

1-35254-85

EWA(c)

EWT(m)/EWP(w)/EPP(c)/EPP(n)-2/EWA(d)/EPR(t)/EWP(1)/EWP(2)/EWP(3)

APPROVED FOR RELEASE

Author: Shal'gin, N. G. Doctor of Science
Institute of Metallurgy, Academy of Sciences of the USSR
59

Abstract: This paper describes the synthesis and properties of several highly coercive alloys based on the Fe-Ni-Al system.

Source: IVVE. Mashinostroyeniye, no. 3, 1984, p. 10-12.

TOPIC TAGS: magnetic material, coercive force, magnetic field

ABSTRACT: As a continuation and extension of the work of A. V. Anisimov, I. A. Lebedevskiy, and others, the authors have synthesized and investigated a series of Fe-Ni-Al alloys with different Al content. The alloys are characterized by high coercive force and high magnetic field strength. The coercive force increases with increasing Al content. The magnetic field strength also increases with increasing Al content. The authors also investigated the effect of heat treatment on the coercive force and magnetic field strength of the alloys. It was found that the coercive force and magnetic field strength increase with increasing heat treatment temperature.

Card 1/4

L 55254-65

ACCESSION NR: AP5010376

toplivo," 1960, No. 1) that elements enter in. A more determine the residual
... ..
... ..

... ..
... ..
... ..

... ..
... ..

... ..
... ..

ferrotestera dlya ispytaniya postoyannykh magnitov, "Izvestiya vyzov.
Elektromekhanika," 1962, No. 4). Orig. art. has: 5 figures, 3 formulas, and 2
tables.

Card 2/4

L-5526-46
AT BOSTON MA: ADSC/BI7

SUBMITTED: 280-1164

SUB CODE: MM, EM

NO. FILED IN: EM

Cord 3/4

L 65034-65

ACCESSION NR: APS03465

Ref. on: *Elektronika i energetika*, Apr. 1967

AUTHOR: Afanas'yev, P. D.

TITLE: Effect of small additions of silicon and silicon-niobium-titanium upon the magnetic properties of Fe-Ni-Al alloy.

CITED SOURCE: St. nauchn. rabot. aspirantov. *Elektronika i energetika*, in-la, no. 2, 1963, 195-204

TOPIC TAGS: Fe Ni Al alloy, Fe Ni Al alloy magnetic properties

TRANSLATION: Magnetic properties of the alloy with 1-1% Al, 3.5% Si with addition of 0.1% Nb, 0.1% Ti, and 0.1% Ta. Published data are compared. Introduction of Si, Nb, Ti, Ta into the alloy leads to an increase in the coercive force, rate of change of magnetic induction, and the induction rate of change of magnetic induction. The coercive force and the induction rate of change of magnetic induction are also affected by the addition of Nb, Ti, Ta. The coercive force and the induction rate of change of magnetic induction are also affected by the addition of Nb, Ti, Ta. The coercive force and the induction rate of change of magnetic induction are also affected by the addition of Nb, Ti, Ta.

L 65034-65

ACCESSION NR: AR5006806

specimens upon their chemico-thermal treatment (ammonia atmosphere at 1230C, 3 hours). Bibliography: 14 titles.

SUB CODE: MM

ENCL: 00

Card 2/2

L 43049-66 EWT(m)/T/EWP(t)/ETI IJP(c) JD/HW/JG/JH

ACC NR: AR6014388

(A,N)

SOURCE CODE: UR/0137/65/000/011/1075/1075

AUTHOR: Afanas'yev, P. D.

