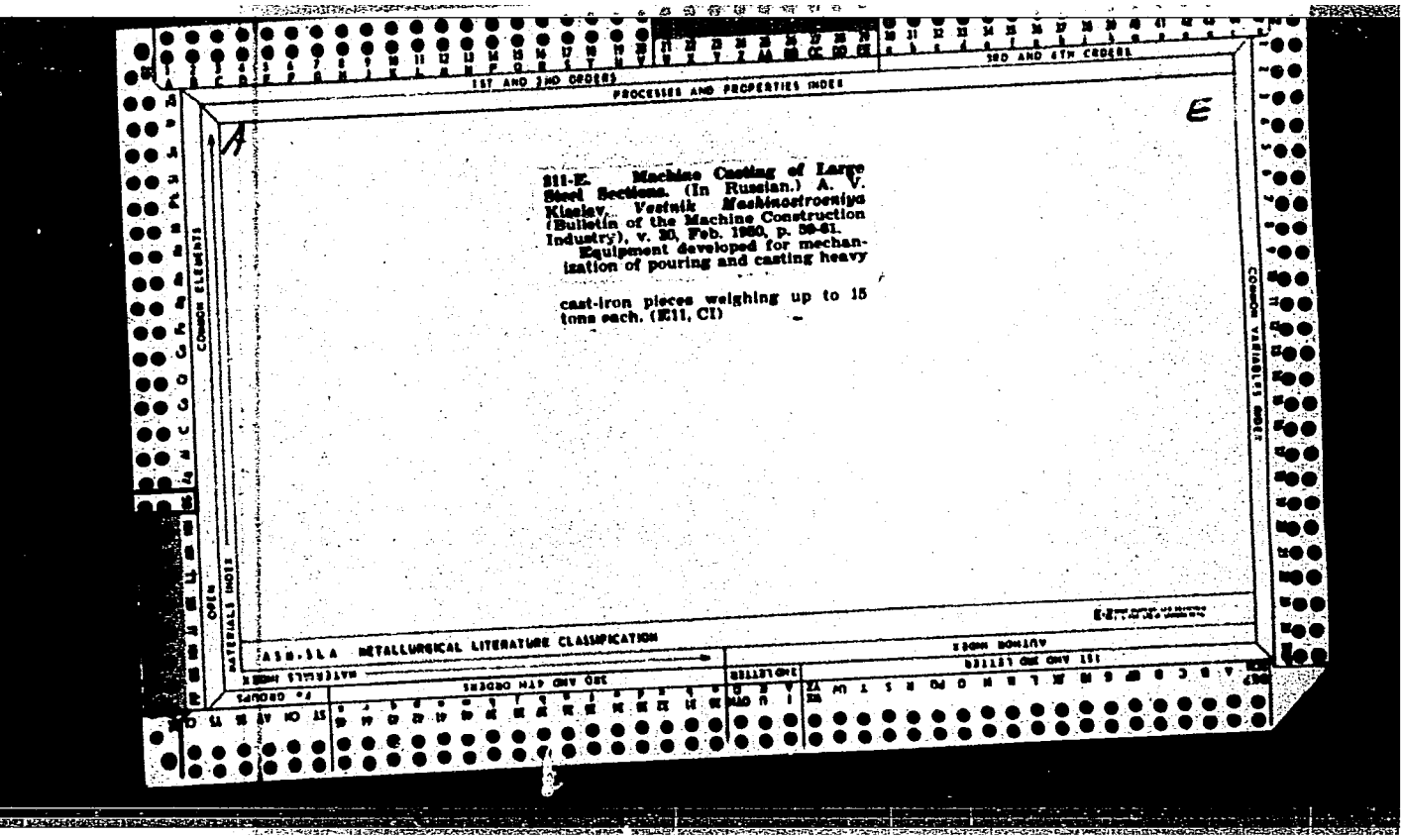
Machine tool for cleaning the pipes of pans in the separation section of sugar factory. Sakh. prom. 35 no.2:47 F '61. (MIRA 14:3)

1. Zherdevskiy sakharnyy zavod.
(Sherdevka--Sugar machinery)

ZIBITSKER, D.Ye.; KISELEV, A.V.; GASILOVSKAYA, A.Ye.

Use of gamma globulin for preventing infectious hepatitis. Zdrav. Bel. 7 no.5:17-19 My '61. (MIRA 14:6)

1. Belorusskiy institut epidemiologii, mikrobiologii i gigiyeny (direktor V.I.Votyakov).
(HEPATITIS, INFECTIOUS) (GAMMA GLOBULIN)



811-E. Machine Casting of Large Steel Sections. (In Russian.) A. V. Kiselev. *Vestnik Mashinostroeniya* (Bulletin of the Machine Construction Industry), v. 30, Feb. 1950, p. 58-61.

Equipment developed for mechanization of pouring and casting heavy cast-iron pieces weighing up to 15 tons each. (E11, C1)

KISELEV, A. V.

PA 195T59

USSR/Metals - Foundry, Methods May 51

"Hydraulic Cleaning of Castings and Recovery of Molding Sand," A. V. Kiselev, Laureate of Stalin Prize, A. I. Polonik, Engineers, Uralmashzavod

"Litey Proizvod" No 5, pp 15, 16

Complex installation consists of 6 x 7 x 4-m hydraulic chamber with high-pressure pump, receiver for pulp, mechanisms for pumping pulp on recovering installation, installation itself, settling tank for used water and receivers for

195T59

USSR/Metals - Foundry, Methods (Contd) May 51

recovered sand and sludge. Recovery of sand amts to 75% with av productive capacity approximately 4 cu m/hr. Operation requires 5 men.

195T59

KISELEV, A.V., inzhener.

Casting of special steel cylinders. Lit. proizv. no.8:1-4 Ag '56. (MLRA 9:10)

(Kramatorsk--Steel castings) (Cylinders)

KISELEV, A.V.

Casting diaphragm plates for steam turbines. Lit.proiz.no.2 supplement: 38 '56. (Steel castings) (Steam turbines) (MIRA 9:7)

KISELEV, A.V.

Graphite inserts for casting gate valves used in high-pressure units. Lit. proizv. no.2 supplement:40-41 '56. (MLRA 9:7)
(Steel castings) (Valves)

L 05642-67 EWT(m) IJP(c)

ACC NR: AP6021620 (N) SOURCE CODE: UR/0089/66/020/003/0206/0210

AUTHOR: Budker, G. I.; Kiselev, A. V.; Kon'kov, N. G.; Naumov, A. A.; Nifontov, V. I.; Ostreyko, G. N.; Panasyuk, V. S.; Petrov, V. V.; Yudin, L. I.; Yasnov, G. I. 31 B

ORG: none

TITLE: Starting of the B-3M synchrotron, used as an injector for a positron-electron storage ring

SOURCE: Atomnaya energiya, v. 20, no. 3, 1966, 206-210

TOPIC TAGS: synchrotron, ~~particle~~ linear accelerator, storage ring, cyclotron magnet/ VEPP-2 storage ring, B-3M synchrotron, ILU linear accelerator

ABSTRACT: The article describes an adjustment of a synchrotron with external single-turn injector and single-turn emission of electrons and with a specially constructed electromagnet. This pulsed synchrotron is designed to serve as an injector for the VEPP-2 storage ring for colliding positron and electron beams, designed and described by one of the authors (G. I. Budker, et al., in Trudy Mezhdunarodnoy konferentsii po uskoritelyam, Dubna, 1963 [Transactions of International Conference on Accelerators, Dubna, 1963], Atomizdat, 1964, p. 1065, and elsewhere). The article describes the synchrotron itself (Fig. 1), the magnet, two variants of capture into synchronism, and various test procedures. The injector for the B-3M synchrotron was an ILU pulsed linear accelerator. The injected electrons had energy 1 - 1.5 Mev (pulse duration ~7 nsec) and were accelerated to 50 Mev. The B-3M synchrotron makes it possible to

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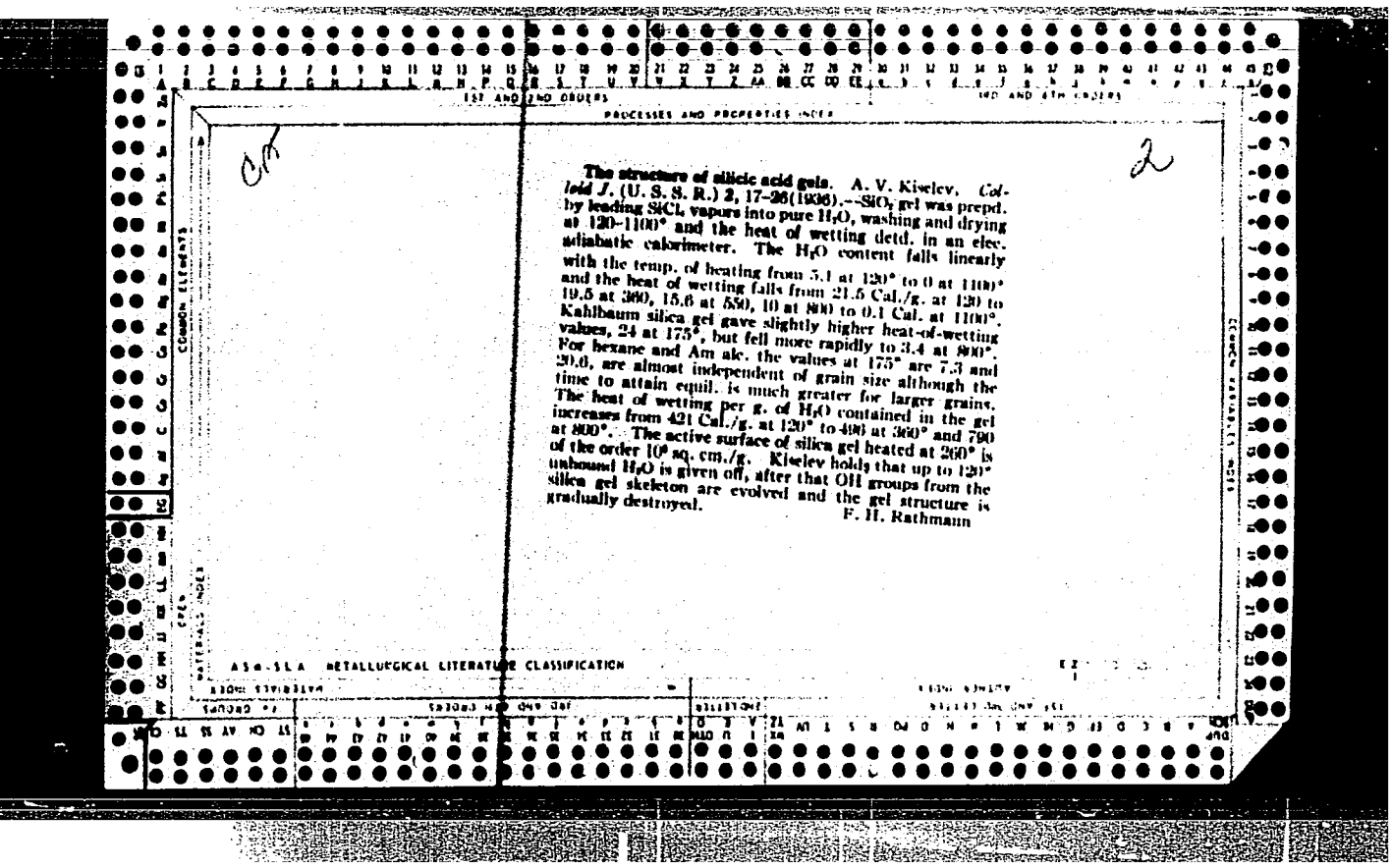
UDC: 621.384.612.12



The structure of silicic acid gels. A. V. Kiselev, *Colloid J.* (U. S. S. R.) **2**, 17–26(1936).—SiO_2 gel was prepd. by leading $SiCl_4$ vapors into pure H_2O, washing and drying at 120–1100° and the heat of wetting detd. in an elec. adiabatic calorimeter. The H_2O content falls linearly with the temp. of heating from 5.1 at 120° to 0 at 1100° and the heat of wetting falls from 21.5 Cal./g. at 120 to 19.5 at 300, 15.6 at 550, 10 at 800 to 0.1 Cal. at 1100°. Kahlbaum silica gel gave slightly higher heat-of-wetting values, 24 at 175°, but fell more rapidly to 3.4 at 800°. For hexane and Am alc. the values at 175° are 7.3 and 20.0, are almost independent of grain size although the time to attain equil. is much greater for larger grains. The heat of wetting per g. of H_2O contained in the gel increases from 421 Cal./g. at 120° to 480 at 300° and 790 at 800°. The active surface of silica gel heated at 200° is of the order 10^6 sq. cm./g. Kiselev holds that up to 120° unbound H_2O is given off, after that OH groups from the silica gel skeleton are evolved and the gel structure is gradually destroyed.

