PAVLYCHENKO, A.D.; SAFRONOV, G.D.; ODNODUSHNOV, A.V.; PROTASOV, A.I.; GOLOBOKIY, I.R.; GRUNICHEV, A.S., kand. tekhn. nauk, red.; ALEKSANDROVA, A.A., red.; BELYAYEVA, V.V., tekhn.red.

[Reliability of radioelectronic apparatus] Nadezhnost' radioelektronnoi apparatury. Moskva, Izd-vo "Sovetskoe radio," 1963. 143 p. (MIRA 16:11)
(Radio industry--Quality control)

PAVLYUCHENKO, A.P., inzh.; KHOKHLACHEV, I.G., inzh.

Pulsation of blast furnace air preheaters. Stal' 22 no.1:13-15
Ja '62. (MIRA 14:12)

1. Yuvenergochermet.

(Air preheaters)

PAVLYUCHENKO, D.N.

Manifestation of rock pressure in longwalls in narrow-range mining of coals. Fiz.-mekh.svois.,dav.i razr.gor.porod no.1: 188-202 '62. (MIRA 16:3)
(Rock pressure) (Coal mines and mining)

PAVLYUCHENKO, D.N., kand.tekhn.nauk

"Ferrogum" magnetic belt separator. Gor.zhur. no.12:63-64 D '63. (MIRA 17:3)

1. Vsesoyuznyy ob"yedineniye po importu mashin Ministerstva vneshney torgovli SSSR.

PAVLYUCHENKO, D. N.

Cand Tech Sci - (diss) "Study of bracings of cleaned stopes in in narrow-gripping coal extraction." Moscow, 1961. 20 pp; (Ministry of Higher and Secondary Specialist Education RSFSR, Moscow Mining Inst imeni I. V. Stalin); 200 copies; price not given; (KL, 10-61 sup, 217)

PANOV, Andrey Dmitriyevich, kand. tekhn. nauk,; TISHCHENKO, Nikolay Andreyevich,; ZAMYATNIN, Ivan Stepanovich,; SHAVRINA, Raisa Fedorovna,; PAVLYUCHENKO, Dmitriy Nikolayevich,; GRIGOR'YEV, Vladimir Leonidovich,; pri uchastii: Adamidze, D.I.; Krasnikova, Yu. D.; Cherkasheninova, V.I.; Chukayevoy, Ye. V. ; SOSNOV, V.D., otv. red.; RATNIKOVA, A.P., red. izd-va,; PROZOROVSKAYA, V.L., tekhn. red.

[Narrow-gauge mining of coal in thin and medium seams] Uzkozakhvatnaia vyemka uglia na plastakh tonkikh i srednei moshchnosti. Moskva, Ugletekhizdat, 1958. 321 p. (MIRA 11:12)
(Coal mines and mining)

PAVLYUCHENKO, D.N.; ZAYTSEV, A.D.

Practice of roof control in longwalls mined with coal plows.
Ugol' 35 no. 12:16-21 D '60. (MIRA 14:1)
(Donets Basin--Mine timbering) (Coal mines and mining)

SAKHOVALER, G.G.; SUYETIN, G.G.; SIRIN, G.Ye., redaktor; PAVLYUCHENKO, D.N., redaktor; KOROVENKOVA, Z.A., tekhnicheskiy redaktor.

[Metal supports used in foreign mines; a collection of reports] Metallicheskaia shakhtnaia krep' za rubezhom; sbornik referatov. Sost. A.IU.Sakhovaler, G.G.Suetin. Moskva, Ugletekhizdat, 1956. 165 p. (Mine timbering) (MLRA 9:6)

PAVLYUCHENKO D N

SHPRUT, F.[Spruth, F.]; SIRIN , G.Ye.[translator]; PAVLYUCHENKO, D.N., [translator]; ULINICH , F.P.[translator]; PANOV, A.D., kandidat tekhnicheskikh nauk, redaktor; DMITRIYEVA, L.N., redaktor izdatel'stva; ALADOVA, Ye.I., tekhnicheskiy redaktor

[Metal supports in second mining. Translated from the German] Metallicheskoe kreplenie ochistnykh vyrabotok. Perevod s nemetskogo G.E. Sirina, D.N. Pavliuchenko, F.R. Ulinicha. Pod red. A.D. Panova. Moskva, Ugletekhizdat, 1956. 335 p.
(MLRA 10:4)

(Mine timbering)

PAVLYUCHENKO, Dmitriy Nikolayevich; ZHUKOV, V.V., otv.red.; SUKHININA, N.D., tekhn.red.

[Supports in coal-mine stopes] Krep' ochistnykh zaboev ugol'nykh shakht. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po gornomu delu, 1960. 135 p. (MIRA 14:3)

(Mine timbering)
(Coal mines and mining--Equipment and supplies)

PAVLYUCHENKO, F. A.

Krasnoderevnye raboty. Odobreno kachestve uchebn. posobiia dlia khudozh. remeslennykh uchilishch. Moskva, Vses. uchebno-pedagog. izd-vo, 1949. 170 p. illus.

Cabinet work (woodworking machinery.

DLC: TT197.P3

SO: Manufacturing and Mechanical Engineering in the Soviet Union, Library of Congress, 1953.

L 25980-66 EWT(1)/FCC GW

ACC NR: AT6014853 SOURCE CODE: UR/2531/66/000/188/0045/0050

28
3+1

AUTHOR: Pavlyuchenkov, G. F.

ORG: Main Geophysical Observatory (Glavnaya geofizicheskaya observatoriya)

TITLE: A sounding ion counter

SOURCE: Leningrad. Glavnaya geofizicheskaya observatoriya. Trudy, no. 188, 1966. Atmosfernoye elektrichestvo (Atmospheric electricity), 45-50

TOPIC TAGS: sounding ion counter, ion concentration, radiosounding modulator, dynamic capacity transformer

ABSTRACT: A sounding ion counter was built for measuring natural ion concentrations with positive and negative polarities in free atmosphere under a cloudless sky. The ion counter is connected with a radiosounding modulator-transmitter and the measurements are received by special instruments. The sounding counter contains a transmitter, a dynamic capacity transformer, an over-amplifier, an amplifier, a rectifier with a filter, a time relay, a trigger, a multivibrator, and a feeding battery. The ion concentration is measured by the aspiration method. The air taken for investigation is blown through the measuring cylinder, which contains a transmitter. The instrument operates by the charge method: ions of one polarity deliver their charges to the inner electrode and change the potential of the inner system. The polarization effect is eliminated by screening the insulator of the inner electrode from

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L 25980-66

ACC NR: AT6014853

0

the electric field of the measuring condenser. A detailed description of the instrument is given. The instrument is fed by batteries of various voltages. When the feeding batteries are switched on, the air for investigation is blown through the measuring condenser. The potential of the inner electrode increases, receiving the ionic charge. The slowly changing voltage is transformed by the dynamic capacity transformer into alternating voltage intensified by amplifiers. The instrument system of the ion counter is connected with the modulator-transmitter by conductors. The instrument is standardized before operation. The threshold potential is determined by a frequency counter during operation. Orig. art. has: 2 figures and 1 formulr. [EG]

SUB CODE: 04/ SUBM DATE: none/ ATD PRESS: 4256

Cord 2/2 FW

L 14950-63 EPR/EWP(j)/EPF(c)/EWT(m)/BDS ASD Ps-4/Pc-4/Pr-4 RM/WW

ACCESSION NR: AP3003782 S/0190/63/005/007/0960/0965

AUTHORS: Gatovskaya, T. V.; Pavlyuchenko, G. M.; Berestnev, V. A.; Kargin, V. A. 74

TITLE: Sorption of low molecular compounds by polymers at high temperatures 73

SOURCE: Vy*sokomolekulyarny*ye soyedineniya, v. 5, no. 7, 1963, 960-965

TOPIC TAGS: sorption, polymer, polyolefin

ABSTRACT: An improved apparatus was constructed to determine the sorption of n-dodecane by polyethylene at 75-200C and of n-octane by polybutylene at 25-115C. The apparatus was entirely glass-sealed and permitted the recording of temperature, pressure, and weight of the polyolefin samples. Isotherms of sorption at various temperatures were charted, and it was found that the sorption capacity of polyethylene increases with temperature, reaching a maximum at 130C, the melting point for this crystalline polymer. In polybutylene, on the other hand, the sorption capacity decreases from 25C to 60C. From there on it rises up to its melting point. The conclusions drawn from the obtained results point to a higher flexibility in the polybutylene macromolecules as compared with polyethylene, which may be due to a shorter carbon chain and a greater branching out of polybutylene. Orig. art. has: 4 charts.

ASSOCIATION: Physico-Chemical Institute

Card 1/2

S/020/62/147/001/020/022
B101/B144

AUTHORS: Pavlyuchenko, G. M., Gatovskaya, T. V., Kargin, V. A., Academician

TITLE: Estimate of the chain flexibility of polybutylene on the basis of sorption data

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 147, no. 1, 1962, 150 - 152

TEXT: The isotherms for the sorption of n-octane by polybutylene with the intrinsic viscosity 1.14 at 90°C in Dekalin, m.p. 94.3 - 104.8°C, were determined with a spring balance at 50 - 115°C. The isotherms for 94, 104 and 115°C coincided within the limits of experimental error. Up to a relative pressure p/p_s of the adsorbate, the 50°C isotherm was higher than the 60°C isotherm, which is explained by looser packing of the chains at 50°C. The 85°C isotherm intersects the 94°C isotherm at $p/p_s \sim 0.7$ and if the 75°C isotherm is extrapolated this too intersects the 94°C isotherm. Hence, capillary condensation is assumed near the melting point, caused by the formation of higher ordered structures and of spaces between them. An estimate of the capillary diameter according to Kelvin gives 100 - 1000 Å
Card 1/2

S/020/62/147/001/020/022
Estimate of the chain flexibility... B101/B144

which is in agreement with the order of magnitude of the structure formations and pores found earlier (DAN, 146, no. 2(1962)) by electron microscopy. A calculation of the thermodynamic segment characterizing the chain flexibility gives a length of 60 carbon atoms. Since, however, polybutylene contains lateral ethyl groups, the segment of the main chain is assumed to have a length of only 30 carbon atoms which is consistent with the length of typical rubber segments. There is 1 figure.

ASSOCIATION: Fiziko-khimicheskiy institut im. L. Ya. Karpova (Physico-chemical Institute imeni L. Ya. Karpov)

SUBMITTED: June 29, 1962

Card 2/2

GATOVSKAYA, T.V.; PAVLYUCHENKO, G.M.; BERESTNEV , V.A.; KARGIN, V.A.