TITLE: Electronmicroscopic and x-ray structure analysis of Fe-Ni-Al alloys containing Cu, Nb, and Si impurities

SOURCE: Ref. zh. Metallurgiya, Abs. 11I526

REF SOURCE: Sb. Materialy radioelektron. i elektr. mashiny. L'vov, L'vovsk. un-t, 1964, 145-152

TOPIC TAGS: aluminum containing alloy, iron containing alloy, nickel containing alloy, copper containing alloy, niobium containing alloy, silicon containing alloy, electron microscopy, x ray analysis, alloy microstructure, phase composition

ABSTRACT: Alloys of the following composition were investigated (in wt %): Ni 23.1--24, Al 13.21--14.01, Cu 3.5--3.8, Nb 0--2, Si 0.2--1, Fe-- the remainder; Fe-Ni-Al alloy with 0.43% Nb, 0.42% Si and 3.5% Cu after optimum thermal treatment (quenched from 1230--1250C in oil and annealed at 600C) has $B_r = 0.64 \text{ wb/m}^2$, $H_c = 34 \text{ ka/m}$, and $(BH)_{max}/8\pi = 1450 \text{ joules/m}^3$. After optimum thermal treatment, the microstructure of alloys studied by means of optical magnification does not

Card 1/2

UDC: 669.15.018.582

L 43049-65

ACC NR: AR60L4388

show heterogeneity of the main mass. Phase composition was studied by x-ray analysis. The study of magnetic properties showed that the simultaneous addition of Nb and Si to Cu containing Fe-Ni-Al alloys does not lead to positive results in view of the decrease of B_r and $(BH)_{max}$. It is proposed that the chief reason for the decrease in B_r , due to the addition of Nb, is caused by the formation of the compound Fe_2Nb which decreases the concentration of the precipitated β -phase. These conclusions are supported by the results of the microstructure analysis.
I. Tulupova /Translation of abstract/

SUB CODE: 11, 20

Card 2/2 90

L 04479-67 EWI(m)/EWP(t)/ETI IJP(c) JD/HW

ACC NR: AR6009972

SOURCE CODE: UR/0137/65/000/012/1094/1094

AUTHOR: Afanas'yev, P. D.; Kozanevich, Z. Ya.

TITLE: Investigation of certain ^{1 1 1}Fe-Ni-Al alloys with the aid of an electron oscillograph

SOURCE: Ref. zh. Metallurgiya, Abs. 12I696

REF SOURCE: Vestn. L'vovsk. politekhn. in-ta, no. 4, 1965, 62-69

TOPIC TAGS: electron oscillograph, oscillograph, ternary alloy, magnetic analysis, magnetic alloy, HYSTERESIS LOOP

ABSTRACT: A setup was designed for plotting the magnetic characteristics of magnetically hard alloys by the induction method (frequency 50 cps) on using as the indicator an electron oscillograph (EO) whose screen depicts the hysteresis loops reflecting the process of magnetization of Me. A diagram and a description of this setup are presented and the possibility of calibrating the EO screen with the aid of a ballistic installation is substantiated on the assumption that

$$A_{osc} = \Phi C_A \frac{HdB}{4\pi}$$

Card 1/2

UDC: 669.01:621.317.4

CA

Possible routes of protein biosynthesis. P. F. Afanas'ev
and D. L. Talmud. *Izvest. Akad. Nauk S.S.S.R., Ser.
Biol.* 1952, No. 1, 115-20; cf. *C.A.* 43, 3792i.—Review
with numerous references. It is suggested that an incipient
globulin mol. surrounded by proper medium can grow by
accretion of amino acids or peptides until a certain size is
reached, when the globule will divide and can continue such
growth independently. G. M. Kosolapoff

"Investigations of Nuclear Structure by means of Investigations of Elastic and Inelastic Scattering of Electrons."

report submitted for All-Union Conf on Nuclear Spectroscopy, Tbilisi, 14-22 Feb 64.

AFANAS'YEV, P.I. (Kursk)

On the problem of treating callosities. Fel'd. i akush. 21 no.11:
42 N '56. (MIRA 9:12)
(CALLOSITIES)

1. AFANAS'YEV, P. I., Eng.
2. USSR (600)
4. Induction Heating
7. Heat treatment of instruments and devices with high frequency currents. Podshinnik, no. 12, 1952.