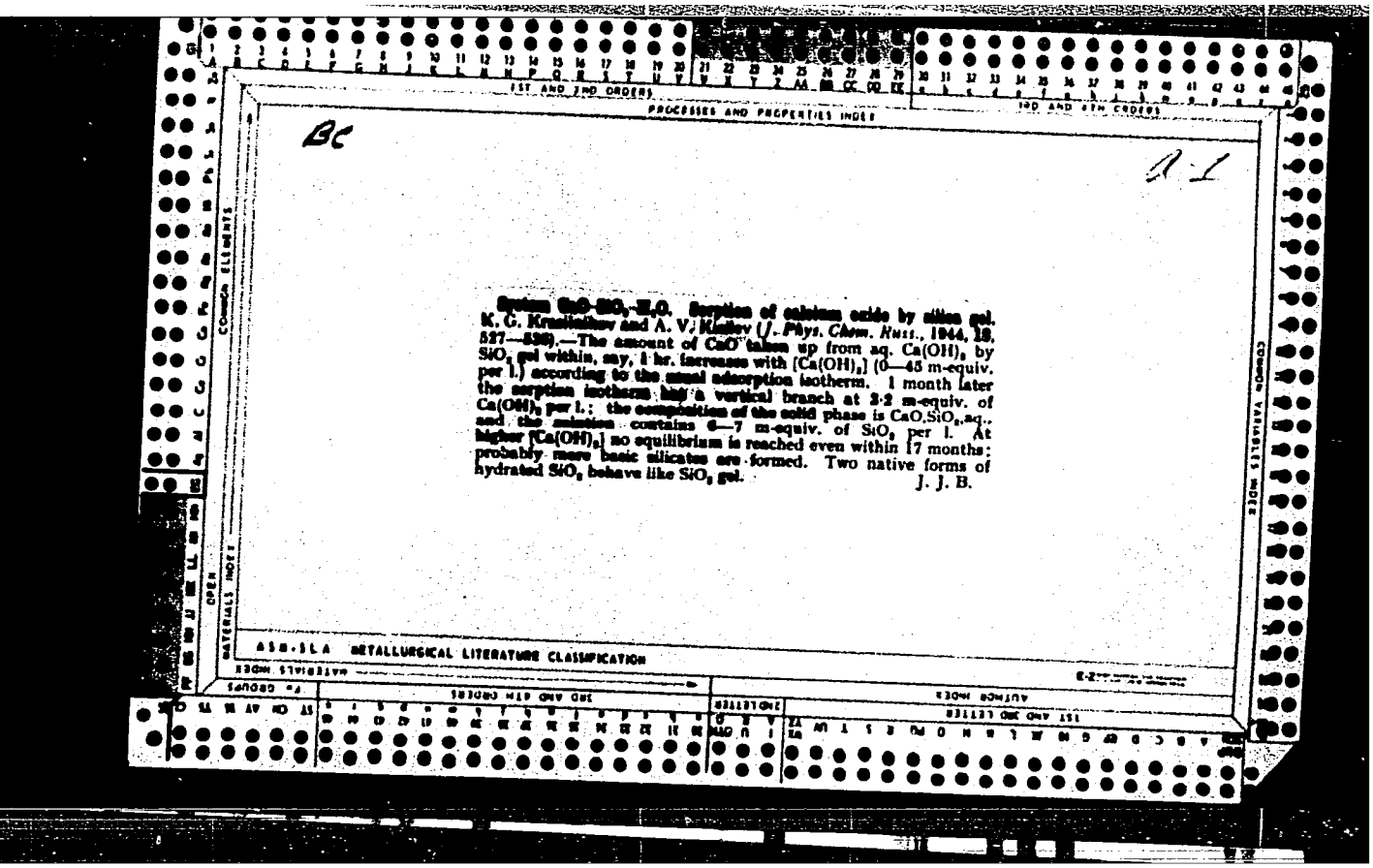
F. H. Rathmann

1. IL'IN, B. V., KISELEV, A. V.

2. USSR (600)

"Heats of Wetting at Different Temperatures; the Affinity for Wetting", Zhur. Fiz. Khim., 13, No. 5, 1939. Moscow, Moscow Textile Institute, Lab of Physical and Colloidal Chemistry. Received 1 Oct 1938.

9. [redacted] Report U-1613, 3 Jan 1952.

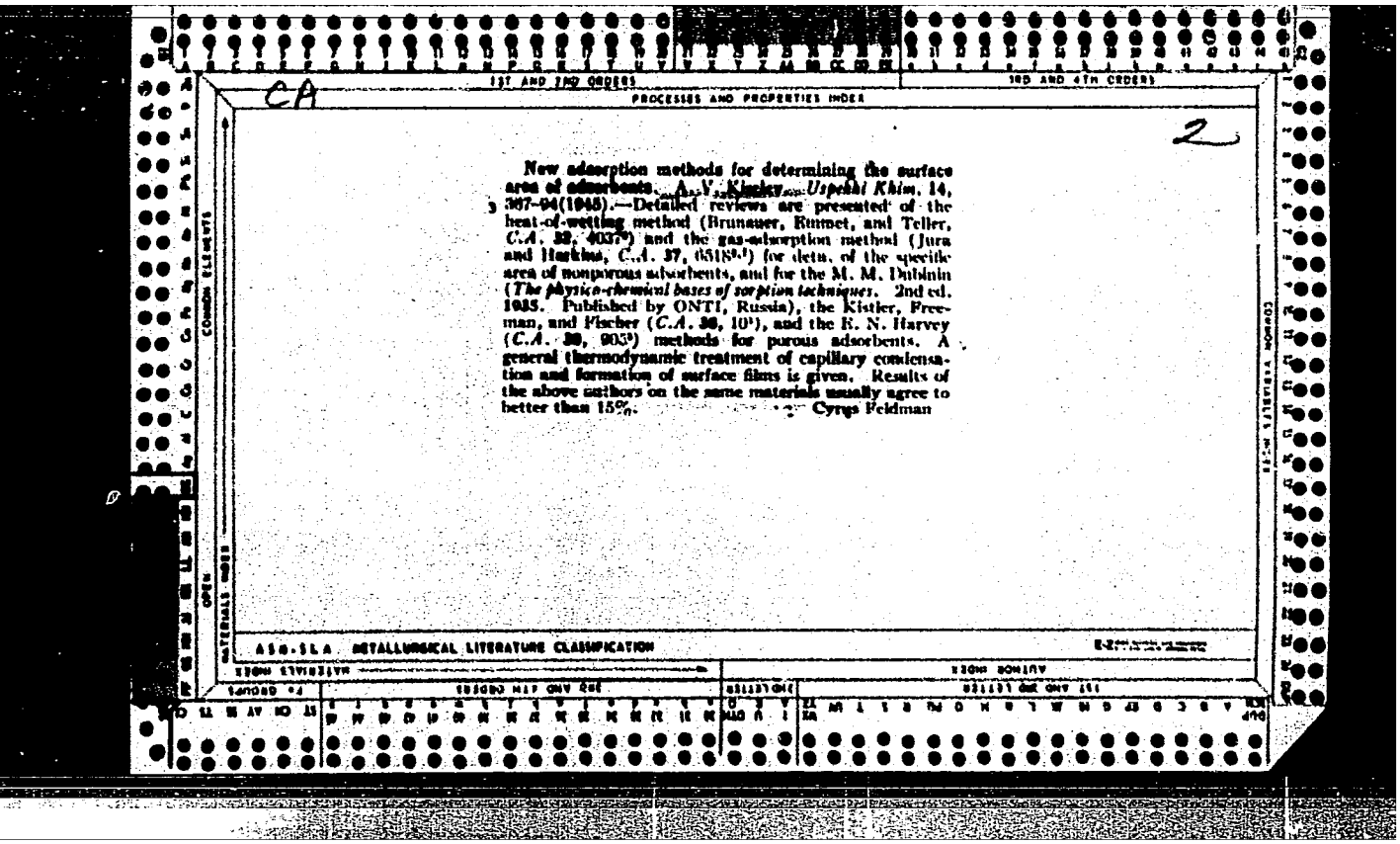


BC

A-1

System SiO_2–SO_3–H_2O. Sorption of calcium oxide by silica gel. K. G. Krasilnikov and A. V. Kiselev (*J. Phys. Chem. Russ.*, 1944, **18**, 527—530).—The amount of CaO taken up from aq. $Ca(OH)_2$ by SiO_2 gel within, say, 1 hr. increases with $[Ca(OH)_2]$ (0—45 m-equiv. per l.) according to the usual adsorption isotherm. 1 month later the sorption isotherm has a vertical branch at 2·2 m-equiv. of $Ca(OH)_2$ per l.; the composition of the solid phase is $CaO,SiO_2,aq.$, and the solution contains 6—7 m-equiv. of SiO_2 per l. At higher $[Ca(OH)_2]$ no equilibrium is reached even within 17 months: probably more basic silicates are formed. Two native forms of hydrated SiO_2 behave like SiO_2 gel. J. J. B.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



CA

1ST AND 2ND ORDERS

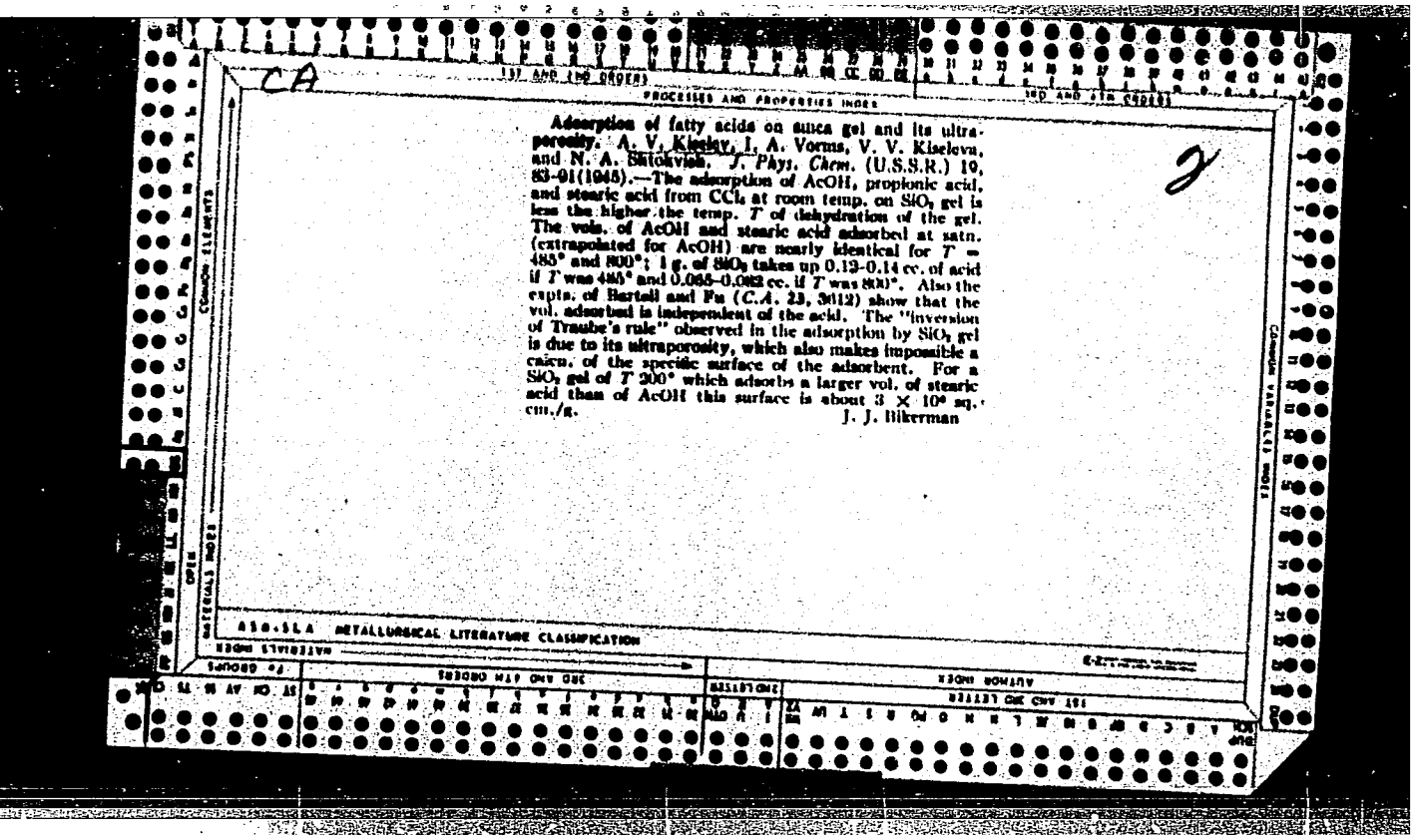
3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

2

New adsorption methods for determining the surface area of adsorbents. A. V. Kiselev. *Uspekhi Khim.* 14, 397–94(1945).—Detailed reviews are presented of the heat-of-wetting method (Brunauer, Emmet, and Teller, *C.A.* **32**, 4037⁸) and the gas-adsorption method (Jura and Harkins, *C.A.* **37**, 6518⁹·¹) for detn. of the specific area of nonporous adsorbents, and for the M. M. Dubinin (*The physico-chemical bases of sorption techniques.* 2nd ed. 1935. Published by ONTI, Russia), the Kistler, Freeman, and Fischer (*C.A.* **30**, 10¹), and the E. N. Harvey (*C.A.* **30**, 905²) methods for porous adsorbents. A general thermodynamic treatment of capillary condensation and formation of surface films is given. Results of the above authors on the same materials usually agree to better than 15%. Cyrus Feldman