Sorption of low molecular compounds by polymers at high temperatures. Vysokom.soed. 5 no.7:960-965 Jl '63. (MIRA 16:9)

1. Fiziko-khimicheskiy institut imeni Karpova.
(Polymers) (Sorption)

PAVLYUCHENKO, G.M.; GATOVSKAYA, T.V.; KARGIN, V.A., akademik

Evaluation of the flexibility of polybutylene chains based on sorption data. Dokl. AN SSSR 147 no.1:150-152 N '62. (MIRA 15:11)

1. Fiziko-khimicheskiy institut im. L.Ya. Karpova.
(Butene) (Polymers) (Sorption)

GATOVSKAYA, T.V.; PAVLYUCHENKO, G.M.; BERESTNEV, V.A.; KARGIN, V.A.,akademik

Evaluation of the flexibility of polyethylene chains from sorption data. Dokl. AN SSSR 143 no.3:590-591 Mr '62. (MIRA 15:3)

1. Fiziko-khimicheskiy institut im. L.Ya.Karpova.
(Polyethylene)

LIPATOV, Yu.S.; PAVLYUCHENKO, G.M.

Polymer filler interaction. Part 1: Change in the properties of some polymers attached to a glass surface. Vysokom. soed. 2 no.10:1564-1568 O '60. (MIRA 13:9)

1. Institut obshchey i neorganicheskoy khimii AN BSSR.
(Polymers) (Glass)

S/020/62/143/003/016/029
B110/B138

AUTHORS: Gatovskaya, T. V., Pavlyuchenko, G. M., Berestnev, V. A., and Kargin, V. A., Academician

TITLE: Assessing the flexibility of polyethylene chains from the sorption values

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 143, no. 3, 1962, 590 - 591

TEXT: The chains in crystalline polymers must be flexible for good ordering and crystal lattice formation. The sorption values at room temperature can be used to find the flexibility of amorphous molecules, but they must be determined during melting, when no crystalline ranges are present. Another method must therefore be found. The sorption properties of polyethylene were ascertained within a wide temperature range and below the melting temperature of its crystals. The melting point of a regular polyethylene specimen with molecular weight of about one million was determined on a polarization microscope. The spherolites disappear at 131-136°C and drops appear at 164°C. The sorption isotherms were obtained by using spring weights in an air thermostat. Sorption gradually increases between

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S/020/62/143/003/016/029
B110/B138

Assessing the flexibility ...

75 and 130°C. The sorption isotherms for 140, 150 and 200°C coincide with the 130°C one. This means that sorption reached maximum at the melting point of the spherolites. The merging of the 125°C sorption isotherm with the 130°C one at about 60% relative vapor pressure, is probably due to the plastifying effect of n-dodecane, causing the polymer to melt at low temperature. The size of the thermodynamic segment was calculated to find flexibility. The graph showing the size of the thermodynamic segment as a function of relative vapor pressure of n-dodecane at various temperatures shows that the presence of a low-molecular compound does affect it. It was therefore necessary to extrapolate to the zero content of the adsorbate. At 75°C the segment consists of about 600 carbon atoms. A temperature rise increases the flexibility of the chains, and the possibility of realizing a large number of conformations. On melting, chain flexibility rises steeply and all conformations are realized. In this case the minimum segment value of 60 carbon atoms is only five times higher than the length of the adsorbate molecules. This appears to be the optimum flexibility for crystal formation. Rubbers and rubberlike polymers with highly flexible chains with 20-40 carbon atoms in the segment show poor crystallizability owing to the great difference between the entropies of the crystalline and amorphous state. There are 3 figures.

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S/020/62/143/003/016/029
B110/B138

Assessing the flexibility ...

ASSOCIATION: Fiziko-khimicheskiy institut im. L. Ya. Karpova (Physico-Chemical Institute imeni L. Ya. Karpov)

SUBMITTED: December 19, 1961

Card 3/3

L 11517-66 EWT(m)/EWP(j) RM SOURCE CODE: UR/0190/65/007/012/2139/2141

62

ACC NR: AP6001868

B

AUTHORS: Pavlyuchenko, G. M.; 44,55 Gatovskaya, T. V.; 44,55 Kargin, V. A. 44,55

ORG: Physico-Chemical Institute im. L. Ya. Karpov 44,55 (Fiziko-khimicheskiy institut)

7

TITLE: Influence of the character of supermolecular structures on sorption properties of isotactic polypropylene 1,44,55

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 7, no. 12, 1965, 2139-2141

TOPIC TAGS: adsorption, sorption, spherulite, polymer, polypropylene plastic, octane molecular structure

ABSTRACT: The effect of supermolecular structure (different sise of spherulites) on the sorptive properties of isotactic polypropylene was studied. The sorption of methyl alcohol, n-octane, and n-dodecane on two different specimens of polypropylene was investigated. The specimens consisted of spherulites of 300--350μ and 20--30μ in diameter respectively. The sorption of methanol and n-octane was determined at 25C, and that of n--dodecane in the region of 100--200C. The results are presented graphically (see Fig. 1). It is suggested that the adsorption effect depends mainly on the spherulite sise and occurs only on the outer surfaces of the latter.

UDC: 678.01:53+678.742

Z

Card 1/2

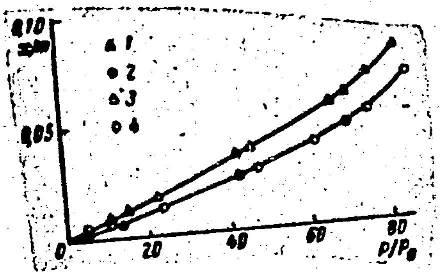

Fig. 1. Sorption isotherms for n-octane on specimens of isotactic polypropylene at 25C. 1 - small spherulites; 2 - large spherulites; 3, 4 - desorption data.

Orig. art. has: 4 graphs and 1 photograph.

SUB CODE: 11/ SUBM DATE: 27Jan65/ ORIG REF: 004/ OTH REF: 001

PAVLYUCHENKO, I.A., kandidat meditsinskikh nauk; **AL', S.K.**

Clinical variants of lambliasis. Klin. med. 35 no.2:76-80
F '57 (MLRA 10:4)
(LAMBLIASIS
clin. variants)

PAVLYUCHENKO, K.

Give the population better information about air communication.
(MLRA 10:7)
Grazhd.av. 12 no.9:34 S '55.
(Aeronautics, Commercial)

FEDOROV, M.; PAVLYUCHENKO, K.

Increase the productivity of transport flights. Grazhd.av. 13 no.4:28-30 Ap '56. (MLRA 9:7)
(Aeronautics, Commercial)

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[illegible]

[illegible]

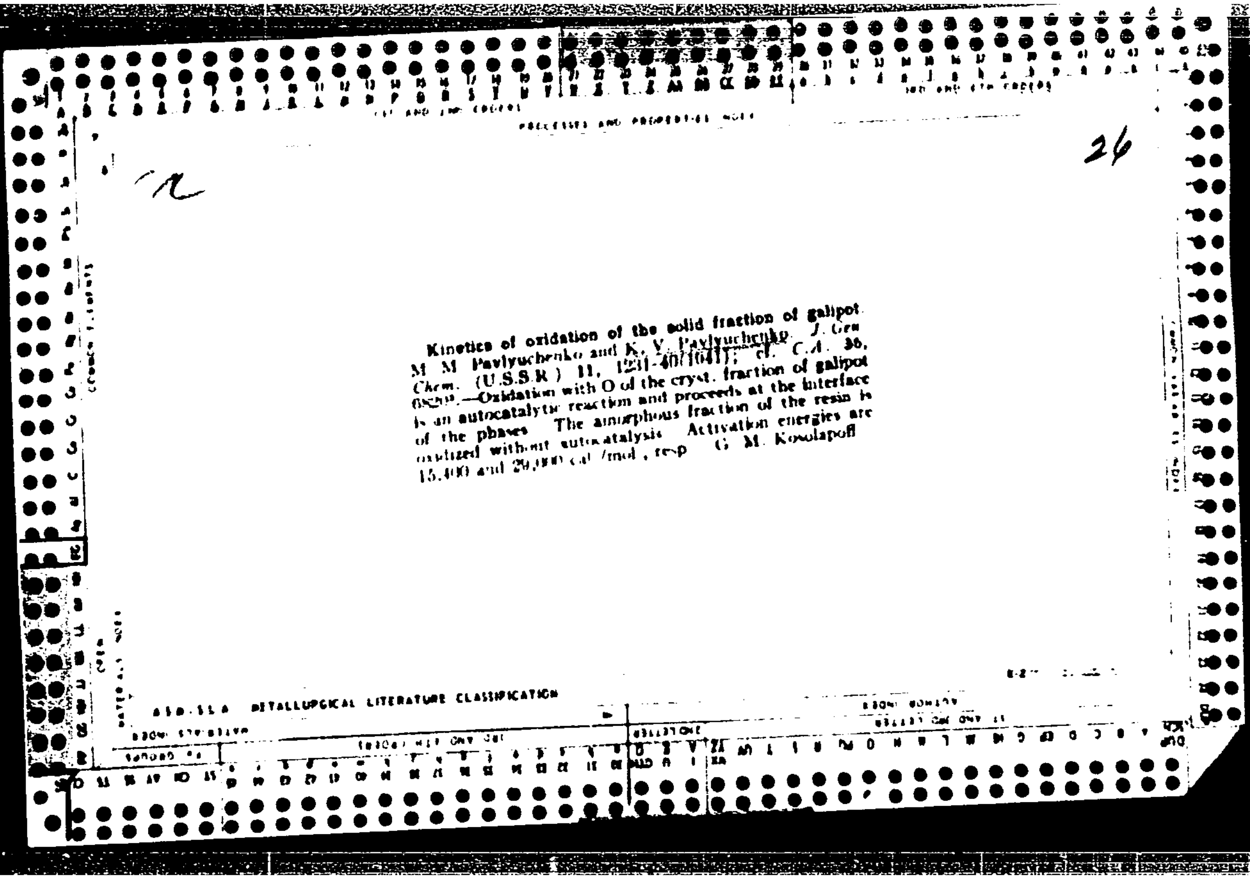
[illegible], [illegible]

"[illegible]
of Alpha-[illegible]." [illegible], [illegible],
Dis[illegible] ([illegible]--[illegible], [illegible], [illegible]

SO: [illegible], [illegible]

YEROFEYEV, B.V.; PAVLYUCHENKO, K.V.