9. Monthly List of Russian Accessions, Library of Congress, Anril 1953, Uncl.

AFANAS'YEV, P. I.; ZLATKINA, L. M.; Engs.

Bearings (Machinery)

Increasing the strength of stamps for the cold stamping of large balls. Podshipnik No. 1, 1953.

9. Monthly List of Russian Accessions, Library of Congress, June 1953, Uncl.

AFANASYEV, P. I. Eng.

Files and Rasys

Tempering filing disks for the MSk-32 machines under high-frequency current. Podshipnik No. 2, 1953,

9. Monthly List of Russian Accessions, Library of Congress, June 1953. Unclassified.

Method of accelerated motion in dragline performance. Gor.zhur. no.7:
7-8 JI '55. (MIRA 8:8)
(Excavating machinery)

YASHUNSKIY, E.G., inzh.; GUDOVICH, G.A., inzh.; AFANAS'YEV, P.K., inzh.

Cable lines with 220 kv. rating of the Bratsk hydroelectric
Power Station. Elek. stat. 35 no.1:58-61 Ja '64.

(MIRA 17:6)

AFANAS'YEV, P. M.

GALKIN, L.M.; AFANAS'YEV, P.M.; MIROSHNICHENKO, M.T.

Landscaping and playground improvements near housing projects.
Gor.khoz.Mosk. 28 no.6:25-27 Je '54. (MLRA 7:7)

1. Upravlyayushchiy domami domoupravleniya no. 53 Moskvoretsko-
to rayona (for Galkin) 2. Upravlyayushchiy domami domoupravleniya
no. 11 Oktyabr'skogo rayona (for Afanas'yev) 3. Upravlyayushchaya
domami domoupravleniya no. 65 Frunzenskogo rayona (for Miroshni-
chenko)

(Moscow--Landscape architecture) (Landscape architecture--
Moscow) (Moscow--Playgrounds) (Playgrounds--Moscow)

AFANAS'YEV, P.M., inzh.; BORODICH, M.K., inzh.; DOLGOV, V.A., inzh.;
KOZLOV, V.V., inzh.

Manufacture of wire-reinforced concrete articles on the TP-906
unit in Krasnodar. Bet.i zhel.-bet. no.6:254-257 Je '61.

(MIRA 14:7)

(Krasnodar—Prestressed concrete)

ACCESSION NR: AR4015700

8/0081/63/000/023/0470/0470

SOURCE: RZh. Khimiya, Abs. 23P76

AUTHOR: Afanas'yev, P. O.; Klyuchenkova, N. A.

TITLE: Impregnation of graphite with new synthetic resins

CITED SOURCE: Tr. Vses. n.-i. i konstrukt. in-t khim. mashinostr., vy*p. 42, 1962, 67-75

TOPIC TAGS: graphite, graphite impregnation, resin, synthetic resin, polymer

ABSTRACT: Dry graphite parts were placed in an autoclave, and heated to 60C in a vacuum of 730-750 mm/Hg, which was continued for 2 hrs. without heating, after which resin was drawn into the autoclave, air was introduced under a pressure of 5-6 atm. and the pressure was maintained for 3-3.5 hrs. After that, the objects were removed, freed of the resin and again heated at 50C for 1 hr., followed by heating to 140C, increasing the heat at the rate of 10⁰/hr. The emulsifying resin tested was composed of liquid bakelite and vinylchloride lacquer, and furfural acetone. The treatment was repeated twice. After the treatment the objects increased in weight by 17-21%, and became inpernable to water under a water pressure

Card 1/2

ACCESSION NR: AR4015700

of 5 atm. and air pressure of 2 atm. Investigations of the effect of boiling H_2SO_4 and other acids showed that graphite impregnated with both resins was resistant to boiling H_2SO_4 of a concentration $\leq 60\%$ for a long time, while those treated with the emulsifying resin were not affected by the acid at a concentration of 70%. Both materials were resistant to 35% HCl and 96% CH_3COOH , as well as to 30% NaOH, but only at 20C. I. Bogdanov

DATE ACQ: 09Jan64

SUB CODE: OC, MT

ENCL: 00

Card 2/2

AFANAS'YEV, P.S.; BOGOYAVLENSKIY, A.P., prof., doktor khim.nauk, red.;
LODVIKOVA, A.S., red.; GALKINA, V.N., tekhn.red.