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



CA

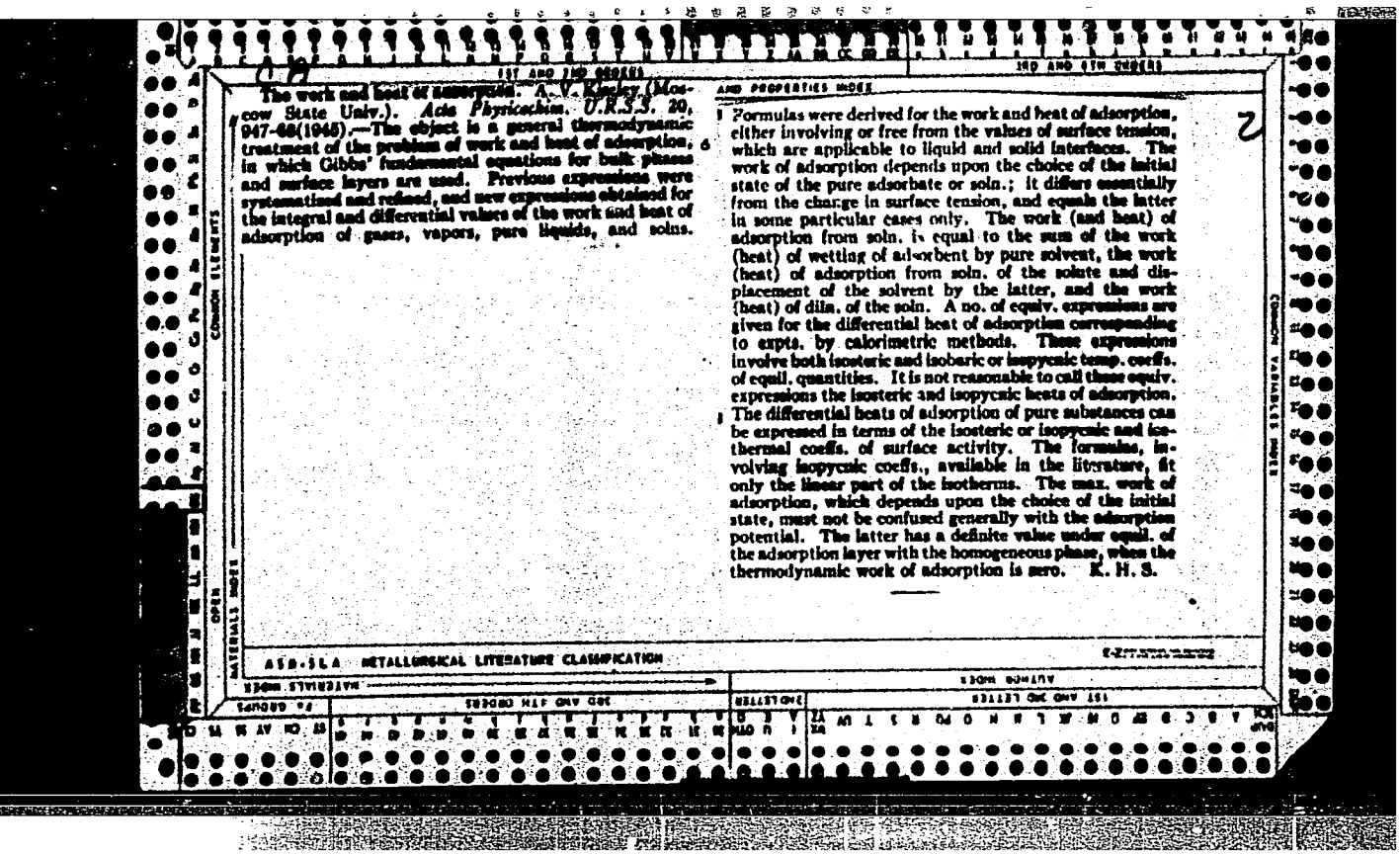
PROCESSES AND PROPERTIES INDEX

Adsorption of fatty acids on silica gel and its ultraporosity. A. V. Kiselev, I. A. Vorms, V. V. Kiseleva, and N. A. Shtokvish. *J. Phys. Chem.* (U.S.S.R.) 19, 83-91(1945).—The adsorption of AcOH, propionic acid, and stearic acid from CCl_4 at room temp. on SiO_2 gel is less the higher the temp. T of dehydration of the gel. The vols. of AcOH and stearic acid adsorbed at satn. (extrapolated for AcOH) are nearly identical for T = 485° and 800°; 1 g. of SiO_2 takes up 0.13–0.14 cc. of acid if T was 485° and 0.065–0.082 cc. if T was 800°. Also the expts. of Bartell and Fu (*C.A.* 23, 3012) show that the vol. adsorbed is independent of the acid. The "inversion of Traube's rule" observed in the adsorption by SiO_2 gel is due to its ultraporosity, which also makes impossible a calcn. of the specific surface of the adsorbent. For a SiO_2 gel of T 200° which adsorbs a larger vol. of stearic acid than of AcOH this surface is about 3×10^6 sq. cm./g.

J. J. Bikerman

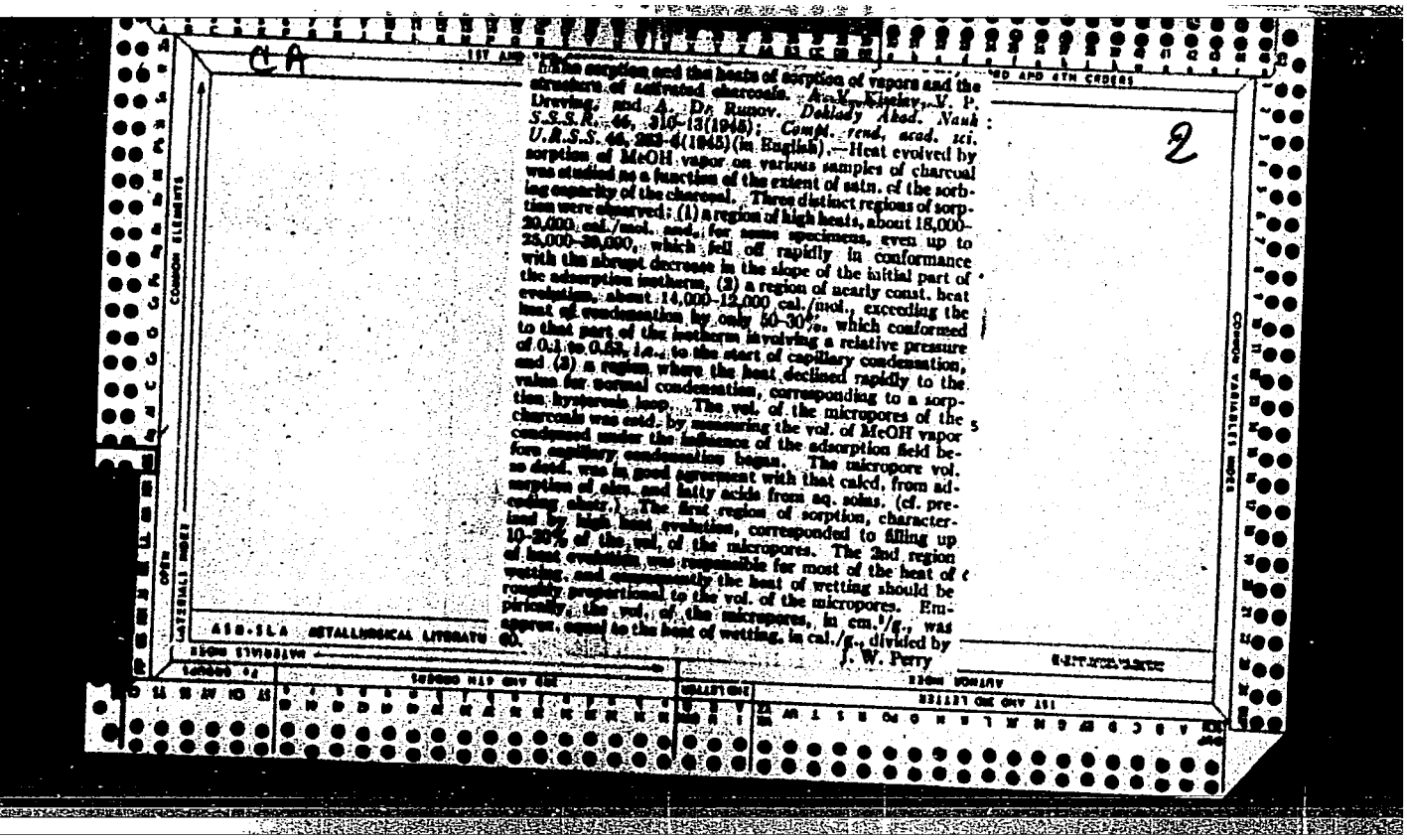
2

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



The work and heat of adsorption. A. V. Kiselev (Moscow State Univ.). *Acta Physicochim. U.R.S.S.* 20, 947-60(1945).—The object is a general thermodynamic treatment of the problem of work and heat of adsorption, in which Gibbs' fundamental equations for bulk phases and surface layers are used. Previous expressions were systematized and refined, and new expressions obtained for the integral and differential values of the work and heat of adsorption of gases, vapors, pure liquids, and solns.

Formulas were derived for the work and heat of adsorption, either involving or free from the values of surface tension, which are applicable to liquid and solid interfaces. The work of adsorption depends upon the choice of the initial state of the pure adsorbate or soln.; it differs essentially from the change in surface tension, and equals the latter in some particular cases only. The work (and heat) of adsorption from soln. is equal to the sum of the work (heat) of wetting of adsorbent by pure solvent, the work (heat) of adsorption from soln. of the solute and displacement of the solvent by the latter, and the work (heat) of dila. of the soln. A no. of equiv. expressions are given for the differential heat of adsorption corresponding to expts. by calorimetric methods. These expressions involve both isosteric and isobaric or isopycnic temp. coeffs. of equil. quantities. It is not reasonable to call these equiv. expressions the isosteric and isopycnic heats of adsorption. The differential heats of adsorption of pure substances can be expressed in terms of the isosteric or isopycnic and isothermal coeffs. of surface activity. The formulas, involving isopycnic coeffs., available in the literature, fit only the linear part of the isotherms. The max. work of adsorption, which depends upon the choice of the initial state, must not be confused generally with the adsorption potential. The latter has a definite value under equil. of the adsorption layer with the homogeneous phase, when the thermodynamic work of adsorption is zero. K. H. S.