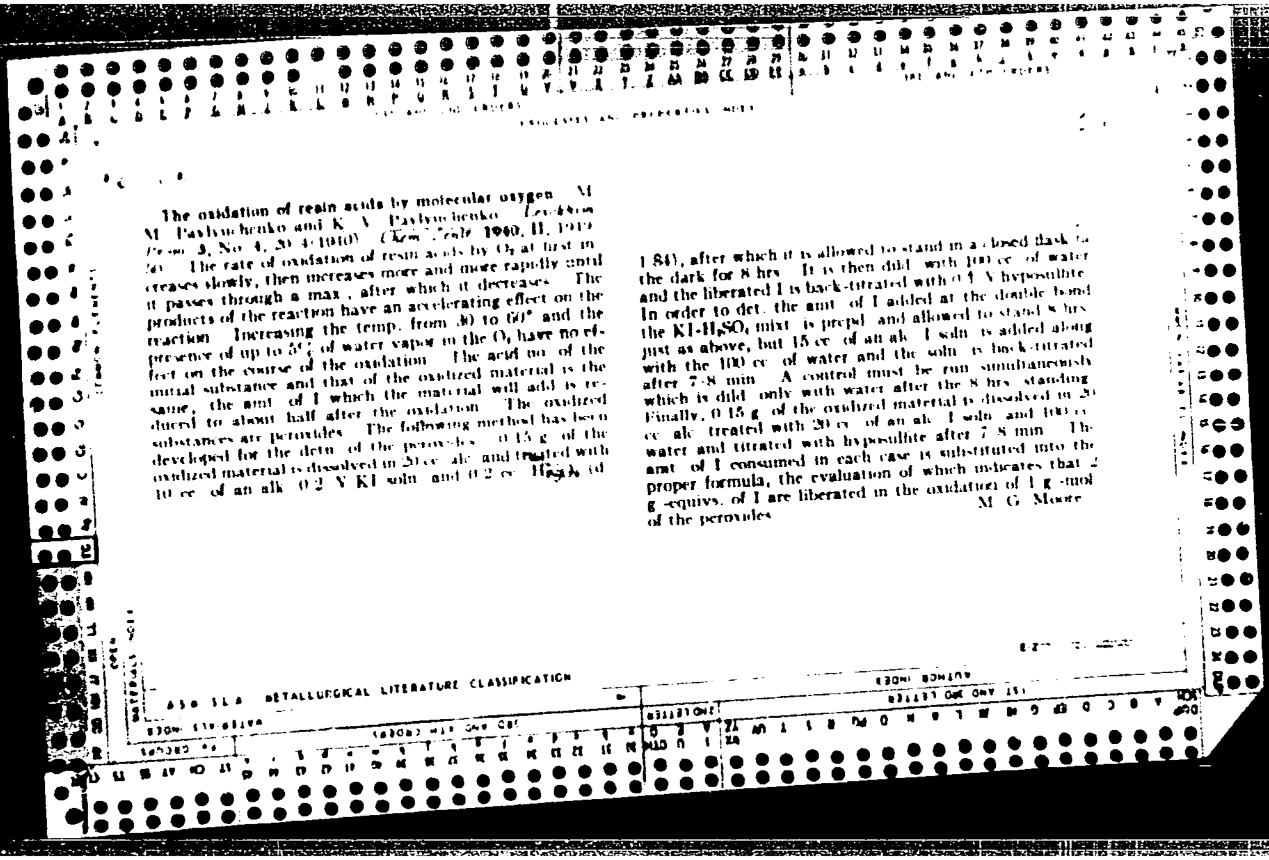
Kinetics of the thermal destruction of amylases. Report No.2.
Sbor. nauch. rab. Inst. fiz.-org. khim. AN BSSR no. 7:103-109
'59. (MIRA 14:4)
(Amylase)



Cr

26

Kinetics of oxidation of the solid fraction of galipot. M. M. Pavlyuchenko and K. V. Pavlyuchenko. *J. Gen. Chem.* (U.S.S.R.) 11, 1231-40(1941); cf. *C.A.* 36, [illegible].—Oxidation with O of the cryst. fraction of galipot is an autocatalytic reaction and proceeds at the interface of the phases. The amorphous fraction of the resin is oxidized without autocatalysis. Activation energies are 15,400 and 29,000 cal./mol., resp. G. M. Kosolapoff



The oxidation of resin acids by molecular oxygen M
M Pavlyuchenko and K V Pavlyuchenko *Lesokhim Prom* 3, No 4, 30-4(1940) (*Khim. Referat. Zhur.* 1940, II, 1919
Prom 3, No 4, 30-4(1940) (*Khim. Referat.* 1940, II, 1919
40. The rate of oxidation of resin acids by O_2 at first in-
creases slowly, then increases more and more rapidly until
it passes through a max., after which it decreases. The
products of the reaction have an accelerating effect on the
reaction. Increasing the temp. from 30 to 60° and the
presence of up to 5% of water vapor in the O_2 have no ef-
fect on the course of the oxidation. The acid no. of the
initial substance and that of the oxidized material is the
same, the amt. of I which the material will add is re-
duced to about half after the oxidation. The oxidized
substances are peroxides. The following method has been
developed for the detn. of the peroxides: 0.15 g. of the
oxidized material is dissolved in 20 cc. alc. and treated with
10 cc. of an alk. 0.2 N KI soln. and 0.2 cc. H_2SO_4 (d.
1.84), after which it is allowed to stand in a closed flask in
the dark for 8 hrs. It is then dild. with 100 cc. of water
and the liberated I is back-titrated with 0.1 N hyposulfite.
In order to det. the amt. of I added at the double bond
the KI-H_2SO_4 mixt. is prepd. and allowed to stand 8 hrs.
just as above, but 15 cc. of an alc. I soln. is added along
with the 100 cc. of water and the soln. is back-titrated
after 7-8 min. A control must be run simultaneously
which is dild. only with water after the 8 hrs. standing.
Finally, 0.15 g. of the oxidized material is dissolved in 20
cc. alc. treated with 20 cc. of an alc. I soln. and 100 cc.
water and titrated with hyposulfite after 7-8 min. The
amt. of I consumed in each case is substituted into the
proper formula, the evaluation of which indicates that 2
g.-equivs. of I are liberated in the oxidation of 1 g.-mol.
of the peroxides.

M. G. Moore

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

PAVLYUCHENKO, I.

Unexplaining interpretation. Grazhd.av. 20 no.12:24 D '63.
(MIRA 17:2)

1. Nachal'nik letno-shturmanskogo otdela Grazhdanskogo vozdushnogo flota, Syktyvkar.

PAVLYUCHENKO, I.A., kand.med.nauk

Diagnosis and trêatment of chronic mild diseases of the biliary tract. Sov.med. 25 no.2:57-61 F '61. (MIRA 14:3)
(BILIARY TRACT—DISEASES)

SMIRNOV, N.N.; PAVLUSHENKO, I.S.; ROMANKOV, P.G.

Effect of some factors on the rate of the chemical reaction during mechanical mixing. Zhur. prikl. khim. 36 no.11:2419-2425 N '63. (MIRA 17:1)

1. Leningradskiy tekhnologicheskiy institut imeni Lensoveta.

GORDASH, Yu.T.; SHEVCHIK, A.M.; LARYUTINA, E.A.; PAVLYUCHENKO, K.V.

Group composition of organosulfur compounds in benzene-kerosene fractions of Mukhanovsk petroleum. Dokl. AN BSSR 6 no.7:442-444 Jl '62. (MIRA 16:8)

1. Institut fiziko-organicheskoy khimii AN BSSR. Predstavleno akademikom AN BSSR B.V. Yerofeyevym.
(Sulfur organic compounds)
(Mukhanovsk—Petroleum)

[illegible], G.M.; [illegible], T.V.; [illegible], V.A.

Effect of the chemical nature of the substrate on the sorption capacity of crystalline polymers. Vysokom. soed. 7 no.4:[illegible] Ap '65. (MIRA 18:[illegible])

1. Nauchno-issledovatel'skiy fiziko-khimicheskiy institut imeni Karpova, Moskva.

PAVLYUCHENKO, G.M.; GATOVSKAYA, T.V.; KARGIN, V.A.

Evaluation of the flexibility of polypropylene chains and some features of its sorption characteristics at high temperatures. Vysokom. soed. 6 no.7:1190-1192 Jl '64 (MIRA 18:2)

1. Fiziko-khimicheskiy institut imeni Karpova.

PAVLYUCHENKO, K.V.; SHEVCHIK, A.M.; YEMEL'YANOV, N.P.

Adsorption of mercaptans and sulfur compounds from Mukhanov crudes on the 5A and 13X zeolites. Dokl. AN BSSR 8 no.8:526-529 Ag '64. (MIRA 17:11)

1. Institut fiziko-organicheskoy khimii AN BSSR. Predstavleno akademikom AN BSSR B.V. Yerofeyevym.

S/250/62/006/007/002/002
I032/I242

AUTHORS: Gordash, Yu. T., Shevchik, A.M., Laryutina, E.A., Pavlyuchenko, K.V.

TITLE: The groups of sulfur-containing organic compounds in the benzene-kerosene fractions of Mukhanov oil

PERIODICAL: Akademiya nauk BSSR. Doklady., v.6, no.7, 1962, 442-444

TEXT: Commercial petroleum from Mukhanov was fractionated into 12 fractions, the highest fraction boiling between 325° and 350°. The weight percentages of sulfur contained in mercaptanes (mercaptane sulfur), sulfides (sulfide sulfur), disulfides (disulfide sulfur) and other compounds (remainder sulfur) were determined for each fraction. Fractions boiling up to 100° contained mainly remainder sulfur, whereas fractions boiling between 100° and 225° contained mainly sulfide

Card 1/2

L 13761-65 EWT(m)/EPF(c)/T Pr-4 RM/WE
ACCESSION NR: AP4045693 S/0250/64/008/008/0526/0529
B

AUTHOR: Pavlyuchenko, K. V.; Shevchik, A. M.; Yemel'yanov, N. P.

TITLE: Adsorption of mercaptans and sulfur compounds from Mukhanovo crude oil on 5A and 13X zeolites

SOURCE: AN BSSR. Doklady*, v. 8, no. 8, 1964, 526-529

TOPIC TAGS: desulfurization, adsorption, mercaptan, sulfide, disulfide, Mukhanovo crude oil, 5A zeolite, 13X zeolite

ABSTRACT: A study has been made of the adsorption of individual normal primary mercaptans and other sulfur compounds from Mukhanovo crude on 5A and 13X zeolites. Adsorption of octyl- and nonyl-mercaptan, sulfides, and disulfides from the 240—360C cut of Mukhanovo crude was carried out on the 5A 202—175 and 5A 202-247 zeolites at 240—350C and on the 13X 202-208 zeolite at 222—261C, in a stream of nitrogen. The zeolites were regenerated at 375—380C in a stream

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L 13761-65

ACCESSION NR: AP4045693

of hydrogen. It was found that the 5A 202-175 and 13X zeolites adsorb mercaptans (90% on 5A 202-175), sulfides, and disulfides, while 5A 202-247 zeolite does not. Orig. art. has: 1 figure and 2 tables.