[Corrosion of metals and ways to control it] Korroziia metallov
i mery bor'by s nei. Kazan', Tatarskoe knizhnoe izd-vo, 1959.
81 p. (MIRA 14:2)
(Corrosion and anticorrosives)

AFANAS'YEV, P.S., kandidat tekhnicheskikh nauk; MASLENKOV, F.N., kandidat tekhnicheskikh nauk, retsenzent; MAKOVSKIY, N.V., kandidat tekhnicheskikh nauk, redaktor; TIKHONOV, A.Ya., tekhnicheskiy redaktor

[Designs of woodworking tools] Konstruktsii derevoobrabatyvayushchikh stankov. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. i sudostroit. lit-ry. Vol. 2. [Specialized tools] Stanki spetsializirovannye. 1954. 443 p.
(Woodworking machinery) (MIRA 7:10)

KHUKHRYANSKIY, Pavel Nikolayevich, doktor tekhnicheskikh nauk, professor;
~~AFANAS'YEV, P.S.,~~ kandidat tekhnicheskikh nauk, redaktor; BEGAK,
B.A., redaktor; VOLKOV, V.S., tekhnicheskiy redaktor.

[Tools and machinery for woodworking] Instrumenty i stanki dlia
obrabotki drevesiny. Moskva, Gos.izd-vo lit-ry po stroit. i
arkhitekture, 1955. 179 p. (MIRA 9:4)
(Woodworking machinery)

SLOMYANSKAYA, F.B., kandidat tekhnicheskikh nauk; DYATLOVA, V.N.; AFANAS'YEV, P.S.; YEGOROV, A.P.; VITKOVSKIY, M.N.; MISHIN, I.A.; MEDOVAR, B.I.; LANGER, N.A.; PAL'CHUK, N.Yu., kandidat tekhnicheskikh nauk; FRID, Ya.L.; LEVIN, I.A., kandidat tekhnicheskikh nauk.

Methods of testing stainless steels for susceptibility to intergranular corrosion. Zav.lab.21 no.11:1314-1340 '55. (MIRA 9:2)

1. Vsesoyuznyy nauchno-issledovatel'skiy i konstruktorskiy institut khimicheskogo mashinostroyeniya (for Slomyanskaya, Dyatlova). 2. Nachal'nik Tsentral'noy zavodskoy laboratorii (for Afanas'yev). 3. Nachal'nik laboratorii eksperimental'noye zavoda khimicheskogo mashinostroyeniya. 4. Sumskoy mashinostroitel'nyy zavod imeni M.V. Frunze (for Vitkovskiy, Mishin). 5. Institut elektrosvarki imeni Ye.O. Patena, Akademii nauk SSSR (for Medovar, Langer). 6. Moskovskoye vyssheye tekhnicheskoye uchilishche imeni N.E. Baumana (for Pal'chuk). 7. Zamestitel' nachal'nika Tsentral'noy zavodskoy laboratorii zavoda "Serp i Molot" (for Frid).

(Steel, Stainless--Corrosion)

AFANAS'YEV, P.S.

Basic trends in the development of the woodworking machinery industry.
Stan. i instr. 26 no.11:17-18 N '55. (MIRA 9:2)
(Woodworking machinery)

AFANAS' YEV, P.S., kandidat tekhnicheskikh nauk.

Woodworking tools at the 1955 Stockholm exhibition. Der.prom. 5
no.2:27-29 F '56. (MLRA 9:5)

1. NIIDREVMASH.
(Stockholm--Woodworking machinery--Exhibitions)

AFANIS'YEV, Pavel Semanovich, kand.tekhn.nauk; SOKOLOVA, M.A., red.;
TOKER, A.M., tekhn.red.