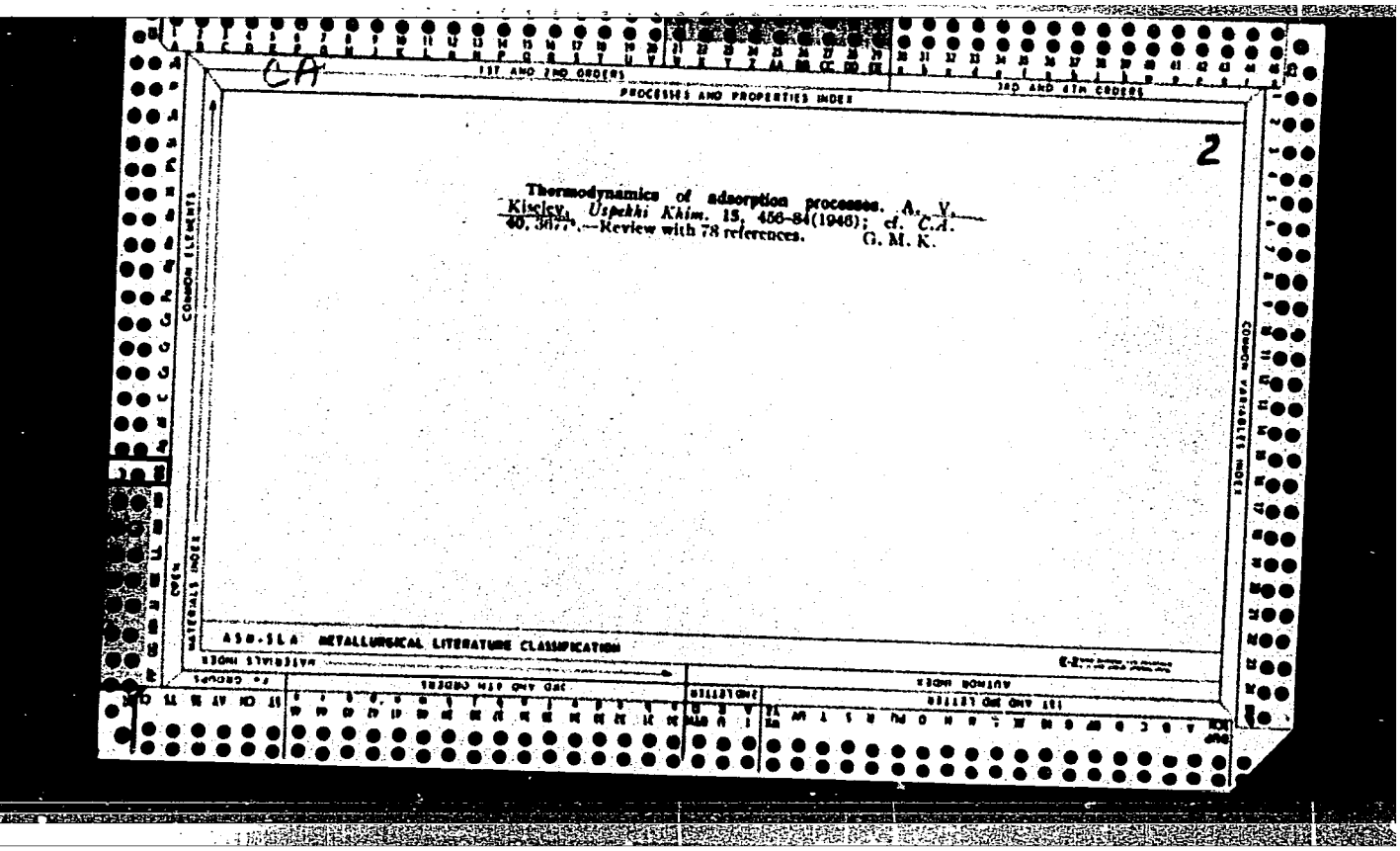


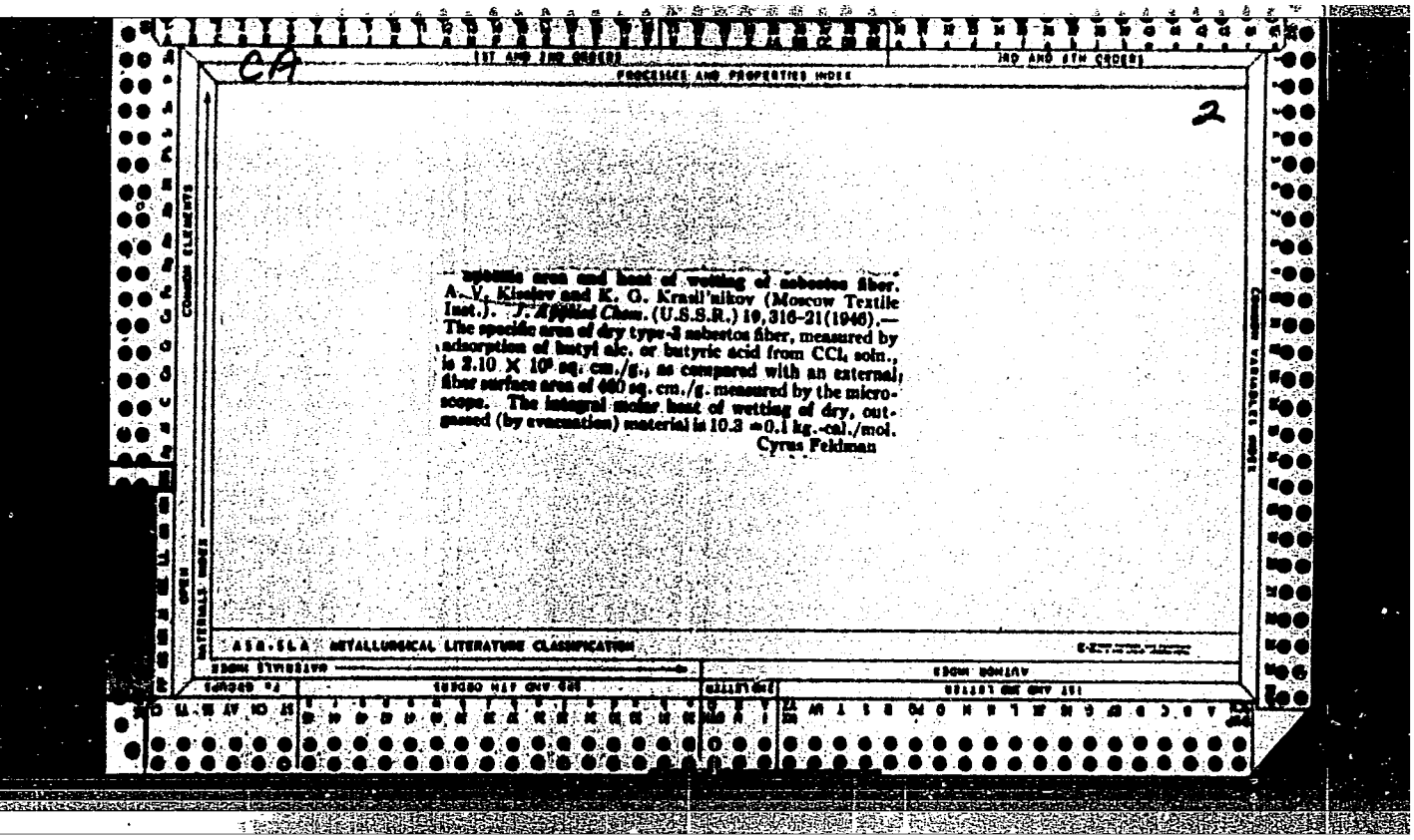
CA

2

Heats of sorption and the heats of sorption of vapors and the structure of activated charcoals. A. V. Kiselev, V. P. Dreving, and A. D. Runov. *Doklady Akad. Nauk S.S.S.R.*, 66, 313–13(1948); *Compt. rend. acad. sci. U.R.S.S.*, 44, 283–6(1945)(in English).—Heat evolved by sorption of MeOH vapor on various samples of charcoal was studied as a function of the extent of satn. of the sorbing capacity of the charcoal. Three distinct regions of sorption were observed: (1) a region of high heats, about 18,000–20,000 cal./mol., and, for some specimens, even up to 25,000–30,000, which fell off rapidly in conformance with the abrupt decrease in the slope of the initial part of the adsorption isotherm, (2) a region of nearly const. heat evolution, about 14,000–12,000 cal./mol., exceeding the heat of condensation by only 50–30%, which conformed to that part of the isotherm involving a relative pressure of 0.1 to 0.65, *i.e.*, to the start of capillary condensation, and (3) a region where the heat declined rapidly to the value for normal condensation, corresponding to a sorption hysteresis loop. The vol. of the micropores of the charcoals was estd. by measuring the vol. of MeOH vapor condensed under the influence of the adsorption field before capillary condensation began. The micropore vol. so detd. was in good agreement with that calcd. from adsorption of oleic and fatty acids from aq. solns. (cf. preceding abstr.). The first region of sorption, characterized by high heat evolution, corresponded to filling up 10–20% of the vol. of the micropores. The 2nd region of heat evolution was responsible for most of the heat of wetting, and consequently the heat of wetting should be roughly proportional to the vol. of the micropores. Empirically, the vol. of the micropores, in cm.^{3}/g., was approx. equal to the heat of wetting, in cal./g., divided by 60.

J. W. Perry





CA

2

— specific area and heat of wetting of asbestos fiber. A. V. Kiselev and K. G. Krasil'nikov (Moscow Textile Inst.). *J. Applied Chem.* (U.S.S.R.) 19, 316-21 (1946).— The specific area of dry type-3 asbestos fiber, measured by adsorption of butyl alc. or butyric acid from CCl_4 soln., is 2.10×10^5 sq. cm./g., as compared with an external fiber surface area of 680 sq. cm./g. measured by the microscope. The integral molar heat of wetting of dry, outgassed (by evacuation) material is 10.3 ±0.1 kg.-cal./mol.
Cyrus Feldman

3

3931. ACTIVATED CHARCOAL: ADSORPTIVE PROPERTIES AND STRUCTURE. Kiselev, A. V. and Shcherbakova, K. D. (Acta Physicochim., U.R.S.S., 1945, 21, 539-554).

In studying the structure of solid adsorbents, particularly that of finely porous adsorbents of large absorbing power, consideration must be given to the structure of the solid skeleton, the pores and the interface. The last two features can be investigated by adsorption methods. Investigations have been made over a wide concentration range of the adsorption isotherms of activated charcoal for various organic substances from aqueous solutions. With substance that mix with water, the isotherms pass through a maximum and the total content of the adsorbate in the adsorption volume is much greater than the amount adsorbed. For the homologous series of fatty acids and alcohols, the limiting adsorbed volumes, expressing approximately the volume of the adsorption space, are constant. This rule is accounted for by the complete packing of the charcoal micropores with the molecules of these substances. Changes in the structure of the adsorbate mole-

KISELEV, A. V.

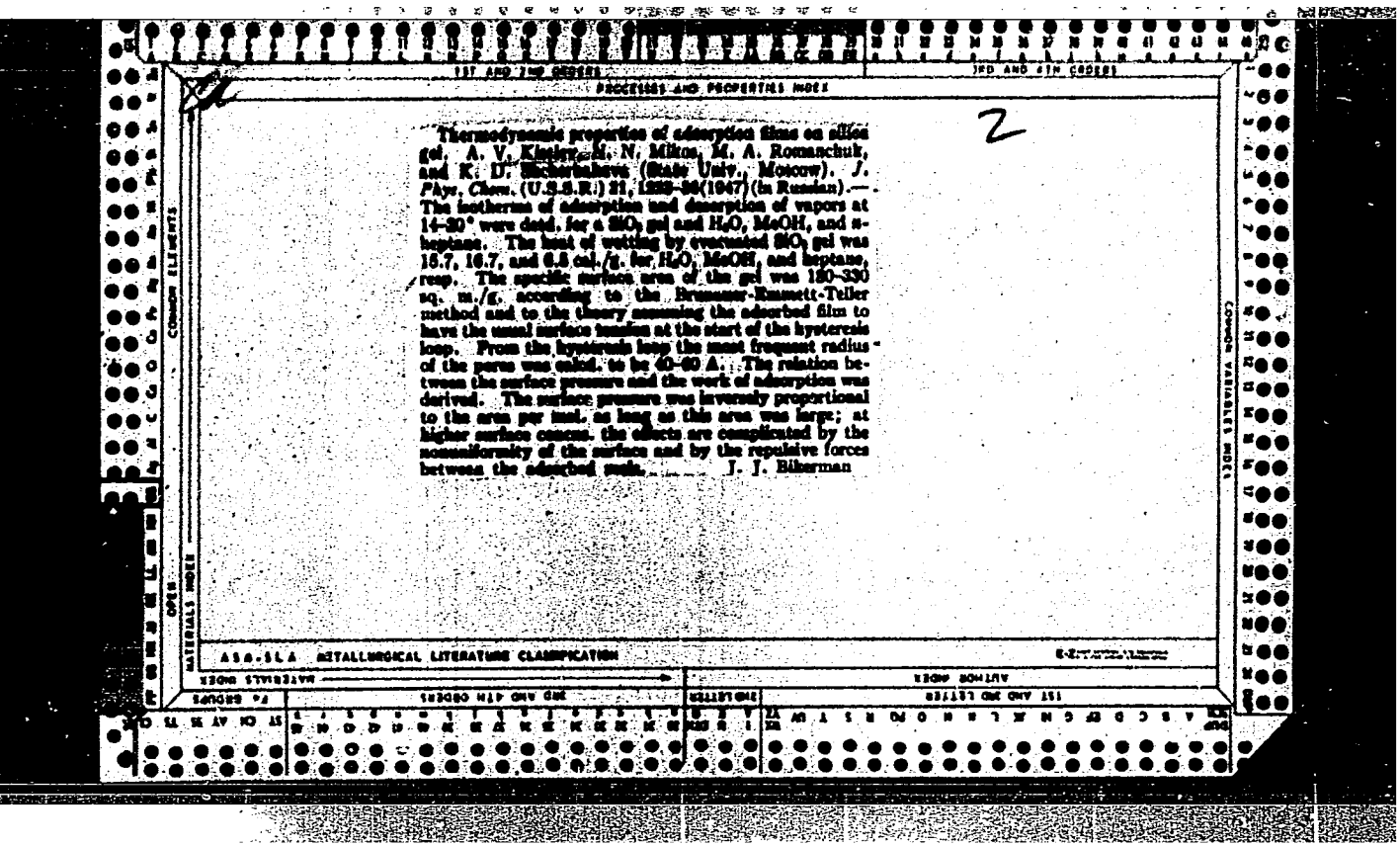
Gas dynamics

7

681. B. M. Kiselev, "Calculation of one-dimensional gas flow" (in Russian), *Appl. Math. Mech. (Prikl. Mat. i Mekh.)*, Jan.-Feb. 1947, vol. 11, pp. 177-192.

The first section of this paper presents a survey of the principles of one-dimensional compressible flow of a perfect gas. The theory of flow with variable cross-section, with heat exchange, and with sudden contraction and expansion is developed with reference to static pressure and temperature changes.

These basic principles are applied in the second section to the performance of an ejector. Formulas are developed for the pressure and momentum relationships for compressible flow ejectors. Both subsonic and supersonic flow are considered, omitting, however, any shock phenomena. Newman A. Hall, USA



Thermodynamic properties of adsorption films on silica gel. A. V. Kiselev, M. N. Mikos, M. A. Romanchuk, and K. D. Shcherbakova (State Univ., Moscow). *J. Phys. Chem.* (U.S.S.R.) 21, 1229–36(1947) (in Russian).—The isotherms of adsorption and desorption of vapors at 14–20° were detd. for a SiO_2 gel and H_2O, MeOH, and n-heptane. The heat of wetting by evacuated SiO_2 gel was 16.7, 16.7, and 6.5 cal./g. for H_2O, MeOH, and heptane, resp. The specific surface area of the gel was 180–330 sq. m./g. according to the Brunauer-Emmett-Teller method and to the theory assuming the adsorbed film to have the usual surface tension at the start of the hysteresis loop. From the hysteresis loop the most frequent radius of the pores was calcd. to be 40–60 A. The relation between the surface pressure and the work of adsorption was derived. The surface pressure was inversely proportional to the area per mol. as long as this area was large; at higher surface concns. the effects are complicated by the nonuniformity of the surface and by the repulsive forces between the adsorbed mols. J. J. Bikerman

KISELEV, A.V.

5

Adsorption characteristics and structure of adsorbents and catalysts. A. V. Kiselev. *Problemy Kinetiki i Kataliza, Akad. Nauk S.S.S.R., Inst. Fiz. Khim.* 5, *Metody Issucheniya Katalizatora* 230–57(1948); cf. C.A. 43, 6033*i*.—A review of literature concerning adsorption properties and structure of adsorbents. The following general topics are discussed: (1) effect of structures of adsorbents and catalysts on adsorption from solns., (2) effect of structures of adsorbents and catalysts on adsorptions and heats of adsorption of vapors, and (3) change of structure of adsorbents and catalysts in the process of their operation. There are 65 literature references.

Gladys [illegible]

KISELEV, A. V.