ASSOCIATION: Institut fiziko-organicheskoy khimii AN BSSR (Institute of Physical Organic Chemistry, AN BSSR)

SUBMITTED: 15Apr64 ATD PRESS: 3131 ENCL: 00

SUB CODE: GC, FP NO REF SOV: 005 OTHER: 003

Card 2/2

[illegible]VA, [illegible], kand. khim.nauk; PAVLYUCHENK[illegible], [illegible].A.

Time factor in the process of NO removal from coke-oven gas.
Khim. prom. [Ukr.] no.1:25-27 Ja-Mr '65. ([illegible])

NIKITIN, G.A.; Prinimali uchastiye: [illegible], [illegible]; PAVLYUCHENKO, L.[illegible]

Studying the fermentation conditions of distillery molasses stillage by methane-forming bacteria for the production of vitamin B_{12}. Trudy UkrNIISP no.9:139-144 '64.

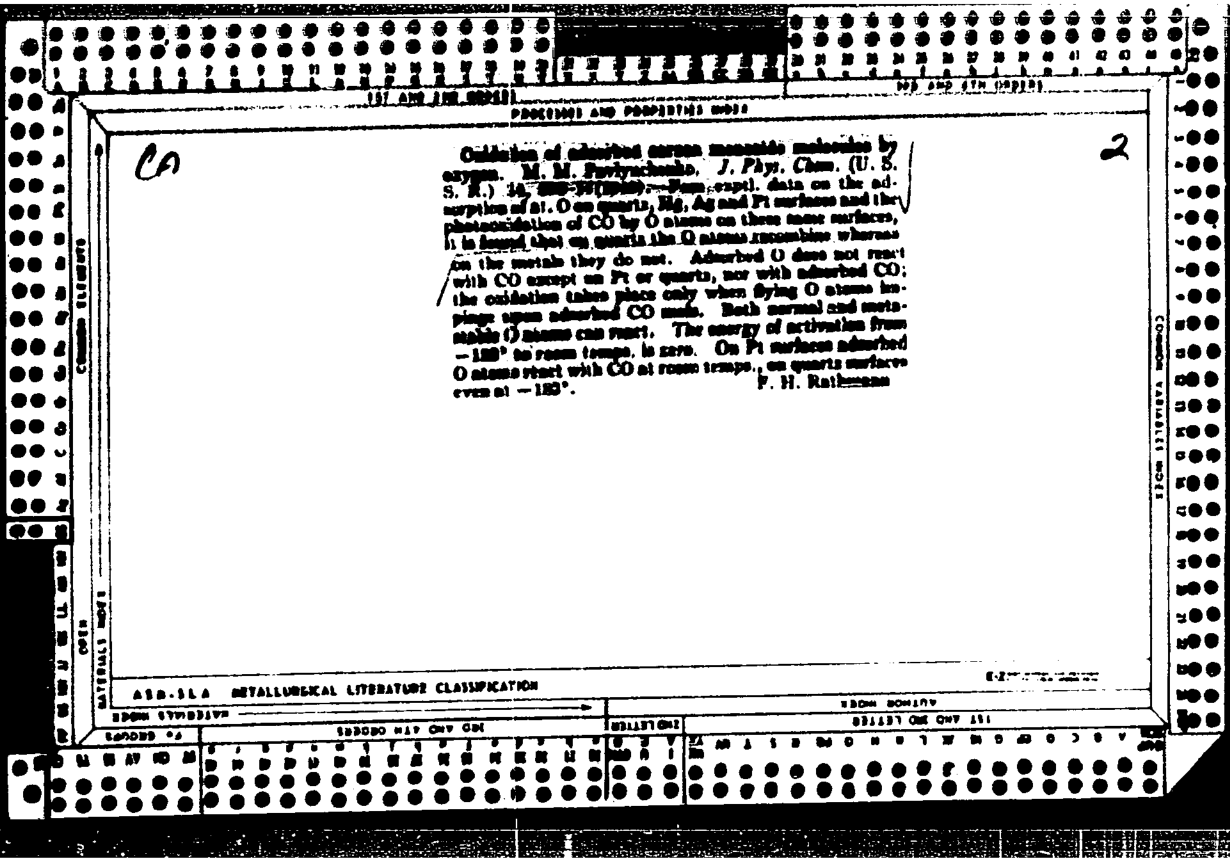
(MIRA 17:10

PROCESSES AND PROPERTIES INDEX

The oxidation of resin acids by molecular oxygen M. M. Pavlyuchenko and K. V. Pavlyuchenko. *Lesokhim. Prom.* **3**, No. 4, 20-4(1940); *Chem. Zentr.* 1940, II, 1919 50). -The rate of oxidation of resin acids by O_2 at first increases slowly, then increases more and more rapidly until it passes through a max., after which it decreases. The products of the reaction have an accelerating effect on the reaction. Increasing the temp. from 30 to 60° and the presence of up to 5% of water vapor in the O_2 have no effect on the course of the oxidation. The acid no. of the initial substance and that of the oxidized material is the same; the amt. of I which the material will add is reduced to about half after the oxidation. The oxidized substances are peroxides. The following method has been developed for the detn. of the peroxides: 0.15 g. of the oxidized material is dissolved in 20 cc. alc. and treated with 10 cc. of an alk. 0.2 N KI soln. and 0.2 cc. H_2SO_4 (d. 1.84), after which it is allowed to stand in a closed flask in the dark for 8 hrs. It is then dild. with 100 cc. of water and the liberated I is back-titrated with 0.1 N hyposulfite. In order to det. the amt. of I added at the double bond the KI-H_2SO_4 mixt. is prepd. and allowed to stand 8 hrs. just as above, but 15 cc. of an alc. I soln. is added along with the 100 cc. of water and the soln. is back-titrated after 7-8 min. A control must be run simultaneously which is dild. only with water after the 8 hrs. standing. Finally, 0.15 g. of the oxidized material is dissolved in 20 cc. alc., treated with 20 cc. of an alc. I soln. and 100 cc. water and titrated with hyposulfite after 7-8 min. The amt. of I consumed in each case is substituted into the proper formula, the evaluation of which indicates that 2 g.-equivs. of I are liberated in the oxidation of 1 g.-mol. of the peroxides.

M. G. Moore

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION



CA

2

Oxidation of adsorbed carbon monoxide molecules by oxygen. M. M. Pavlyuchenko. *J. Phys. Chem.* (U. S. S. R.) 14, [illegible] (1940).—From exptl. data on the adsorption of at. O on quartz, Hg, Ag and Pt surfaces and the photooxidation of CO by O atoms on these same surfaces, it is found that on quartz the O atoms recombine whereas on the metals they do not. Adsorbed O does not react with CO except on Pt or quartz, nor with adsorbed CO; the oxidation takes place only when flying O atoms impinge upon adsorbed CO mols. Both normal and metastable O atoms can react. The energy of activation from −183° to room temps. is zero. On Pt surfaces adsorbed O atoms react with CO at room temps., on quartz surfaces even at −183°.

F. H. Rathmann

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

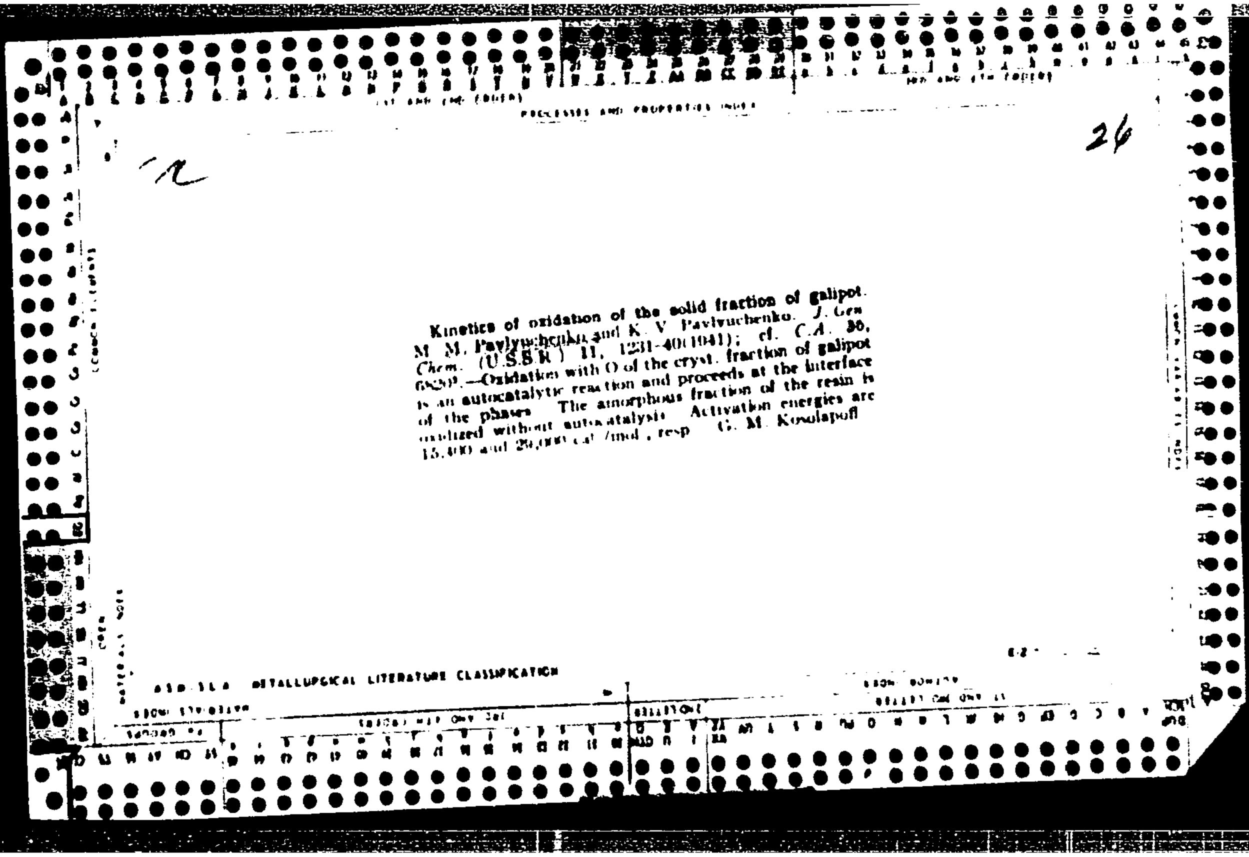
CA

a2

Oxidation of hydrogen by atomic oxygen. M. M. Pavlyuchenko. *J. Phys. Chem.* (U. S. S. R.) 14, 877-85 (1940).—The course of the oxidation of hydrogen by O atoms produced by irradiation of the H_2-O_2 mixt. at total pressures of 0.01 to 0.10 mm. was followed manometrically and the results are tabulated and plotted. The oxidation of H_2 by metastable O atoms in a quartz or silvered-quartz reaction vessel is a volume reaction; the *energy of activation* is zero from −183 to 0°, the effectiveness of O^*-O_2 and of O^*-H_2 collisions for deactivation and oxidation, resp., is the same. In a platinum vessel surface catalysis also takes place. The rate of reaction with H_2 is given by $v = n_1 \times 1.7[H_2]/([O_2] + 1.7[H_2])$ where n_1 is the total rate of disappearance of O atoms. F. H. R.