[Woodworking machinery] Derevoobrabatyvaiushchie stanki. Moskva,
Vses.uchebno-pedagog.isd-vo Trudrezervizdat, 1958. 362 p.
(Woodworking machinery) (MIRA 12:3)

AFANAS'YEV, Pavel Semenovich, kand. tekhn. nauk,; MANZHOS, F.M., prof., doktor
tekhn.nauk, retsenzent,; MASLENKOV, F.N., inzh., retsenzent,;
YANYSHLEVSKIY, A.F., inzh., red.; PROKOF'YEVA, L.G., red. izd-va,;
TIKHANOV, A.Ya, tekhn.red.

[Woodworking machinery] Konstruktsii derevoobrabatyvaiushchikh
stankov. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry.
Vol. 3. [Installation, repair, and operation] Montazh, remont i
ekspluatatsia. 1958. 566 p. (MIRA 11:12)
(Woodworking machinery)

SOV/137-59-3-7151

Translation from: Referativnyy zhurnal. Metallurgiya, 1959, Nr 3, p 316 (USSR)

AUTHORS: Afanas'yev, P. S., Shvarts, M. M.

TITLE: Application of Ultrasonics for Cleansing of Surfaces (Primeneniye ul'trazvuka dlya ochistki poverkhnostey)

PERIODICAL: Tyazh. prom-st' Podmoskov'ya (Mosk. obl. sovnarkhoz), 1958, Nr 5, pp 20-22

ABSTRACT: The author developed an ultrasonic method for cleansing (degreasing and etching) surfaces by means of a UZG-10 type ultrasonic generator. Compositions of solutions for degreasing and etching and for simultaneous degreasing and loosening of scale are adduced. The authors note the high corrosion resistance of pipes treated with ultrasonics as compared to those cleaned by sandblasting.

D. Ya.

Card 1/1

AFANAS'YEV, P.S.

Conference on introducing automatic control in technological
wordworking processes. Stan.i instr. 29 no.1:42 Ja '58.

(Woodworking) (Automatic control)

(MIRA 11:1)

(11)

TABLE I BOOK REVIEWS

809/3660

Механо-технологический обобщенный машиностроительный справочник. Технический справочник. Серия: Наука и техника. М.: Машиностроение, 1979. Модернизация и ремонт оборудования машиностроительного завода (Модернизация и ремонт машин-оборудования). Автор, Москва, 1979. 261 п. Серия вып. inserted. 6,100 copies printed.

Ed. (title page): S.A. Koskin, Candidate of Technical Sciences; Ed. (inside book): A.S. Popov, Engineer; Tech. Ed.: V.D. Kl'vind, Managing Ed. for literature on Metalworking and Machine-Tool Construction (Machin): R.D. Byzel'man, Engineer; Editorial Board: S.A. Koskin (Chairman), Candidate of Technical Sciences; T.A.S. Barinov, Engineer; V.D. Platner, Engineer; V.I. Klibanovskiy, Engineer; and V.P. Gellor, Engineer.

REMARKS: This collection of articles is intended for technical personnel dealing with modernization and overhaul of equipment.

COVERAGE: The articles in this collection deal with the basic trends and a number of specific problems in the modernization of the machine industry. Modernization of foundry, forging shops, and cross equipment and problems in the automation of equipment repair are discussed. Information is given on the use of unitized subassemblies in the modernization of metal-cutting machine tools, on measures for prolonging the life of forging hammers, on methods of automatic three electric hard facing of worn parts, on sulfidation, and on vibration of forging-hammer foundations. No personalities are mentioned. References follow several of the articles.