USSR/Chemistry - Adsorbents
Chemistry - Carbons, Active

Jan 1948

"Adsorption Properties and the Structure of Adsorbents: II, Adsorption in Active Carbon Solutions of Widely Varying Concentrations," O. M. Dzhigit, A. V. Kiselev, M. G. Terekhova, K. D. Shcherbakova; Moscow State U; Lab of Adsorption, Acad Sci USSR; Inst of Phys Chem, Moscow, 11 pp

"Zhur Fiz Khim" Vol XXII, No 1

Study general types of adsorption isotherms of surface active substances found in solutions of weak adsorbent soluble materials. Adsorption of mixtures of water and acid or alcohols passes through maximum and decreases. Subdivision and cyclivation of the adsorbent molecules decreases the degree to which they can fill the micropores of the carbon being studied. Submitt ed 14 May 1947.

PA 65T8

KISELEV, A. V.

USSR/Chemistry- Silica, Colloidal
Chemistry- Absorption May 1948

" Influence of the Conditions of Preparation on the Structure of Silica Gel," G. K. Boreskov, M. S. Borisova, O. M. Dubigit, V. A. Dzis'ko, V. P. Dreving, A. V. Kiselev, O. A. Likhacheva, Moscow State U imeni M. V. Lomonosov, Phys Chem Inst imeni L. Ya. Karpov, Moscow, 14 pp

" Zhur Fiz Khim" Vol XXII, No 5

Samples of various types of silica gel (vitreous, chalky, etc.) obtained by different methods and their absorbent properties compared. Results are tabulated and shown graphically. Submitted 14 Aug 1947.

PA 68T24

KISELEV, A. V.

PA 56/49T90

USSR/Physics
Adsorption
Adsorbents

Sep 48

"Determining the Area of Adsorption Films on Porous Absorbents: I, Assumptions Fundamental to Determination of Specific Area of Adsorbents," A. V. Kiselev, N. N. Mikos, Lab of Sorption Processes, Inst of Phys Chem, Acad Sci USSR, Moscow, Lab of Adsorption, Moscow State U, 15 pp

"Zhur Fiz Khim" Vol XXII, No 9

From the isotherm for adsorption of vapors are calculated the specific area of the adsorbent s, and the area of the adsorption film s'. For [redacted]

56/49T90

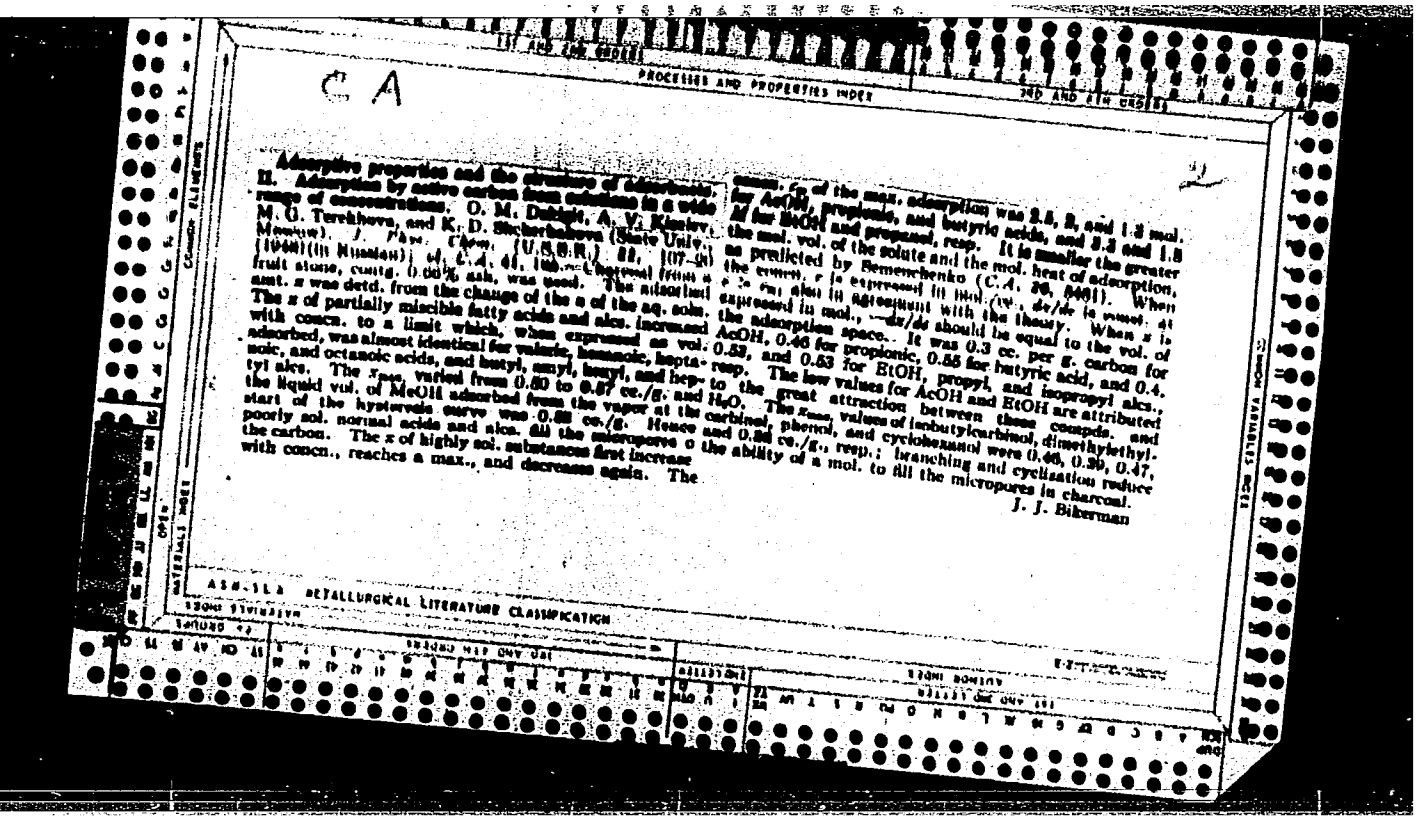
USSR/Physics (Contd)

Sep 48

adsorbents with large pores the relation is $s' \approx s$, and for those with fine pores the relation is $s' < s$. Submitted 30 Dec 47.

[redacted]

56/49T90



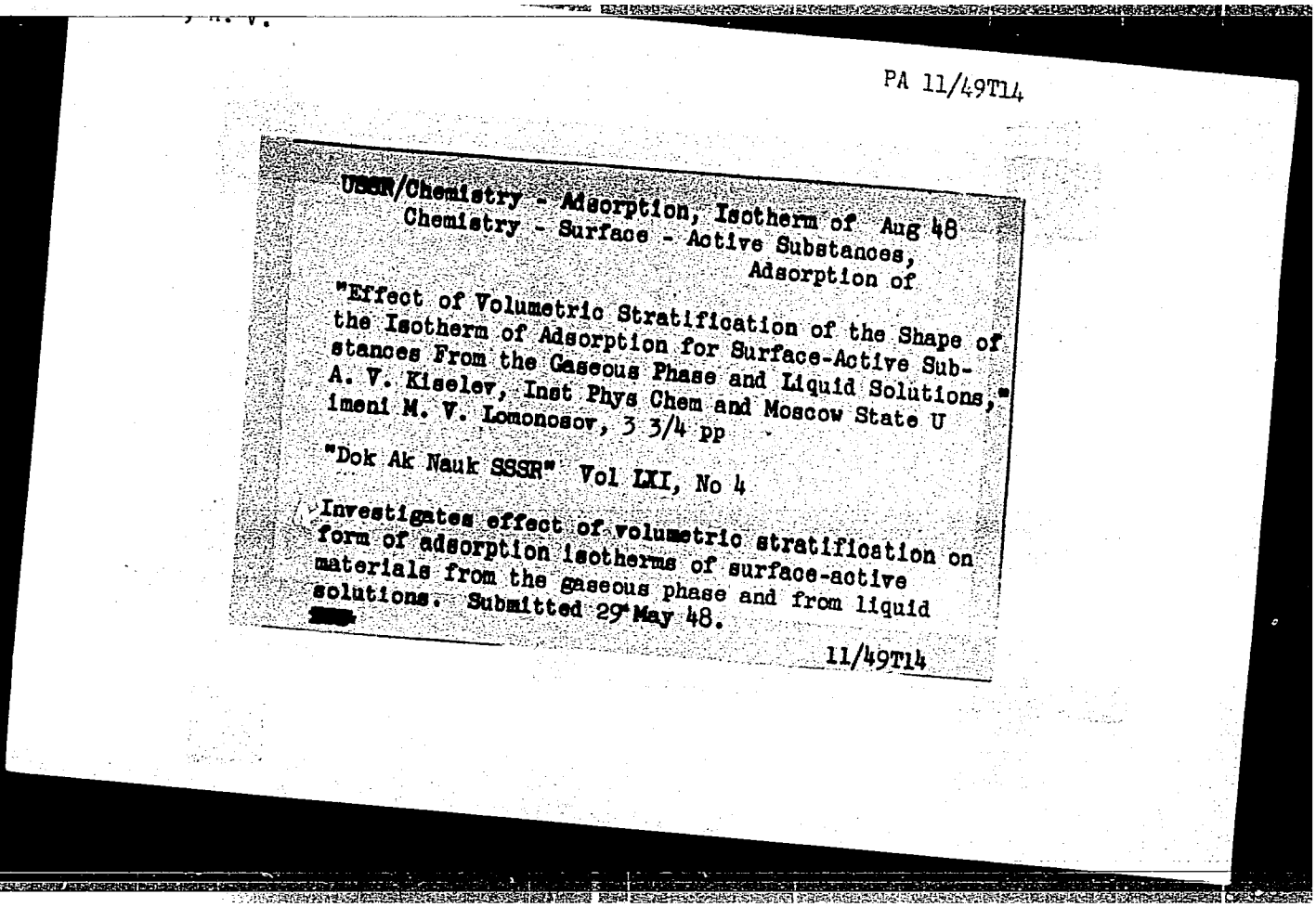
C A

PROCESSES AND PROPERTIES INDEX

Adsorptive properties and the structure of adsorbents. II. Adsorption by active carbon from solutions in a wide range of concentrations. O. M. Dubinin, A. V. Kiselev, M. G. Terekhova, and K. D. Shcherbakova (State Univ., Moscow). *J. Phys. Chem. (U.S.S.R.)* 22, [07-36] (1948)(in Russian); cf. *C.A.* 41, [illegible]. Charcoal from a fruit stone, contg. 0.04% ash, was used. The adsorptional asmt. x was detd. from the change of the n of the aq. soln. The x of partially miscible fatty acids and alcs. increased with concn. to a limit which, when expressed as vol. adsorbed, was almost identical for valeric, hexanoic, heptanoic, and octanoic acids, and butyl, amyl, hexyl, and heptyl alcs. The x_{max} varied from 0.80 to 0.87 cc./g. and the liquid vol. of MeOH adsorbed from the vapor at the start of the hysteresis curve was 0.88 cc./g. Hence the poorly sol. normal acids and alcs. fill the micropores o the carbon. The x of highly sol. substances first increase with concn., reaches a max., and decreases again. The max. of the max. adsorption was 2.5, 2, and 1.3 mol. for AcOH, propionic, and butyric acids, and 2.3 and 1.8 M for EtOH and propanol, resp. It is smaller the greater the mol. vol. of the solute and the mol. heat of adsorption, as predicted by Semenchenko (*C.A.* 39, 5461). When the concn., c, is expressed in mol./l., $-dx/dc$ should be equal to the adsorption space. When x is expressed in mol., $-dx/ds$ should be equal to the vol. of the adsorption space. It was 0.3 cc. per g. carbon for AcOH, 0.46 for propionic, 0.55 for butyric acid, and 0.4, 0.59, and 0.53 for EtOH, propyl, and isopropyl alcs., resp. The low values for AcOH and EtOH are attributed to the great attraction between these compds. and H_2O. The x_{max} values of isobutylcarbinol, dimethylethylcarbinol, phenol, and cyclohexanol were 0.46, 0.39, 0.47, and 0.36 cc./g., resp.; branching and cyclization reduce the ability of a mol. to fill the micropores in charcoal.

J. J. Bikerman

ASM-TLA METALLURGICAL LITERATURE CLASSIFICATION



PA 11/49T14

USSR/Chemistry - Adsorption, Isotherm of Aug 48
Chemistry - Surface - Active Substances, Adsorption of

"Effect of Volumetric Stratification of the Shape of the Isotherm of Adsorption for Surface-Active Substances From the Gaseous Phase and Liquid Solutions," A. V. Kiselev, Inst Phys Chem and Moscow State U imeni M. V. Lomonosov, 3 3/4 pp

"Dok Ak Nauk SSSR" Vol LXI, No 4

Investigates effect of volumetric stratification on form of adsorption isotherms of surface-active materials from the gaseous phase and from liquid solutions. Submitted 29 May 48.

11/49T14

KISELEV, A. V.