Lab. of Photochemistry, State Optical Inst.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



/R

26

Kinetics of oxidation of the solid fraction of galipot. M. M. Pavlyuchenko and K. V. Pavlyuchenko. *J. Gen. Chem.* (U.S.S.R.) 11, 1231-40(1941); cf. *C.A.* 30, 6920.—Oxidation with O of the cryst. fraction of galipot is an autocatalytic reaction and proceeds at the interface of the phases. The amorphous fraction of the resin is oxidized without autocatalysis. Activation energies are 15,400 and 20,000 cal./mol., resp. G. M. Kosolapoff

PROCESSES AND PROPERTIES INDEX

CA

2

Kinetic and spectral investigation of the mechanism of the oxidation reaction of abietic acid. M. M. Pavlyuchenko. *J. Phys. Chem.* (U.S.S.R.) 18, 283-93(1944).—Exptl. data indicate that the oxidation of abietic acid (A) takes place on the boundary between two solid phases and O. The absorption spectra of the products of the reaction show that there is formed an intermediate product AO_3. The appearance of 2 max. on the kinetic curves is due to the reactions $A + O_2 = AO_2$ and $AO_2 + O_2 = AO_4$. The energy of activation for the oxidation of amorphous abietic acid is 28,700 cal., considerably greater than the 13,100 cal. required for the oxidation of the crystal. form. The difference is due to the deformation of the bonds in the crystal lattice.

P. H. Rathmann

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

[illegible]

CA

26

Extraction of rosin from tar-impregnated wood stumps by dichloroethane. M. M. Pavlyuchenko and V. M. Akulovich. *Izvest. Akad. Nauk Belorus. S.S.R.* 1948, No. 4, 103-18.—The extn. of rosin from residual tree stumps that had been left in the ground for several years after cutting of the pine trees, as well as the recovery of turpentine values from such sources, were examd. The degree and rate of extn. by $ClCH_2CH_2Cl$ are much greater than in the case of extn. with gasoline. In extn. done on chips of the stumps the rate of extn. is inversely proportional to the dimensions of the chips used; these were of cubical shape for more ready comparison. The variation can be readily accounted for by the usual considerations of extn. processes and the concurrent diffusion of the extractant from the interior of the wood. By repeated extn. it is possible to ext. over 90% of the total resinous content of the wood. CCl_4 is a less effective solvent and appears to be more corrosive to equipment than $ClCH_2CH_2Cl$. G. M. Kosolapoff

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Pavly[illegible]
ext[illegible]
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[illegible]

[illegible]

CA

Oxidation of pinene and of carene by molecular oxygen. M. M. Pavlyuchenko and M. M. Sokolov. *Zhur. Priklad. Khim.* (J. Applied Chem.) 21, 1168-74(1948). In expts. under const. pressure of O_2 = 510 mm. Hg, with 0.65 g. pinene, at 35°, the rate r of consumption of O_2 increased with time, e.g., 4, 8, 12, 18 hrs., r = 0.15, 0.22, 0.28, 0.34 ml./hr. If the run is interrupted, the O_2 evacuated, and the expt. resumed, r again starts at zero and increases as previously. Oxidation of Δ^3-carene proceeds in the same way, only somewhat faster. With H_2O vapor admitted at the start, r decreases during the 1st 4-5 hrs., passes through a min., then increases; the same behavior is found when the H_2O pressure is kept const. during the run. Oxidation of carene is accelerated by S, BzOH, MeI, is unchanged in the presence of KI, EtI, $PhCH_2OH$, Na_2SO_4, PhOH, and is inhibited by p-$C_6H_4(OH)_2$, $C_6H_3(OH)_3$, and Ph_2NH. Oxidation of pinene is strongly inhibited by $(CO_2H)_2$, $Na_2S_2O_4$, and $PhCH_2OH$, although the latter two have hardly any effect on carene. In the case of pinene, 0.01% $PhCH_2OH$ or $(CO_2H)_2$ slows down the reaction 15-20 times. After a 24-hr. interruption, the same effects are observed on resumption. Turpentine oil with 0.05-0.1% $(CO_2H)_2$ or p-$C_6H_4(OH)_2$ remained colorless 3-4 months in the dark, but became yellow, owing to oxidation, in the absence of an antioxidant. The effect of antioxidants proves that the reaction takes place in the liquid, not in the gaseous phase. In the presence of $(CO_2H)_2$, the activation energy for the oxidation of pinene is 9950 cal./mol. By rough estn., the no. of effective collisions in the gas phase would be 500,000 times the no. of mols. reacted, 7.2×10^{14} mols. O_2/sec.; hence, a reaction in the gas phase would require a considerably higher activation energy, and, consequently, the reaction takes place in the liquid phase only. Under identical conditions, and at const. surface area of the liquid, r increases with the initial amt. of carene, e.g., with 0.3, 0.9, and 1.8 g. carene, r = 0.12, 0.24, and 0.33 ml./hr. On the other hand, the increase of r with increasing surface area of the liquid is much slower. Consequently, the reaction takes place both at the interface and in the bulk of the liquid. The increase of r with increasing O_2 pressure is illustrated by the data: const. amt. of carene, pressure of air 100, 300, and 500 mm. Hg, r = 0.035, 0.085, 0.12 ml./hr. In the presence of strong inhibitors, e.g. $(CO_2H)_2$, r is independent of the pressure of O_2. Between 35 and 45°, r after 8 hrs. increases more than 4 times; consequently, diffusion is not rate detg. The same follows from the increase of r with time. With A designating a mol. of either pinene or carene, the mechanism of the reaction can be represented by the scheme $A \rightarrow A^*$, $A^* + O_2 \rightarrow AO_2^*$, $AO_2^* + A \rightarrow AO_2 + A^*$, $AO_2 \rightarrow AO + O$, $A + O \rightarrow AO^*$, $AO^* + A \rightarrow A^* + AO$, and $A^* + O_2 \rightarrow AO_2^*$. Formation of AO_2 occurs predominantly at the phase boundary, whereas the subsequent reactions take place in the liquid. The total rate is the sum of 2 rates, $r = n_1\nu_1 + n_2\nu_2$, where n = no. of active mols., ν = length of chain, subscripts 1 and 2 referring to the primary (phase boundary) and the secondary (bulk) reaction. In the presence of inhibitors, there is one single stage, $r = n\nu$. If the reaction took place only at the phase boundary, the no. of effective collisions of O_2 with surface (0.65 sq. cm.) would be 1.8×10^{18}/sec., whereas the rate corresponds to 7.2×10^{14} mols./sec.; in other words, over half of the activated mols. are deactivated by the inhibitor. The effectiveness of small amts. of inhibitors over prolonged periods of time would indicate that the chains are energy chains. This is borne out by the observation that pinene and carene to which some of their oxidation products have been added undergo further oxidation on illumination with a glass Hg vapor lamp (i.e. in visible light), whereas in the absence of such products the photochem. oxidation is considerably slower, and is zero at the initial stages. The oxidation products evidently *sensitize* the *photochem. oxidation*. N. Thon

Chem-Inst., AS Belo SSR

CA

2

Reactions involving solids in the absence of any catalytic action of the reaction products. M. M. Pavlyuchenko. *Zhur. Fiz. Khim.* 23, 800-8(1949).—The corners of a cube are its most reactive points. If the reaction starts from the corners and proceeds along the diagonals of the cube, the area of the reactive surfaces increases; this explains the usual "autocatalytic" acceleration of reactions involving solids. The theory is applicable also to reactions starting at crystal edges. In both instances, the rate of reaction passes through a max. J. J. Bikerman

ASD-SLA METALLURGICAL LITERATURE CLASSIFICATION

PROCESSES AND PROPERTIES INDEX

CA

2

The fundamental equation of topochemical reactions which are not catalyzed by the solid reaction product. M. M. Pavlyuchenko. *Zhur. Fiz. Khim.* 23, 1409-12(1949); cf. preceding abstr.—If a reaction that has started on a crystal face is propagated at equal rates along the surface and normal to it, the rate v of reaction is proportional to t^2 (t is time). If the reaction spreads over the surface more rapidly than it penetrates into the crystal, v is max. at $t = 0$.

I. I. Bikerman

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

S/081/62/000/020/003/040
B166/B186

AUTHORS: Kononyuk, I. F., Pavlyuchenko, M. M.

TITLE: Radioisotope study of the diffusion of sulfur in nickel

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 20, 1962, 32, abstract 20B209 (In collection: Geterogen. khim. reaktsii. Minsk, 1961, 231-239)

TEXT: To study the diffusion of sulfur in Ni (electrolytic and commercial grade mark H-2 (N-2)) the methods of layer stripping and autoradiography were used. At temperatures of 1100°C upwards volume diffusion predominates, and at lower temperatures diffusion is found along the grain boundaries. The coefficients of volume and boundary diffusion of sulfur in Ni were determined for the temperature ranges 1100-1250°C and 800-950°C. The greatest mobility of sulfur in Ni is observed at 650-750°C, apparently associated with the presence in the Ni-S system of an eutectic with a melting point of 645°C. The rate of diffusion of sulfur in commercial-grade Ni (N-2) is 1-2 orders of magnitude lower than in electrolytic Ni. At high temperatures there is a non-uniform distribution of sulfur in commercial-

Card 1/2

Radioisotope study of the diffusion... S/081/62/000/020/003/040
B166/B186

grade Ni, caused, apparently, by the influence of impurities.
[Abstracter's note: Complete translation.]