TABLE OF CONTENTS:

Маслов, И.Е. [Engineer]. Basic Trends in the Modernization of Cross Equipment	3
Шереметьев, Ye.M. [Engineer]. Prolongation of the Life of [Pistons] Heads for Forging Hammers	31
Давыдов, V.J. [Engineer, WILITMASH]. Basic Trends in the Modernization of Foundry Equipment	39
Островский, E.K. [Engineer]. Automation of Metal-Cutting Machine Tools	49
Иванов, V.M. [Engineer, VTI]. Organization of Heavy Repair of [Jig Bores] and Inspection of Repair-Shop Quality	61
Зайченко, J.F. [Engineer, Kharkovskiy zavod transportnykh mashinostroyeniya imeni Malysheva (Kharkov Plant of Transportation - Machine Construction Lenin Malyshev)]. Repair of Worn Ways of Metal-Cutting Machine Tools by Electrical Dressing	108
Перцов, S.A. [Engineer, Moshmetrost]. Use of Unitized Subassemblies in the Modernization of Metal-Cutting Machine Tools	112
Александров, P.G. [Candidate of Technical Sciences, KIMTsvetmetash]. Basic Trends in the Modernization of Woodworking Equipment	122
Филипповский, G.M. [Candidate of Technical Sciences, WILITMASH]. Basic Trends in the Modernization of Existing Cross Equipment	126
Бесс, V.P. [Engineer]. Modernization and Repair of Cross Equipment	135
Шабалин, Ye.I. [Engineer, Uralmetzshrom]. Modernization of Unique Equipment	163

Cont 3/A

APANAS' YEV, Pavel Semenovich, kand.tekhn.nauk; YANISHEVSKIY, Aleksey
Fedorovich, inzh.; SOKOLOVA, M.A., red.; TOKER, A.M., tekhn.red.

[Setting up woodworking machines] Naladka derevoobrabaty-
vayushchikh stankov. Moskva, Vses.uchebno-pedagog.izd-vo
Trudrezervizdat, 1959. 35^h p. (MIRA 12:9)
(Woodworking machinery)

AFANAS'YEV, Pavel Semenovich, kand.tekhn.nauk; BOCHKAREV, I.V., dotsent,
kand.tekhn.nauk, retsentsent [deceased]; PROKOP'YEVA, L.G., red.
izd-va; TIKHANOV, A.Ya., tekhn.red.

[Design of woodworking machinery] Konstruktsii derevoobrabaty-
vaiushchikh stankov. Izd.3., perer. i dop. Moskva, Gos.nauchno-
tekhn.isd-vo mashinostroit.lit-ry. Vol.1. [General machinery]
Stanki obshchego naznachenia. 1960. 689 p. (MIRA 13:5)
(Woodworking machinery)

AFANAS'YEV, Pavel Semenovich, kand. tekhn. nauk; BURKOV, V.I., inzh.,
retsenzent; ZARODZINSKIY, Z.K., inzh., red.; KARINSKIY, S.A.,
inzh., red.; LEYN, E.A., kand. tekhn. nauk, red.; NOVIKOV,
D.Z., kand. tekhn. nauk, red.; OBRAZTSOV, S.A., inzh., red.;
RUDNIK, M.S., kand. tekhn. nauk, red.; SAZONOV, A.G., inzh.,
red. izd-va; TIKHONOV, A.Ya., tekhn. red.

[Woodworking machinery] Derevoobrabatyvaiushchie mashiny; spra-
vochnik. Moskva, Mashgiz, 1962. 575 p. (MIRA 15:12)
(Woodworking machinery)

AFANAS'YEV, Pavel Semenovich, kand. tekhn. nauk; YANISHEVSKIY, Aleksey
Eedorovich, inzh.; KHUDYAKOVA, A.V., nauchnyy red.;
LYAL'KIN, I.A., nauchnyy red.; RYCHEK, G.I., red.; TOKER,
A.M., tekhn. red.

[Setting up woodworking machinery] Naladka derevoobrabatyva-
iushchikh stankov. Izd.2., perer. i dop. Moskva, Proftekhiz-
dat, 1962. 439 p. (MIRA 16:4)
(Woodworking machinery)

AFANAS'YEV, Pavel Semenovich, kand. tekhn. nauk; KULIKOV, I.V.,
kand. tekhn. nauk, nauchn. red.; KASHANI, L.A., red.;
DORODNOVA, L.A., tekhn. red.