USSR/Physics
Silica Gels
Temperature

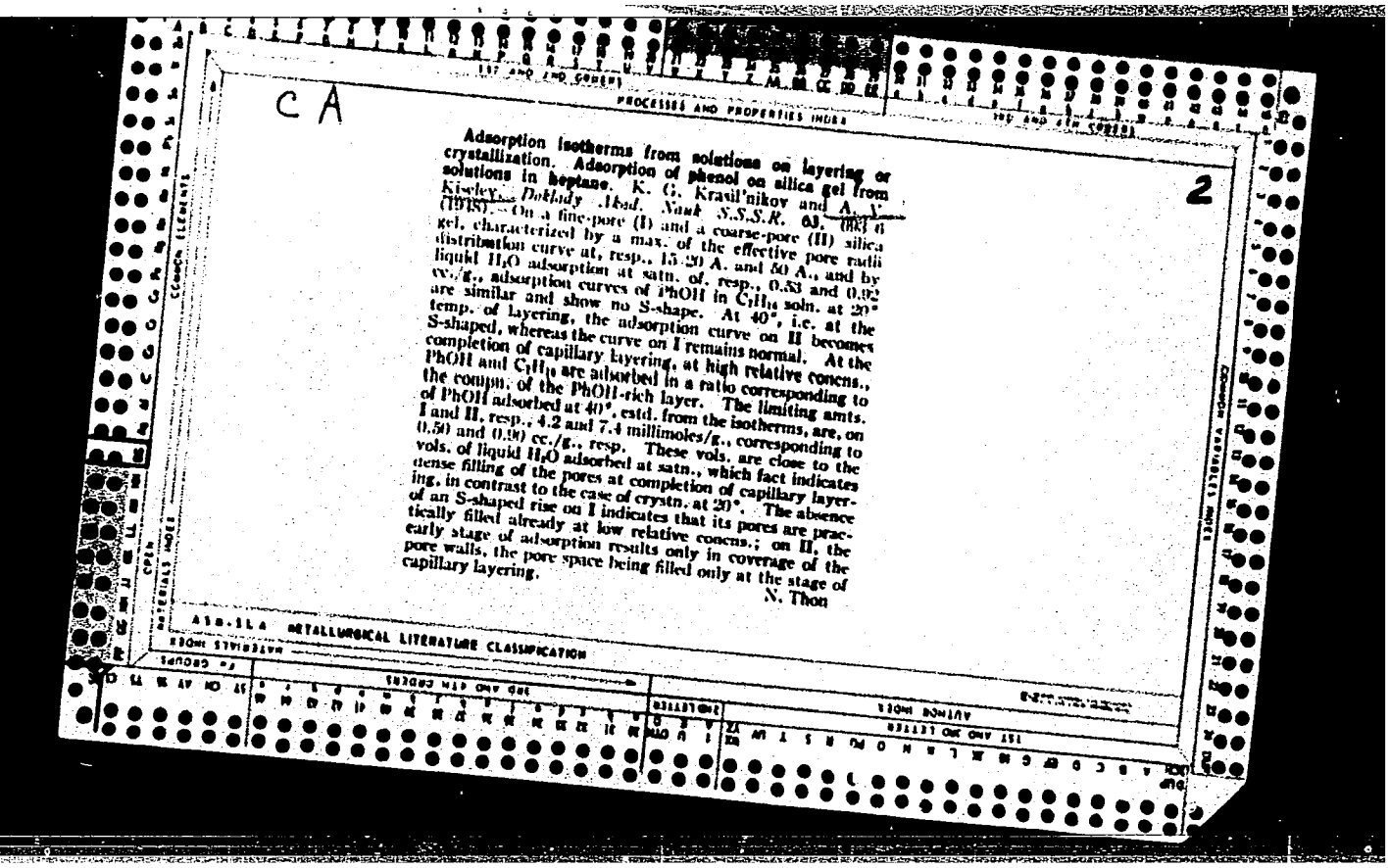
Oct 48

"Effect of the Ignition Temperature on the Structure of Silica Gels," G. K. Boreskov, M. S. Borisova, V. A. Dzis'ko, A. V. Kiselev, O. A. Likhacheva, T. N. Morokhovets, Moscow State U imeni M. V. Lomonosov, Physicochem Inst imeni Karpov, 3 2/3 pp

"Dok Ak Nauk SSSR" Vol LXII, No 5

Three types of silica gel prepared: (1) glasslike samples with fine pores, (2) glasslike samples with uniformly coarse pores, and (3) chalklike samples of mixed porosity. Tests of adsorption and of desorption of methyl alcohol vapors yielded isotherms showing that 12-hour periods of ignition temperatures from 115 to 1,000 C affected samples' adsorption properties differently. Fine-pore glasslike samples were least stable thermally Chalklike samples showed highest stability. Submitted by Acad M. M. Dubinin, 11 Aug 48.

PA 53/49T99



CA

2

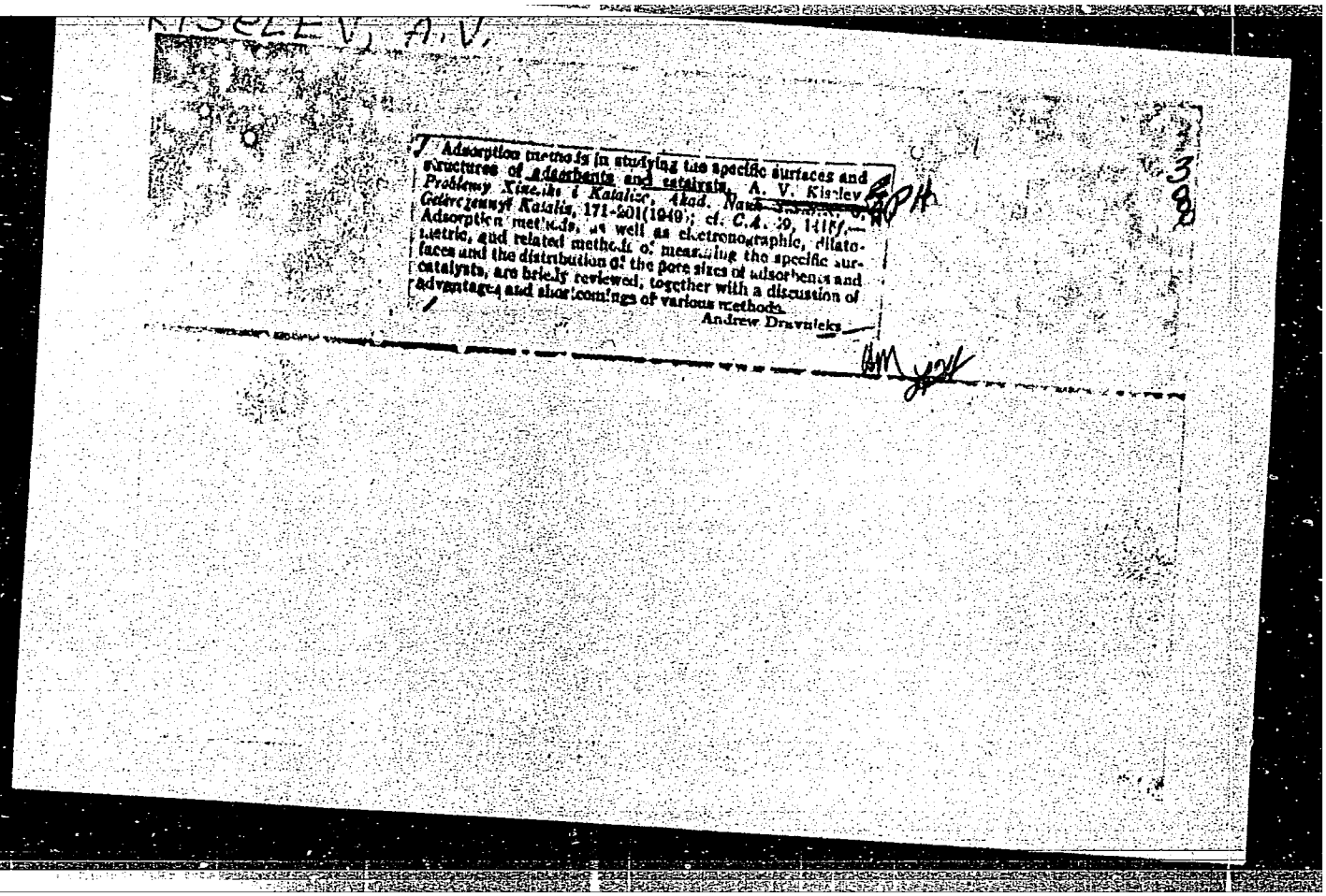
Adsorption isotherms from solutions on layering or crystallization. Adsorption of phenol on silica gel from solutions in heptane. K. G. Krasil'nikov and A. V. Kiselev. *Doklady Akad. Nauk S.S.S.R.* 63, [illegible] (1948). On a fine-pore (I) and a coarse-pore (II) silica gel, characterized by a max. of the effective pore radii distribution curve at, resp., 15-20 A. and 50 A., and by liquid H_2O adsorption at satn. of, resp., 0.53 and 0.92 cc./g., adsorption curves of PhOH in C_7H_{16} soln. at 20° are similar and show no S-shape. At 40°, i.e. at the temp. of layering, the adsorption curve on II becomes S-shaped, whereas the curve on I remains normal. At the completion of capillary layering, at high relative concns., PhOH and C_7H_{16} are adsorbed in a ratio corresponding to the compn. of the PhOH-rich layer. The limiting amts. of PhOH adsorbed at 40°, estd. from the isotherms, are, on I and II, resp., 4.2 and 7.4 millimoles/g., corresponding to (0.50) and (0.9) cc./g., resp. These vols. are close to the vols. of liquid H_2O adsorbed at satn., which fact indicates dense filling of the pores at completion of capillary layering, in contrast to the case of crystn. at 20°. The absence of an S-shaped rise on I indicates that its pores are practically filled already at low relative concns.; on II, the early stage of adsorption results only in coverage of the pore walls, the pore space being filled only at the stage of capillary layering.

N. Thon

[illegible], A. V. i KRASIL'NIKOV, K. G.

26220 Priroda sorbtsii CaO iz vodnykh rastvorov silikagelyami i alyumogelyami (Sistemy $CaO-SiO_2-H_2O$ i $CaO-Al_2O_3-H_2O$) Sbornik nauch rabot po yuazhushchim materialam. M., 1949, s. 141-323

SO: LETOPIS' NO. 35, 1949



KISELEV, A. V.

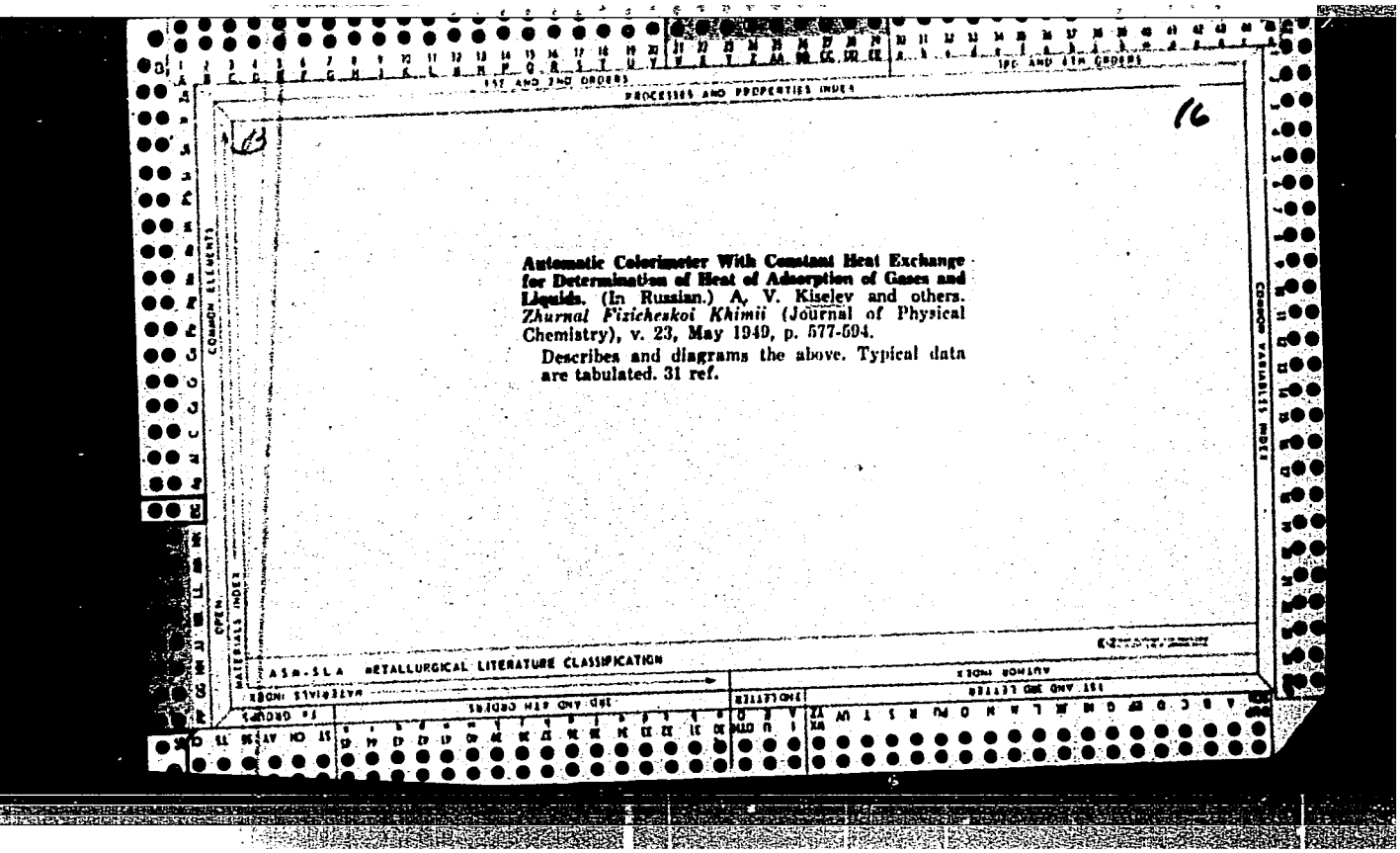
Adsorption methods in studying the specific surfaces and structures of adsorbents and catalysts. A. V. Kiselev. *Problemy Kinetiki i Kataliza, Akad. Nauk* [illegible] *Gidrirovaniya Katalizy*, 171-201(1949); cf. *C.A.* 39, 1418f.—Adsorption methods, as well as electronographic, dilatometric, and related methods of measuring the specific surfaces and the distribution of the pore sizes of adsorbents and catalysts, are briefly reviewed, together with a discussion of advantages and shortcomings of various methods.