Card 2/2

S/081/62/000/020/004/040
B166/B186

AUTHORS: Pavlyuchenko, M. M., Petukh, M. L.

TITLE: Radioisotope study of the diffusion of sulfur in steels, cast irons and cobalt

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 20, 1962, 53, abstract 20B211 (In collection: Geterogen. khim. reaktsii. Minsk, 1961, 249-252)

TEXT: Diffusion of sulfur was studied by the methods of layer stripping and autoradiography. Sulfur in the diffusion layers in steels and cast irons is distributed nonuniformly in separate inclusions, such inclusions being greater in cast irons than in steels. The intense spots on the autoradiograms correspond to the nonmetallic inclusions which can be seen on the specimens through a microscope. In cobalt the sulfur is concentrated along the grain boundaries. In pure metals (Fe, Co) the sulfur is distributed either throughout the metal or along the grain boundaries, depending upon the temperature and nature of the metal, whilst in steels and cast irons it penetrates and is concentrated mainly along the boundaries of the inclusions. [Abstracter's note: Complete translation.]

Card 1/1

16

POKROVSKIY, I.I.; PAVLYUCHENKO, M.M.; SHIMANOVICH, I.Ye.

Diffusion of copper in the sulfide film formed on it. Dokl. AN BSSR 5 no.11:499-502 N '61. (MIRA 15:1)

1. Belorusskiy gosudarstvennyy universitet imeni Lenina.
(Copper sulfides) (Diffusion)

PAVLYUCHENKO, M.M.; FILONOV, B.O.

Use of radioactive isotopes for studying salt evaporation in an a.c. arc. Izv. AN SSSR. Ser. fiz. 26 no.7:878-881 Jl '62.
(MIRA 15:8)

(Radioisotopes) (Salts) (Electric arc)

PAVLYUCHENKO, M.M.

2

2619 TT-571

OXIDATION OF HYDROGEN BY OXYGEN ATOMS. (Okislenie Vodoroda Atomarnym Kislorodom). M. M. Pavliuchenko. Translated by D. G. H. Marsden from Zhur. Fiz. Khim. 14, 877-85(1950). 17p.

CH

The oxidation of hydrogen by oxygen atoms, produced by photo-dissociation of molecular oxygen, was investigated. It was concluded that the reaction proceeds by gas-phase reaction with metastable atoms; the collision efficiency is the same at liquid air and at room temperatures and the activation energy is zero. A surface reaction was also observed in the platinized vessel. (C.W.H.)

PAVLYUCHENKO, M. M. 176T25

USSR/Chemistry - Oxidants Mar 51

"Kinetic Investigations of the Decomposition of Silver Oxide," M. M. Pavlyuchenko, E. Gurevich, Chair Phys Chem, Belorussian State U

"Zhur Obshch Khim" Vol XXI, No 3, pp 467-473

Studied rate of decompn of Ag_2O in temp interval 118-222°. Decompn was always greatest at initial moment. Ag_2O was detd to be amorphous powder with small amt of cryst admixt. Activation energy of decompn: 10.5 kcal. Hg accelerated reaction. Decompn must occur through formation of adsorbed atoms of O and Ag.

[redacted] 176T25

CA

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Kinetics of oxidation of the silver salt of abietic acid M. M. Pavlyuchenko, I. I. Chekalinskaya, and V. M Zhulovich (Acad. Sci. U.S.S.R., Chem. Inst., Minsk). *Zhur. Fiz. Khim.* 25, 976-80(1951).—The kinetics of oxidation of the solid salt of abietic acid is studied at 40, 50, 60, 70, 80, and 90°. The reaction is autocatalytic. The times (in hrs.) necessary for reaching 75% of the salt are, resp., 20, 6, 4.15, 3.15, 1.85 at 40, 50, 60, 70, 80°. At 100° and above, the salt decomps. as a result of the exothermicity of the process. The rate depends linearly on O_2 pressure between 200 and 400 mm., then becomes independent of O_2 pressure; this suggests O_2 adsorption. The latter is measured at 25, 40, 50, 60, and 90°: the quantities of O_2 chemisorbed are, resp. (cc. per 1 g. of salt): 0.405, 0.975, 1.565, 2.235, and 3.075: the temp. coeff. of adsorption suggests activated adsorption. Iodine tests show that O_2 attaches itself to only one double bond of the salt, and KI tests fail to detect peroxides in the oxidized product. This work is part of a systematic investigation of the topochem. oxidation of abietic acid and its salts (*C.A.* 39, 3196e; *C.A.* 43, 8820d).

Michel Boudart

PAVLYUCHENKO, M.M.

USSR.

3

✓The effect of solid reaction products on the rate of oxidation of some abietic acid salts. M. M. Pavlyuchenko. *Uchenye Zapiski Beloruss. Gosudarst. Univ.* 1953, No. 14, 19-22; *Referat. Zhur., Khim.* 1954, No. 17825.—The study concerned the rate of oxidation of Na, Ca, and Mg abietates as well as the same salts having reaction products deposited on the surfaces of their crystals. This was achieved either by co-recrystn. of unoxidized and oxidized salts or by addn. of powd. unoxidized salt to a satd. soln. of an oxidized salt and removal of the solvent *in vacuo*. All expts. were made at 70, 60, and 50° and O pressure of 720 mm. Hg. In the oxidation of pure Na abietate the initial rate of reaction is not 0; in all other cases it is 0. All reactions proceeded with autoacceleration, and the kinetic curves passed through a max. The reaction products had in all cases a hindering effect on the rate of oxidation. Thus, the autocatalytic nature of the oxidation of Na, Ca, and Mg abietates is not connected with the catalytic action of the solid reaction products.

M. Hosch

Pavlyuchenko, M. M.

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3(a)

The effect of gases on the rate of formation of the ammines of zinc chloride and cadmium chloride. I. G. A. Lazerko and M. M. Pavlyuchenko. *Uchenye Zapiski, Belorus. Gosudarst. Univ. im. V. I. Lenina, Ser. Khim.* 1954, No. 20, 52-9.—The rates of the reactions between gaseous NH_3 and $CdCl_2$ (I) and $ZnCl_2$ (II) were detd. manometrically. Initially the rates are independent of any other gases present. The rate is subsequently decelerated for I by H, N, O, or air, the effect being inversely proportional to the d. of the gases. The rate of addn. of the 1st mole of NH_3 per mole of I is 3.22 cc./min. in the absence of other gas, 1.58 with air, and 0.53 with H. With II, the reaction velocity passes through a max. at about 35% salt. On addn. of the indifferent gases, the max. gradually disappears and the reaction becomes zero order. These inhibiting effects are ascribed to the reduced concn. of NH_3 at the solid interface.

G. Beichl

1/1

RM

MT

PAVLYUCHENKO, M. M.

USSR/Physical Chemistry - Kinetics. Combustion. Explosives. Topochemistry. Catalysis, B-9

Abst Journal: Referat Zhur - Khimiya, No 19, 1956, 61080

Author: Pavlyuchenko, M. M., Shlyk, A. A.

Institution: None

Title: Kinetics of Oxidation of Powdery Copper with Oxygen

Original Periodical: Uch. zap. Belorussk. un-ta, 1954, No 20, 60-70

Abstract: Study of oxidation of powdery Cu at 130°-260°. At 130°-150° kinetics of the reaction is defined by the equation $x = kt^{1/2}$ where x - depth of Cu_2O layer at the point of time t; k - velocity constant. At 175°-260° oxidation of Cu occurs in 2 stages: during the first 30 seconds up to 20-50% of all the Cu are oxidized; thereafter over several hours ~5% Cu are oxidized; the kinetics satisfies the equation $x = k'(t_0 + t)^{1/2}$ where t_0 is constant. On increase of P_{O_2} from 146 to 700 mm hg the nature of kinetic curves is not changed but the amount of Cu oxidized in the first stage increases. On

Card 1/2

GLAUBERZON, M.Ya.; PAVLYCHEV, I.M.

Pneumatic mail transportation in the Lvov telegraph and telephone exchange. Vest. sviazi 25 no.9:16-17 S '65. (MIRA 18:9)

1. Nachal'nik L'vovskoy telegrafno-telefonnoy stantsii (for Glauberzon).
2. Glavnyy inzh. L'vovskoy telegrafno-telefonnoy stantsii (for Pavlychev).

Pavlyuchenko, M.M.

Kinetics of formation of zinc chloride ammoniates. M. M. Pavlyuchenko and G. A. Lazenko (V. I. Lenin White Russian State Univ., Minsk). *Zhur. Fiz. Khim.* 28, 109-15 (1954); cf. preceding abstr.—The rate of combination (*R*) of NH_3 (I) gas with cryst. $ZnCl_2$ was observed with a manometric app. at temps. of 0, 20, 40, 60, and 80°. Exptl. data and the results of calcn. are given in 9 graphs. The reaction proceeds in the kinetic region in the temp. interval 0-40°. *R* is 22.7 times as great at 0° as at 40°. The decrease in *R* is due to decrease in the extent of adsorption of I. The reaction is of the 2nd order; 2 mols. of I react simultaneously with the solid phase. At 60 and 80° the reaction has a diffusion mechanism; this is attributed to the formation of mixed crystals. J. W. Loweberg, Jr.

62

①

Pavlyuchenko, M.M.

USSR/Chemistry - Physical chemistry

Card 1/1 Pub. 147 - 15/26

Authors : Pavlyuchenko, M. M., and Lazerko, G. A.

Title : The kinetics of formation of $CdCl_2$ ammoniates

Periodical : Zhur. fiz. Khim. 28/1, 102-108, Jan 1954

Abstract : A case very rare for chemical reactions, namely, a reduction in the rate of reaction due to increase in temperature, was established during the reaction of formation of $CdCl_2$ ammoniates. It was found that the reaction of formation of $CdCl_2$ ammoniates occurs in the kinetic, diffusion-kinetic and diffusion zones depending upon the temperature. The conversion from the kinetic zone into the zone of diffusion during temperature rises was found to be connected with the formation of a solid reaction product which hinders the diffusion of ammonia toward the non-reacted surface. The constant of the rate of reaction changes in ratio to the ammonia pressure in the first degree. Eighteen references : 11-USSR; 4-USA and 3-German (1923-1951). Graphs; drawing.

Institution : The V. I. Lenin-Byeloruss. State University, Minsk

Submitted : March 16, 1953

Pavlyuchenko, M.M.

USSR/Chemistry - Physical chemistry

Card 1/1 Pub. 147 - 16/26

Authors : Pavlyuchenko, M. M., and Lazerko, G. A.