[Woodworking machinery--Design and construction] Derevo-
obrabatyvaiushchie stanki. 3. izd., ispr. Moskva, Prof-
tekhizdat, 1963. 415 p. (MIRA 16:12)
(Woodworking machinery--Design and construction)

AFANAS'YEV, P.S., dots., kand. tekhn. nauk; SHEVCHENKO, Ye.P.,
nauchn. red.; KUZNETSOVA, M.I., red.

[Development of the manufacture of woodworking equipment
in the U.S.S.R. and in capitalist countries] Razvitie pro-
izvodstva derevoobrabatyvalushchego oborudovaniia v SSSR i
v kapitalisticheskikh stranakh. Moskva, 1963. 210 p.

(MIRA 17:8)

1. Moscow. Tsentral'nyy institut nauchno-tekhnicheskoy
informatsii po avtomatizatsii i mashinostroyeniyu. 2.
Tsentral'nyy institut nauchno-tekhnicheskoy informatsii
po avtomatizatsii i mashinostroyeniyu, Moskva (for Afanas'yev).

1. AFANAS'YEV, P. V.
2. USSR(600)
4. Wine and Wine Making--Filtration
7. Broader use of substitutes for non-ferrous metals, Vin. SSSR, 13, No. 1, 1953.

9. Monthly List of Russian Accessions, Library of Congress, April, 1953, Uncl.

AFANAS'YEV, Pavel Vasil'yevich

Lower the cost of bringing radio to the village. Radio no.4:7 Ap
157. (MLRA 10:5)

1. Ministr svyazi BSSR.
(Radio)

AFANAS'YEV, P.V.

Development of communications in White Russia during the seven-year plan. Vest. svyazi 19 no.11:14-15 N '59. (MIRA 13:8)

1. Minister svyazi BSSR.
(White Russia—Telecommunication)

AFANAS'YEV, P.V.

Improve the district center by training the personnel. Vest.
svyazi 20 no.11:19-20 N '60. (MIRA 13:12)

1. Ministr svyazi BSSR.
(Telecommunication--Employees)

PROCESSES AND PROPERTIES INDEX

a-1

Orientation of molecules in the surface layer of an adsorbent, and the adsorption of gases.
 I. P. V. AZARANSKY, B. A. TALMUD, and D. L. TALMUD (Acta Physicochim. U.R.S.S., 1956, 5, 843-862).—If molten palmitic acid (I) is sprayed and the droplets are allowed to cool, the surface of the particles so formed consists of Me groups ("unconverted"). If molten (I) is emulsified with H₂O at 80°, and the emulsion poured into cold H₂O, the solidified droplets have the CO₂H groups in the surface ("converted"). By dissolving (I) in paraffin wax before emulsifying, "converted" (I) is obtained with varying concns. of CO₂H groups in the surface. "Converted" (I) adsorbs much more NH₃ than does "unconverted" (I), the amount corresponding with 1800 layers of NH₃ mols. in the former case, or 0.04 mol. NH₃ per mol. (I). In paraffin solutions of "converted" (I) the amount of adsorbed NH₃ increases with dilution of (I), and at a concn. of 0.01 mol. (I) per litre, the no. of adsorbed NH₃ mols. is 16.2 times the no. of (I) mols. Since the no. of mols. of NH₃ often exceeds the no. of mols. of (I) and since desorption occurs without heating and adsorption takes place in absence of H₂O, it is almost certain that there is no chemical action between NH₃ and (I). It is probable that the surface CO₂H groups of a "converted" adsorbent are not compensated by the CO₂H of the lower layers. Such uncompensated CO₂H may exist for some distance inside the adsorbent and form adsorption planes identical with the surface layer. C. R. H.