Andrew Dravnieks

KISELEV, A. V

30733. KISELEV, A. V. and SMIRNOVA, I. V.

Osobennosti sorbtsii vody aktivnoy okis'yu alyuminiya. Zhurnal fiz. khimii, 1949, vyp. 9, s. 1018-24. -- Bibliogr: 13 nazv.



Automatic Colorimeter With Constant Heat Exchange for Determination of Heat of Adsorption of Gases and Liquids. (In Russian.) A. V. Kiselev and others. *Zhurnal Fizicheskoi Khimii* (Journal of Physical Chemistry), v. 23, May 1949, p. 577-594.

Describes and diagrams the above. Typical data are tabulated. 31 ref.

CA

2

Heat of adsorption from solutions at different temperatures. A. D. Rusov, A. V. Kiselev, V. P. Kiselev, and S. N. Alekseev. *Zhur. Fiz. Khim.* 23, 1005–17(1949).—The heat, Q, of wetting fruit-stone charcoal (*C.A.* 42, 5208*e*) by PrOH-H_2O mixts. was detd. in a calorimeter immersed in a thermostat or in a calorimeter having const. heat exchange (*C.A.* 43, 6871*d*); the sensitivity of the latter was 0.01–0.04 cal. but the accuracy of Q was only ± 1 cal./g. because of the volatility of PrOH. Q was identical at 25 and 50°; it was 10 for H_2O, and 16, 22, 30, and 38 when the concn. of PrOH was 1, 4, 8, and 12.4 mol./l., resp. The apparent adsorption x of PrOH by C (cf. *C.A.* 43, 8008*e*) had a max. near $c = 2$. dQ/dx was pos. at c less than 2 and neg. at c greater than 2. If the total adsorption vol. v is given by $v = -dx/dc$ at c greater than 2, where dx/dc is almost const., the total adsorbed amt. $a = x + vc$. dQ/da was 1200 cal./mole at small a, increased with a to a max. at about $a = 6$ millimol./g., and decreased on further increase of a. This decrease may be due to the importance of wide pores at great a, whereas the increase of dQ/da with a may be due to energy spent on displacing H_2O by PrOH at small a. J. J. Bikerman

KISELEV, A. V.

USSR/Chemistry - Adsorbents
Chemistry - Adsorption

Apr 49

"Basic Structural Types of Adsorbents and Their Action on Adsorption Properties," A. V. Kiselev, Moscow State U, Lab of Adsorption; Inst of Phys Chem, Acad Sci USSR, Lab of Sorption Processes, Moscow, 17 pp

"Zhur Fiz Khim" Vol XXIII, No 4

Discusses adsorption properties of active adsorbents of nonporous, homogeneous coarse porous, homogeneous fine porous, and heterogeneous types, showing how they depend in a strong degree on the

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USSR/Chemistry - Adsorbents (Contd) Apr 49

surface structure and pores. Submitted 7 Jul 48.

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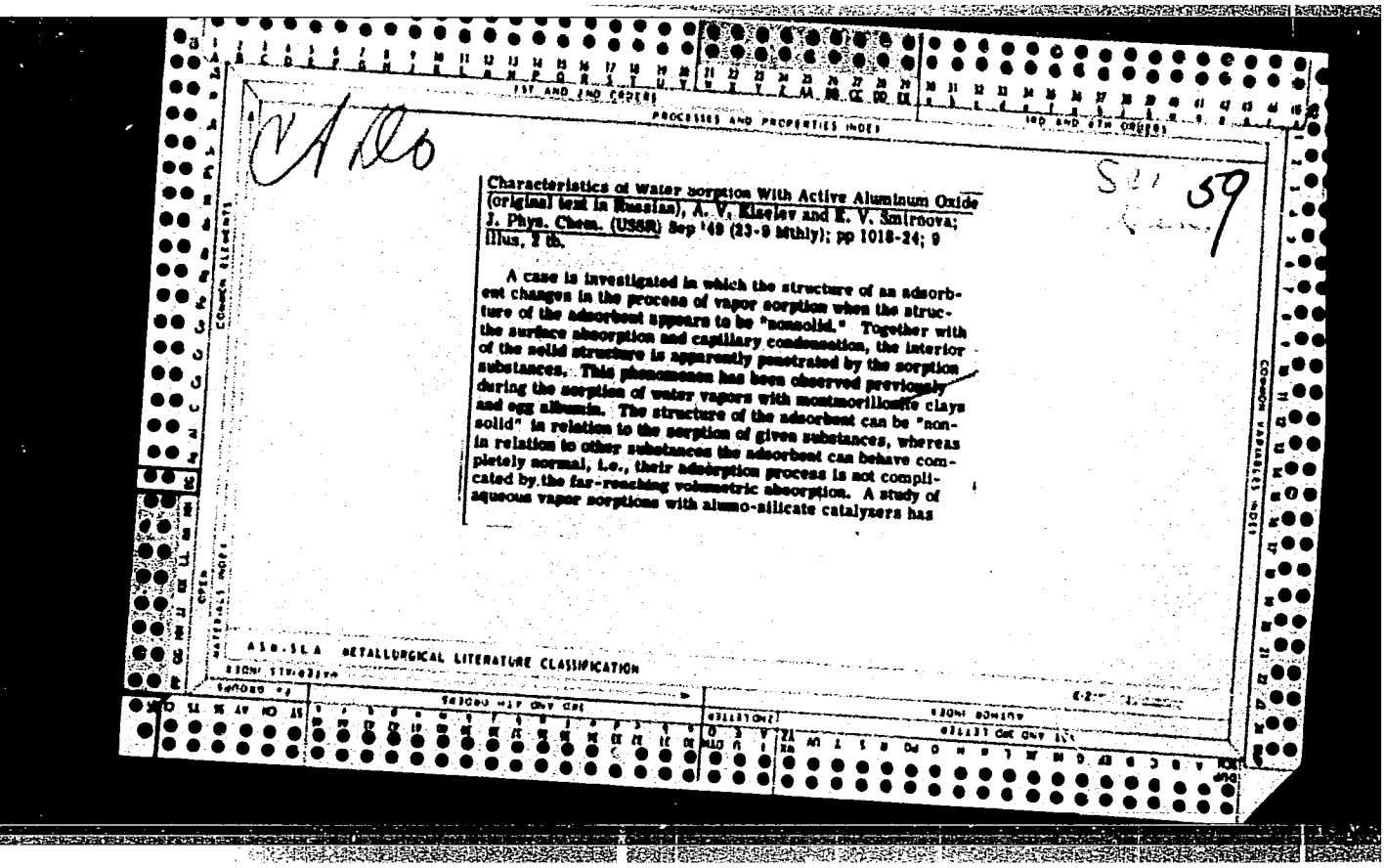

CA 46

S/ 59

Characteristics of water sorption With Active Aluminum Oxide (original text in Russian), A. V. Kiselev and K. V. Smirnova; J. Phys. Chem. (USSR) Sep '49 (23-9 Mthly); pp 1018-24; 9 illus, 2 tb.

A case is investigated in which the structure of an adsorbent changes in the process of vapor sorption when the structure of the adsorbent appears to be "nonsolid." Together with the surface absorption and capillary condensation, the interior of the solid structure is apparently penetrated by the sorption substances. This phenomenon has been observed previously during the sorption of water vapors with montmorillonite clays and egg albumin. The structure of the adsorbent can be "nonsolid" in relation to the sorption of given substances, whereas in relation to other substances the adsorbent can behave completely normal, i.e., their adsorption process is not complicated by the far-reaching volumetric absorption. A study of aqueous vapor sorptions with alumo-silicate catalysers has

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

shown that the desorption side of the isotherm does not coincide with the adsorption side in the entire interval of the vapor pressures; water is firmly retained by these adsorbents at a low temperature. In the case of methyl alcohol vapors, the isotherms have a normal aspect for the porous sorbent. A study of sorption-desorption isotherms of water and alcohol vapors in alumo-silica gel specimens and in active aluminum-oxide specimens, obtained through a hydrolysis of aluminum chloride, has shown that the absorption of alcohol vapors with these adsorbents is confined to the normal adsorption and capillary condensation. The sorption of water vapors with specimens of alumo-silica gel and active aluminum oxide is accompanied apparently by a very slow process of penetration of the water molecules into the structure of these sorbents.

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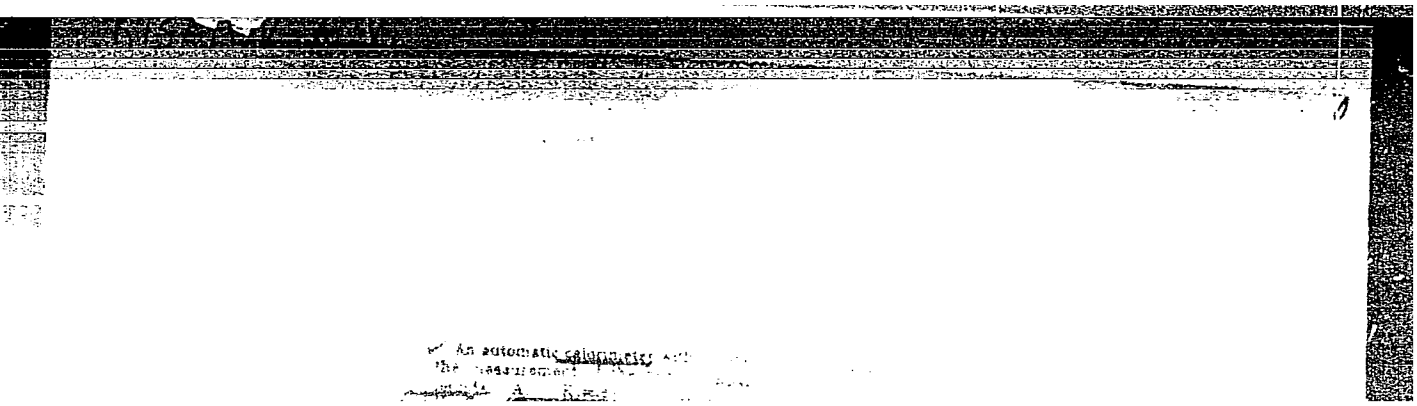
eA

Adsorption by porous bodies from solutions in the neighborhood of the critical temperature of mixing. The system silica gel-acetic acid-heptane. K. D. Krasil'nikov and A. V. Kiselev (Moscow State Univ.). *Doklady Akad. Nauk S.S.S.R.* 69, 817–19(1949); cf. *C.A.* 43, 4530e.—Adsorption isotherms of AcOH in soln. in C_7H_{16} on a uniformly coarse-pore silica gel, were detd. in sealed tubes, by interferometric analysis, at 45, 30, 20, 8, 4.5, and 0°, i.e. both above and below the crit. temp. of mixing; its position, normally around 20°, varies in contact with the silica gel as a result of its H_2O content, and could only be maintained const. by using a const. proportion of silica gel and vol. of soln. At 45° and 30°, i.e. in the range of unlimited miscibility, the adsorption isotherm is a curve with a max. At 0°, where there are two liquid layers, the isotherm has an upward *S*-shaped bend. In this case, the coarse pores of the gel are filled as a result of capillary layering. Sorption of AcOH attains at this point 9.2 millimoles/g., this being the excess of the amt. of substance in the adsorption space over that in an equal vol. of the equil. soln. At intermediate temps., the isotherms have an intermediate shape.
N. Thon

1951



Kiselev, A.V.

Chemical Abstracts
Vol. 48 No. 5
Mar. 10, 1954
General and Physical Chemistry

Structure of silica gels and its effect on adsorption properties. A. V. Kiselev. *Issledovaniya v Oblasti Khromatog., Trudy Konferentsii po Issledovaniyu Khromatog., Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1950, 71–97(Pub. 1952).—The effects of structure and porosity of SiO_2 gels on adsorptive properties are reviewed, with 53 references. The structure differences are reflected particularly in adsorption of elongated and highly branched mols. Adsorption isotherms (20° and 40°) for PhOH and MeOH on various SiO_2 gels are reproduced. These permit a ready calcn. of the sp. area of SiO_2 gel or quartz powders. G. M. Kosolapoff

KISELEV, A.V.