Title : The kinetics of formation of $ZnCl_2$ ammoniates

Periodical : Zhur. fiz. khim. 28/1, 109-115, Jan 1954

Abstract : It was established experimentally that the reaction leading to the formation of $ZnCl_2$ ammoniates occurs at 0 - 40° C in the kinetic zone. The constant of the rate of reaction at a temperature increase from 0 to 40° C decreases by 22.7 times. The formation of the ammoniate takes place during simultaneous reaction of two adsorbed AM molecules with the molecule of the salt. The reduction in the rate of reaction during temperature increases was found to be the result of reduction in Am adsorption. The reaction at 60 - 80° C takes place in the diffusion zone which explains the absence of a maximum on the rate-time curves. The diffusion nature of the reaction is apparently due to the formation of mixed crystals. Thirteen references : 4-USSR; 1-USA and 8-German (1905-1951). Table; graphs.

The

Institution : The V.I. Lenin-Byeloruss. State University, Minsk

Submitted : March 16, 1953

PAVLYUCHENKO, M.M.

USSR/Chemistry - Physical chemistry

Card 1/1 : Pub. 147- 20/22

Authors : Pavlyuchenko, M. M.

Title : Kinetics of heterogeneous reactions occurring with the participation of solid bodies

Periodical : Zhur. fiz. khim. 28/11, 2042-2046, November 1954

Abstract : The derivation of an equation for the case of linear extension of reactions from active centers, originating in time in accordance with the monomolecular reaction law, is described. The applicability of formulated equations to the reactions of oxygen oxidation of silver, magnesium and lead abietates containing water of crystallization is explained. It was established that any reaction originating from active centers extends in one direction only. One USSR references (1951). Graphs.

Institution : The V. I. Lenin Byelorussian-State University, Minsk

Submitted : April 12, 1954

PAVLYUCHENKO, M.M.

5

15

The kinetics of the oxidation of cellulose by nitrogen dioxide. M. M. Pavlyuchenko and I. I. Ermolenko. *Uchenye Zapiski, Belorus. Gosudarst. Univ. im. V. I. Lenina, Ser. Khim.* 1955, No. 24, 138-48.—A gas-purification train and absorption measuring system is described for studying the reaction of NO_2 with cellulose. The wt. increase approximates 10% in 200 min. at 25° at P_{NO_2} 600 mm. Further passage of NO_2 over cellulose produces little wt. change. The acidity increase parallels the wt. gain. C. H. F.

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Pavlyuchenko, M.M.

Classification of heterogeneous reactions that take place with the participation of [illegible]

[illegible]

on the rate [illegible]

fusion [illegible]

cases. [illegible]

~~PAVLYUCHENKO, M.M.~~ PavLyuCHEnko, M.M.

12 18

Kinetics of the nitriding of steel. M. M. Pavlyuchenko, I. L. Aleksandrovich, and Z. I. Varivonchik. *Uchenye Zapiski Beloruss. Gosudarst. Univ. im. V. I. Lenina, Ser. Khim.* 1955, No. 24, 158-60.—The dissocn. of NH_3 over various steels was observed at 600-700°. The satn. of the surface of the steel with N proceeds with increasing speed supporting the hypothesis that active centers are present in the surface, from which the area of active nitriding spreads out in all directions. Nitriding rate is reduced by a factor of 6-7 by using resulfurized steels rather than steels which have not been resulfurized. [illegible]

3

PAVLYUCHENKO, M.M.

2

Determination of the specific surface of abietic acid and its salts. M. M. Pavlyuchenko and R. E. Slutskaya. *Uchenye Zapiski, Belorus. Gosudarst. Univ. im. V. I. Lenina, Ser. Khim.* 1955, No. 24, 167-74.—Samples of cryst. unground, cryst. ground, amorphous ground, and finely dispersed abietic acid (the last-named being obtained by thermal decompn. of NH_4 abietate) were studied. Surface area was measured by the adsorption of methylene blue and conversion to surface area by assuming 1 mg. of dye equal to 1 sq. m. of surface. The specific surface areas thus obtained (sq. m./g.) for the various samples of abietic acid were, resp.: 0.31, 3.45, 4.9, and 60.1. The corresponding surface areas for Ba, Ca, and Mn abietates are: 81, 30, and 7.5. By relating max. oxidation rate to specific surface area, the effects of the sustituent groups on reaction rate can be established. Attempts to measure surface area of Mg abietate yielded anomalously high values that were found to be uncorrelated with surface area, but were related to a tendency of the Mg compd. to hydrolyze under test conditions.

C. H. Fuchsman

PAVLYUCHENKO, M.M.

PAVLYUCHENKO, M.M.

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Chem

The kinetics of oxidation of sodium and potassium abietates. M. M. Pavlyuchenko. Uchenye Zapiski, Belorus. Gosudarst. Univ. im. V. I. Lenina, Ser. Khim. 1955, No. 24, 176-82; cf. preceding abstr.—The reactions of Na and K abietates with O (P_{O_2} = 720 mm.) were followed by observing the reacted quantity of O as a function of time in the temp. interval 60-120°. With Na abietate, the rate rises to max. at about t = [illegible] min. (O_2 uptake = 2 and 3 cc./hr. per 0.5 g. sample [illegible]). At higher temps. the max. rate is higher and occurs earlier. At 100 and 120° the max. observed rates (48 and 60 cc./hr. per 0.5 g. sample) are attained almost immediately. At high temps. the oxidation rate is diffusion-controlled. At low temps. the reaction kinetics control the oxidation rate up to the time of max. oxidation. Thereafter a combination of kinetic and diffusion factors det. the rate. K abietate does not oxidize at temps. up to 100°.

C. H. Fuchsman

Pavlyuchenko, M.M.

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The catalytic action of solid products in heterogeneous chemical reactions. M. M. Pavlyuchenko. *Uchenye Zapiski Beloruss. Gosudarst. Univ. im. V. I. Lenina, Ser. Khim.* 1955, No. 24, 183–92; cf. *C.A.* 50, 16300a.—A reply to Erofeev's criticism (*C.A.* 51, 4108f) of P.'s paper (*C.A.* 50, 12615d). C. H. Fuchsman

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PAVLYUCHENKO, M.M.

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✓Products of oxidation of rosin acids. M. M. Pavlyuchenko, V. M. Akulovich, and N. N. Bunyko. J. Gen. [illegible] U.S.S.R. 25, 879-82(1955)(Engl. translation).—See C.A. 49, 14338e. B. M. R.

CH

(2)

Pavlyuchenko, M.M.

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Products of oxidation of rosin acids. M. M. Pavlyuchenko, V. M. Akulovich, and N. N. Bulygo. Zhur. Obshchei Khim. 25, 914-18(1955); cf. C.A. 39, 5091³.—Products of oxidation of rosin with O_2 at 50-60° and with air at room temp. were examd.; abietic acid and the solid cryst. part of the rosin were studied. The oxidation products contain peroxide groupings, but the content of peroxides drops by a factor of 10 when the reaction temp. is raised to 60° from room temp. The oxidation of rosin acids reduces the content of double bonds by 50%. The 1st phase of oxidation is apparently the formation of hydroperoxides, whose decompn. yields a monoöxide, alcs., and carbonyl compds. The solid fraction of rosin oxidized at 60° has some 20-5% active O (based on added O), while in abietic acid this value is but 1%. Oxidation reduces the absorption of abietic acid at 2410 A. and of rosin at 2500 A.

G. M. Kosolapoff

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Inst-Chem. Sci, Belo SSR [illegible] Sci.

PAVLYUCHENKO, M.M.

USSR/ Chemistry - Physical chemistry

Card 1/2	Pub. 147 - 5/26
Authors :	Pavlyuchenko, M. M.
Title :	The kinetics and the mechanism of heterogeneous chemical reactions taking place with the participation of solid bodies.
Periodical :	Zhur. fiz. khim. 29/1, 39-47, Jan 1955
Abstract :	Experimental data are presented regarding the kinetics of heterogeneous chemical reactions occurring with the participation of solid bodies and it is shown that the solid reaction product (mixed or ground, or applied on the surface of crystals) does not increase the rate of reaction except for the reaction leading to the decomposition of explosives.
Institution :	Acad. of Sc. Byeloruss. SSR, The V. I. Lenin State University, Minsk
Submitted :	March 11, 1954

Periodical : Zhur. fiz. khim. 29/1, 39-47, Jan 1955

Card 2/2 Pub. 147 - 5/26

Abstract : The mechanism of the reaction leading to an increase of the reaction surface and consequently to an increase in the rate of reaction is explained. The localization of the reaction process along the interphase boundary which is in no way connected with the catalytic effect of the solid reaction product is discussed. Forty four references: 24 USSR; 10 USA; 9 German and 1 Dutch (1905-1954). Drawing

PAVLYUCHENKO, M.M.

Kinetics of the decomposition of explosive substances. Zhur.fiz.
khim. 29 no.6:996-1000 Je '55. (MLRA 9:1)

1.Belorusskiy gosudarstvennyy universitet imeni V.I.Lenina.Minsk.
(Explosions)

PAVLYUCHENKO, M.M.; LAZERKO, G.A.

Influence of temperature on the kinetics of formation of ammines of sulfates and chlorides. Zhur.fiz.khim. 29 no.6:1064-1072 Je '55. (MLRA 9:1)

1.Belorusskiy gosudarstvennyy universitet, Minsk.
(Ammines)

PAVLYUCHENKO, M. M.

CH

Kinetics of potassium bicarbonate decomposition. M. M. Pavlyuchenko and B. N. Vainshtein (White Russian V. I. Lenin State Univ., Minsk). *Zhur. Fiz. Khim.* 29, 1173-80(1955).—The kinetics were studied at 158-214°. The decompn. rate increases with the temp. to a max. and then drops to 0. The reaction starts in separate centers and then spreads rapidly along the surface, which is coated in 5-10 min. with the solid reaction product. A 50-fold increase in the geometric surface of the $KHCO_3$ has practically no effect on the reaction rate, which is explained by the large inner surface of the crystals. The activation energy of the decompn. of $KHCO_3$ was found equal to 18,500 cal., and equals within the exptl. error, the heat effect of the $KHCO_3$ decompn. reaction. K_2CO_3, whether applied to the $KHCO_3$ from soln. or ground with the $KHCO_3$ and briquetted with it, does not increase the decompn. velocity.

W. M. Sternberg

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SOV/81-59-16-56832

Translation from: Referativnyy zhurnal. Khimiya, 1959, Nr 16, p 119 (USSR)

AUTHORS: Akulovich, V.M., Pavlyuchenko, M.M.