CA

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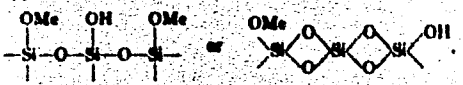
Poisoning and regeneration of the surface of silica gel in the adsorption of vapors. O. M. Dzhigit, A. V. Kiselev, N. N. Mikos-Avgul, and K. D. Shcherbakova (Lomonosov State Univ., Moscow). *Doklady Akad. Nauk S.S.S.R.* 70, 641–4(1950).—Adsorption-desorption isotherms at 20° and differential heats Q in adsorption and desorption were detd. for MeOH vapor on a homogeneously finely porous silica gel, heated 12 hrs. at 450°, in the relative pressure range $p/p_s = 1.2 \times 10^{-6} - 1.0$, and back to 1.3×10^{-7} in desorption. Q in adsorption and desorption are identical only in the range of capillary condensation; further on, the desorption isotherm lies below the adsorption curve, corresponding to the greater amts. of heat absorbed in desorption as compared with those evolved in adsorption. To eliminate the last amts. of MeOH, pumping was done over active C, cooled in liquid N_2, with the gel heated to 69°; this left a residue of 0.5 millimole MeOH/g. gel still adsorbed. On repeated adsorption, after heating to 400°, the Q evolved in adsorption were smaller than in the 1st run, and the isotherm lay lower. A further lowering of Q and of the amt. adsorbed occurred in a 3rd run. This cannot be linked with any sintering of the gel which is still stable at 400°, but must be due to a poisoning by MeOH in the absence of H_2O, possibly through formation of superficial ethers of the type



A surface thus poisoned can be regenerated by treatment with H_2O vapor, which hydrolyzes the ethers; after that treatment, Q and the adsorption increase again, attaining values intermediate between those of the 1st and the 2nd series. Repetition of the hydrolytic regeneration operation restores the original Q and adsorption almost completely. N. Thon

OVER 100 ADSORPTION REFERENCES

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CA

2

Effect of the structure of the silica gel on the velocity of the sorption of calcium hydroxide from aqueous solutions. O. M. Dzhigit, A. V. Kiselev, and K. G. Krasil'nikov (Gosudarst. Vsesoyuz. Nauch.-Issledovatel. Inst. Tsvetmet. Prom. and Moskov. Gosudarst. Univ. im. m.v. Lomonosova). *Doklady Akad. Nauk S.S.S.R.* 71, 77–9 (1950).—The amts. of $Ca(OH)_2$, in mg.-equiv./g., sorbed from a clear aq. soln. after a stated length of time (1 hr. to 30 days), are plotted against the concn. of the soln. after sorption. The isotherms are substantially different for a coarsely-porous silica gel (I), characterized by marked capillary condensation and considerable hysteresis in the sorption of C_6H_6 vapor at 20°, and a finely-porous silica gel (II) showing no capillary condensation under the same conditions. Pore vol. distribution curves show, for II, a sharp peak at about 10 A., and in the range of 80–100 A. for I. Sorption of $Ca(OH)_2$ was detd. with fractions of I and II remaining after sifting with 10,000 mesh/sq. cm., and heated 4 hrs. at 350°. All points of the isotherms corresponding to the same initial concn. lie on the same straight line which connects the point on the axis of abscissas expressing the original concn. of the soln. with the point on the axis of ordinates corresponding to complete extn. of all $Ca(OH)_2$ from the soln. In the case of I, the 1-hr. isotherm shows irregularities of shape indicative of vol. sorption. Isotherms taken at later stages become increasingly straightened out; the 24-hr. isotherm is very nearly vertical, and, after 30 days, it corresponds to the equil. between the initial silica gel $SiO_2.aq.$, the silicate $CaO.SiO_2.aq.$, and the aq. soln. The coarse pores of I permit ready diffusion of $Ca(OH)_2$, and the Ca silicate formed does not prevent its access to the surface of yet unreacted SiO_2. This is not so in the case of II. All isotherms, including that taken after 30 days, show the familiar shape of initial rise and leveling off, and lie very closely one above the other. Sorption after 30 days is only a little greater than after 1 day. N. Thon

CA

2

Absolute heats of wetting of barium sulfate by water and by alcohols. B. V. Il'in, A. V. Kiselev, V. F. Kiseiev, O. A. Likhantseva, and K. D. Shcherbakova (Moscow State Univ.). *Doklady Akad. Nauk S.S.S.R.* 75, 827-30(1950). —Calorimetric detns. were made on 2 samples of $BaSO_4$, one of sp. surface area 7 sq. m./g. (I), the other 0.7 sq. m./g. (II), outgassed at 400 and 300°, resp. (at the lower temp. for the finer-grained II, to avoid sintering). The expti. values, at 20°, are, on I, H_2O 0.75 ± 0.02, MeOH 0.55 ± 0.005, BuOH 0.58 ± 0.03 cal./g.; on II, H_2O 1.07 ± 0.03, MeOH 0.81$_6$ ± 0.006, EtOH 0.80 ± 0.01, PrOH 0.80 ± 0.01, BuOH 0.79 ± 0.02, $C_6H_{11}OH$ (at 80°) 0.81$_6$ ± 0.01, C_6H_{11}-OH (at 20°) 0.79 ± 0.01. The values for all the alcs. are practically identical, i.e., the chain length has no effect on the heat of wetting; on the other hand, the heats of wetting for H_2O and for the alcs. are distinctly different. The data recalcd. for equal surface area, are (av. of I and II), H_2O 455, alcs. 385-340 ergs/sq. cm. N. Thon

1951

KISELEV, A. V.

206T13

USSR/Chemistry - Adsorption Jun 51

"Adsorption of Nitrogen Vapors on Silica Gel at a Low Temperature," V. P. Dreving, A. V. Kiselev, O. A. Likhacheva, Lab of Surface Phenomena, Inst of Phys, Moscow State U imeni M. V. Lomonosov

"Zhur Fiz Khim" Vol XXV, No 6, pp 710-718

Investigated adsorption of N_2 vapors at bp on uniform coarsely porous silica gel over range of relative pressures from 10^{-6} to 0.5. Adsorption isotherms were reproducible for entire region. At low pressures equil was attained very slowly. No straight-line "Henry region" was found. Sp surface was detd by different methods with closely corresponding results. For range of filling of surface from 20 to 90% isotherm corresponds to 1st ep of M. M. Dubinin and L. V. Radushevich, for greater deg of filling to eq of W. D. Harkins and G. Jura. In latter case 2d layer of adsorbed N_2 mols is formed.

206T13

KISELEV, A. V.

USSR/Chemistry - Adsorption 21 Feb 51

"Investigation of the Structure of an Adsorbent by Several Independent Methods," S. N. Avgul', O.M. Dubinin, N.M. Kazakin, A.V. Kiselev, V.M. Luk'yanovich, I.Ye. Neymark, R. Uy. Shaynfayn, Moscow State U imeni M.V. Lomonosov, Inst Phys Chem, Acad Sci Ukrainian SSR, Inst Phys Chem, Acad Sci USSR, Groznyy Sci Res Petroleum Inst

"Dok Ak Nauk SSSR" Vol LXXVI, No 6, pp 855,858

Adsorption isotherms of benzene, heptane, and MeOH were taken on uniform roughly porous silica gel (structural type 2). Found surface of adsorbed film to be equal to surface of the adsorbent and not to depend on nature of vapor. Detd distribution of vol of pores by structure-adsorption method, method of pressing Hg into the pores, and electronic microscope method. Results obtained by the 3 methods checked.

18573

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2

Uni- and multimolecular adsorption from solution on a nonporous adsorbent. A. V. Kiselev and K. G. Krasil'nikov (Moscow State Univ.). *Doklady Akad. Nauk S.S.S.R.* 77, 781–4(1951).—Adsorption isotherms from solns. of PhOH in C_6H_{12} on $BaSO_4$ powder of sp. surface area 9.7 sq. m./g. were detd. at 20°, where satn. leads to crystn. of PhOH, and at 40° where satn. results in sepn. into 2 liquid layers. At 20°, the isotherm levels off at a relatively low concn., 25 millimole/l. (i.e. 0.1 of satn.) and the adsorption remains practically unchanged up to satn. of the soln. and beyond it. This const. adsorption, 58 millimoles/g., corresponds to a surface area of 29 A.²/mol. PhOH; consequently, under these conditions, only one close-packed unimol. adsorption layer is formed. At 40°, the isotherm is S shaped, beginning to rise at approx. a relative concn $c/c_s = 0.6$ (c_s = 1.3 mole/l.). From this point on, adsorption is multimol., but the thickness of the adsorbed layer does not exceed 2–3 mols. even at $c/c_s = 0.9$. A similar isotherm is found with MeOH in C_6H_{12} on $BaSO_4$. N. Thon

1951

KISELEV, A.V.
1951

Absolute adsorption isotherms from solution. K. G. Krasil'nikov and A. V. Kiselev (Moscow State Univ.). *Doklady Akad. Nauk S.S.S.R.* 77, 1047-50(1951); cf. Argul, *et al.*, *C.A.* 45, 6483g.—Adsorption isotherms were detd. for solns. of PhOH in C_7H_{16} at 20° and 40°, on the highly coarse silica gel "E" (I), the coarse silica gel "VK-Kh-2" (II), a relatively fine-pore silica gel "No. 45" (III), and nonporous $BaSO_4$ (IV). Total pore vol. in cc./g., most frequent pore diam. in A., and sp. surface area s in sq. m./g. were: for I 1.72, 260, 320; II 0.92, 90, 350; III 0.53, 30, 600; IV —, —, 9.7. At 20°, satn. in the vol. results in crystn., and at 40° in sepn. into 2 liquid layers. The isotherm on I at 20° has the normal shape up to satn., whereas at 40° it is S-shaped. Plots of the amt. of PhOH adsorbed, a, per unit sp. surface area, S, as a function of its concn., c, at 20°, coincide for I, II, and III; consequently, the porosity of the silica gel shows no effect on the adsorption up to a pore size of 30 A. Near satn., a/s = micromole/sq. m., which gives s/a = 26 A.^{2}/mol. PhOH, i.e. adsorption at 20° remains unimol. up to satn. Conversely, adsorption of PhOH from soln. in C_7H_{16} can be used to det. the unknown sp. surface area of a silica gel. On IV, adsorption is still unimol., but the limit is reached at about $c = 0.1\ c_{sat.}$. Plots of a/s at 40°, on I, II, and IV, are still S-shaped, with the isotherms coinciding only in their initial portions but diverging beyond the initial stage. This divergence is the result of multimol. adsorption on IV, but is due to capillary layering in the case of the silica gels; the latter effect is more pronounced, the larger is the pore vol. That the rise of a/s on coarse silica gels at higher concn. is not due to mere multimol. adsorption, or to layering in the space between grains, follows from the fact that in the range of relative concns. 0.7–1.0, a/s is much greater, and rises more steeply with c, for the silica gels than for IV. Consequently, the effect consists in capillary layering, analogous to capillary condensation of vapors. At $c/c_s = 1$, I adsorbs 10–17 millimoles PhOH per g., or 1.5 cc. liquid PhOH/g. This, with some C_7H_{16}, is sufficient for complete filling of the pore vol.

N. Thon

6-13-54

KISELEV, A. V.

USSR/Chemistry-Adsorption 21 Jul 51

"The Structure of Activated Carbons and Their Sorption Effect on Various Gaseous Substances," N. N. Avgul', O. M. Dzhigit, Acad M. M. Dubinin, A. V. Kiselev, Inst of Phys Chem, Acad Sci USSR, and Moscow State U imeni Lomonosov

"Dok Ak Nauk SSSR" Vol LXXIX, No 3, pp 451-455

Detailed study by the vacuum method was made of the adsorbed quantities, the isotherms of sorption and desorption of vapors of benzene, n-pentane, n-butanol, and methanol at 20° C and of water vapor at 25° C on 2 activated carbon samples which differed greatly in structure (monodisperse micropores as compared with large pores). The findings are shown in tables and graphs. It is hoped that a more rigid analysis of desorption curves will yield a more exact idea of the pore structure of activated carbon.

211T19

KISELEV, A. V.

USSR/Chemistry - Adsorption 21 Sep 51

"Absolute Adsorption Isotherms of Vapor on Silica Gels and Alumino-Silica Gels," A. V. Kiselev, N. M. Kamakin, Moscow State U imeni Lomonosov and Grozny Petroleum Sci Res Inst

"Dok Ak Nauk" SSSR, Vol LXXX, No 3, pp 393-396

The adsorption isotherms of 5 samples of alumino-silica gel of different structures are studied and compared with those on S_1O_2 gel. The adsorption of methyl alc vapor on all of these adsorbents is

210T33

USSR/Chemistry - Adsorption (Contd) 21 Sep 51

practically identical up to the point of capillary condensation, showing that only the surface O atoms and OH groups are active.

210T33

DUBININ, M.M., akademik, otvetstvennyy redaktor; GAPON, Ye.N.; GAPON, T.B.; ZHYRAKHINA, Ye.S.; RACHINSKIY, V.V.; BELEN'KAYA, I.M.; SHUVAEVA, G.M.; ROGINSKIY, S.Z.; YANOVSKIY, N.I.; FUKS, N.A.; KISELEV, A.V.; NEYMARK, I.Ye.; SLINYAKOVA, I.B.; KHATSET, F.I.; LOSEV, I.P.; TROSTYENSKAYA, Ye.B.; TEVLINA, A.S.; DAVANKOV, A.B.; SALDADZE, K.M.; BRUMBERG, Ye.M.; ZHIDKOVA, Z.V.; VEDENEEVA, N.Ye.; NAPOL'SKIY, S.A.; MIKHAYLOVA, Ye.A.; KAZANSKIY, B.A.; RYABCHIKOV, D.I.; SHEMYAKIN, F.M.; KRETOVICH, V.L.; BUNDEL', A.A.; SAVINOV, B.G.; VENDT, V.P.; EPSHTEYN, Ya.A.

[Research in the field of chromatography transactions of the All-Union Conference on Chromatography, November 21-24, 1950] Issledovaniia v oblasti khromatografii; trudy Vsesoiuznogo soveshchaniia po khromatografii, 21-24 noiabria 1950 g. Moskva, Izd-vo Akademii nauk SSSR, 1952. 225 p.

(MLRA 6:5)

1. Akademiya nauk SSSR. Otdelenie khimicheskikh nauk.

(Chromatographic analysis)

KISELEV, A.V.: KISELEV, V.F. MIKOS'AVGUL', N.N.: MUTTIK G.G.: KOROV, ... SHCHERBAKOVA, K.D.

C Calorimeters and Calorimetry

Automatic calorimeter with constant heat exchange for measuring heats of absorption of gases and liquids. Trudy Inst. fiz. khimii AN SSSR no. 1, 1952.

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