TITLE: The Spectral Determination of Potassium in Mineral Salts

PERIODICAL: Sb. dokl. 1-y Nauchno-tekhn. konferentsii po spektr. analizu. Minsk, AN BSSR, 1956, pp 40-46

ABSTRACT: In the hollow of a Cu-plate moving during exposure with a rate of 1.4 mm/sec 1 g of the sample containing up to 50% KCl is placed. As upper electrode a carbon rod sharpened to a truncated cone is used. The spectra are excited in the discharge of a low-voltage spark at a capacitance of 20 μ farad, a current intensity of 4 a and an operating gap of 2 mm. The standards and the samples are diluted in the ratio of 1 : 2 by means of NH_4Cl containing 1% of $CdCl_2$. The analysis is carried out, with allowance for the background, by the line K 3446.7-Cd 3466.2 Å; at concentrations of KCl $<$ 5% the lines K 4047.2-Cd 3610.5 A are employed. The error of analysis is ± 7%. Similarly the analysis of the soluble part of K-fertilizers is carried out. For this purpose strips of filter paper are soaked in a solution containing together up to 5% KCl and NaCl and are fastened on a cylindrical horizontal moving Cu-electrode. The analysis is carried

Card 1/2

SOV/81-56-16-56812

Translation from: Referativnyy zhurnal. Khimiya, 1959, Nr 16, p 115 (USSR)

AUTHORS: Akulovich, V.M., Filonov, B.O., Pavlyuchenko, M.M.

TITLE: Some Possibilities of the Method of Additions in the Spectral Analysis of Mineral Salts

PERIODICAL: Sb. dokl. 1-y Nauchno-tekhn. konferentsii po spektr. analizu Minsk, AN BSSR, 1956, pp 47-52

ABSTRACT: A method of extrapolation for finding the concentrations of an element on the base of the known dependence $R = AC^b$ at any values of b is described If the sample is divided into 3 fractions and in 2 of them additions a % and c % are made, then $R_x = Ax^b$; $R_{x+a} = A(x+a)^b$ and $R_{x+c} = A(x+c)^b$. Converting into logarithms and excluding b, the following equation is obtained $\lg(R_x/R_{x+a}) \cdot \lg(x+a)/(x+c) = \lg(R_{x+a}/R_{x+c})$. The latter equation has a simple solution under the condition: $\lg R_x/R_{x+a} = \lg R_{x+a}/R_{x+c}$, from which follows that $R_{x+a} = \sqrt{R_x \cdot R_{x+c}}$ Then $(x+a)/(x+c) = x/(x+a)$ and the calculated formula has the form. $x = a^2/(c - 2a)$. For analysis a graph is plotted in the coordinates R versus concentration of additions; the geometric mean is calculated between the relative intensities for the sample without additions

Card 1/2

Pavlyuchenko, M.M.

Kinetics of oxidation of calcium abietate by oxygen. M. M. Pavlyuchenko and V. M. Akulovich. *Vestsi Akad. Navuk Belarus. S.S.R., Ser. Fiz.-Tekh. Navuk* 1956, No. 1, 77-80(Russian summary).—Kinetics of oxidation of Ca abietate (I) with O_2 at 70-110° is described. Alc. soln. of abietic acid treated with alc. KOH gave K abietate, which on treatment with $Ca(AcO)_2$ gave a ppt. of I which is insol. in H_2O and alc. and contains 3 mol. H_2O/mol. of I. Oxidation of I at 80 and 90° and 720 mm. Hg starts with a max. rate that decreases with the time. At 60° the reaction rate is very small within the 1st 2-3 hrs., and then increases and remains const. with time. Stopping of the reaction for 10-18 hrs. and varying the pressure within 150-720 mm. Hg were without effect on the reaction rate. However, fine pulverization of I increased the rate and decreased the time required for the oxidation of one half of the I sample (0.3 g.) 6.6 fold. On heating the hydrate of I at 60° at a low pressure, anhyd. I is obtained. Oxidation of H_2O-free I at 70, 80, 90, 100, and 110° and 720 mm. Hg, showed that at 90° and above, the reaction rate is the greatest within the first few hrs. and depends on the rate of diffusion of the reacting particles; at 70-80° the reaction proceeds with increasing reaction rate with time and depends on the rate of the chem. absorption of O. The oxidation reaction proceeds at the expense of the adsorbed O, and its rate is independent of the O pressure. The oxidation reduces the content of double bonds but peroxides are not formed. The exptl. data are analyzed mathematically. R. W.

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PAVLYUCHENKO, M.M.

Category: USSR

B-9

Abs Jour: Zh- Kh, No 3, 1957, 7569

Author: Pavlyuchenko, M. M.

Inst: Academy of Sciences Belorussian SSR

Title: On the Mechanism of Heterogeneous Reactions

Orig Pub: Izv. AN BSSR, Section on Physical and Technical Sciences, 1956 No 1, 147-152

Abstract: A discussion See RZhKhim, 1956, 67870.

Card 1/1

-28-

PAVLYUCHENKO, M. M.

27 0

✓ Surface saturation of steel 18 and cast iron 18 with sulfur and nitrogen. M. M. Pavlyuchenko and L. A. Taranovskaya. *Vestsi Akad. Navuk Belarus. S.S.R., Ser. Fiz.-Tekh. Navuk* 1956, No. 4, 91-8(Russian summary).—Five specimens of

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440° for 3 hrs.) or in H_2S followed by NH_3 [illegible] 800° for 3 hrs.). Chem. analyses revealed that the sulfidized surface layer was about 0.2 mm.; a cast iron contg. 0.118% S contained, after the H_2S treatment at 360° in the consecutive four 0.05-mm. surface layers, 0.403, 0.308, 0.201, and 0.190% S, and nearly twice as much after treatment at 440° [illegible]; 0.1-mm. plates of a soft steel contg. originally 0.03% S [illegible]sed its S content after the H_2S treatment at 280 and 475° [illegible] 0.3404 and 2.088%, resp. The azotization study revealed the presence of the active centers on the steel surface which catalyze the decompn. of NH_3 and the formation of the new phase, a solid soln. of N in iron. Dissocn. of NH_3 increased with the time of heating until 160-70 min. with a rapid decrease thereafter; the dissocn. was 4-7-fold smaller in the presence of the sulfidized steel than in the presence of the nontreated control, the greatest decrease being for the samples sulfidized at higher temp. contg. higher concns. of S in the surface layer; the amt. of the adsorbed N increased with the time of heating, the greatest amt. being for the nonsulfidized samples; and the rate of the N adsorption increased during the 1st 80-90 (control) and 110-20 min. (sulfidized samples) of the azotization followed by a decrease. Tearing-off test indicated that the stability (hardness) of the specimens increased 8-[illegible] and 20-30 times as the result of the sulfiding and the sulfiding + azotization processings, resp. B. Wierbicki

PAVLYUCHENKO, M.M.

Kinetics of oxidation of magnesium abietate by oxygen. M. M. Pavlyuchenko and V. M. Akulovich. *Sbornik Nauch. Rabot, Akad. Nauk Belorus. S.S.R., Inst. Khim.* 1956, No. 5, 158-64.—Oxidation of Mg abietate at 30, 40, and 50° proceeds with increasing rate that reaches a max. and then decreases. The reaction starts in separate active centers (the formation of centers follows the 1st-order law) from which it propagates in one direction. The oxidation follows $x = kt^n$, where x = reacted O_2, k = const., t = time, n = order (n = 2 before max. is reached). At 70° and 90° the oxidation is followed by evolution of heat, and the sample is caked. If a quartz powder is added, 10 parts quartz to 1 part Mg abietate, oxidation at 70° and 90° follows the same law as at lower temps. The reaction rate changes with the square root of O pressure. Oxidation of Mg abietate proceeds by adsorbing O_2; the adsorption increases with increase in temp. and decreases with decrease in O pressure.

Ariadna S. Ocone

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1-4E2c

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PAVLYUCHENKO, M.M.; AKULOVICH, V.M.

Oxidation kinetics of barium abietate by oxygen. Sbor.nauch.rab. Inst.khim.AN BSSR no.5:165-173 '56. (MLRA 10:5)

(Barium abietates)

(Oxidation)

YERMOLENKO, I.N.; PAVLYUCHENKO, M.M.

Oxidation of cellulose. Uch.zap. BGU no.29:36-59 '56.
(MIRA 11:11)

(Cellulose) (Oxidation)

PAVLYUCHENKO, M.M.; YERMOLENKO, I.N.

Spectrum analysis of products formed during alkaline destruction of oxidized cellulose. Uch.zap. BGU no.29:60-71 '56.
(Cellulose--Spectra) (MIRA 11:11)

PAVLYUCHENKO, M.M.; KAPUTSKIY, F.N.

Kinetics of formation of cadmium ammonium iodide. Uch.zap. BGU no.29:87-94 '56. (MIRA 11:11)
(Cadmium ammonium iodides) (Chemical reaction, Rate of)

PAVLYUCHENKO, M.M.; VAYNSHTEYN, Ye.N.

Decomposition kinetics of sodium bicarbonate. Uch.zap. BGU no.29:95-101 '56. (MIRA 11:11)

(Sodium carbonates) (Chemical reaction, Rate of)

PAVLYUCHENKO, M.M.; ZHUKHOVITSKAYA, A.L.

Absorption spectra of cobalt perchlorate in aqueous and nonaqueous solutions. Uch.zap. BGU no.29:102-113 '56. (MIRA 11:11)
(Cobalt perchlorate--Spectra)

PAVLYUCHENKO, M.M

Spectral investigation of the products and mechanism of the oxidation of cellulose by nitrogen dioxide. M. M. Pavlyuchenko and I. N. Ermolenko. *Izvest. Akad. Nauk S.S.S.R., Ser. Fiz.* 20, No. 5, 548-51(1956).—Ultraviolet-light absorption of nitrocellulose is increased after oxidation with N_2O_4. Bands appear at 230-70, 330, 341.5, 355, and 385 mμ. Absorption spectra of a soln. of NO_2 in $CHCl_3$, benzene, CCl_4, etc., show a strong band at 340 mμ, indicating a dimerization to N_2O_4 in those solvents. The spectrum of oxidized cellulose does not correspond to any compd. of N and O, but it resembles that of nitrous acid and nitrous compds. such as isoamylnitrite and it is different from that of inorg. nitrites. From these tests the structure H—O—N=O is postulated for nitrous acid. The bands at 210-20 mμ and at 280 mμ are attributed to carboxyl and carbonyl groups, the amt. of which, as well as that of nitrite, decreases with increasing temp. S. Pakswer

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