A S T M - S T A METALLURGICAL LITERATURE CLASSIFICATION

SEARCHED										SERIALIZED										INDEXED										FILED									
[Punch holes]										[Punch holes]										[Punch holes]										[Punch holes]									

PROCESSES AND PROPERTIES

2

Catalytic oxidation of iodides by persulfates. I. The mechanism of the oxidation. P. V. Anan'ev, *J. Phys. Chem.*, **68**, 2590 (1964). The $K_2S_2O_8 + 2KI$ reaction is found to be a reaction like the $K_2S_2O_8 + 2KI$ reaction, is found to be a reaction between ions but between the undissociated, made of the reacting components. The accelerating effect of salts is merely a "secondary salt effect" due to partial dehydration. The specific catalytic effect of Cu and Fe ions is due to a speeding up of the ordinarily very slow ionic reaction. II. Homogeneous catalysis of the reaction between potassium iodide and potassium persulfate by means of organic catalysts. *Ibid.* **68**, 2597. In order to catalyze the ionic $K_2S_2O_8 + 2KI$ reaction, the catalyst must be capable of reversible oxidation-reduction. Suitable catalysts are found in the diamines in which the 2 amino groups are the proper distance apart. The accelerating effects of various catalysts were: hydrazine 11, ethylenediamine 15, pentamethylenediamine 24, phenylmethylenediamine 102, N-dimethylphenylenediamine 18, amine 14, dimethylamine 13, α -tolidine 25, benzidine 2, *p*-aminophenol 13, diphenylamine 8, *N,N'*-tetramethyl-*p*-aminodi- β -dimethylaminophenylmethane 1, *p*-aminopropylamine 11 and cysteine 17. F. H. Rathmann

A88-514 APTALLOGICAL LITERATURE CLASSIFICATION

1324 804174

131117 Oct 151

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

a-1

Catalytic oxidation of iodides by persulphates.
 III. Catalytic activity of aromatic diamines and aminophenols in relation to their structure and to the reaction conditions. IV. Influence of hydrogen-ion concentration and of the "substrate" on the activity of organic catalysts. V. Poisoning of organic catalysts by various "substrates." P. V. AVANASHEV (J. Phys. Chem. Russ., 1939, 11, 231-236; 237-241, 242-247).—III. The reaction between KI and $K_2S_2O_8$ in presence of starch and a small amount of K_2CO_3 is accelerated by $p-C_6H_4(NMe_2)_2 > m-C_6H_4(NMe_2)_2 > p-C_6H_4(NH_2) > 1:2:4-OH-C_6H_3(NH_2) > o-C_6H_4(NH_2) > p-C_6H_4(NMe_2) > 1:2:4:6-OH-C_6H_2(NH_2) > o-C_6H_4(NH_2) > p-C_6H_4(OH)_2 > m-C_6H_4(NH_2)$. The amines were used as hydrochlorides or hydrosulphates; the pH of the solution was unknown. The high catalytic activity of p -compounds as compared with that of m -compounds suggests the formation of a quinonoid form as an intermediate compound.

IV. The catalytic activity of amines depends largely on the composition of the solution. It is small in presence of borates and phosphates, and high in presence of veronal buffers. At pH 6.8-7.4 it shows a max. for all the amines investigated. The max. is especially sharp, and the activity is very high, for benzidine. $K_2S_2O_8$ poisons the catalysts.

V. $CS(NH_2)_2$, cysteine, and Et malonate lower the activity of the amines when the pH is allowed to change but do not poison the catalysts in buffered solutions. The activity of $p-C_6H_4(NMe_2)_2$ in $CS(NH_2)_2$ solutions is $>$ in $K_2S_2O_8$ solutions, but the $[H^+]$ corresponding with the max. activity is almost unchanged.

J. J. B.

ASB-11A METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS PROCESSES AND PROPERTIES INDEX 3RD AND 4TH ORDERS

Catalytic oxidation of iodide salts by persulfates. V. Poisoning of organic catalysts by different "substrates." P. V. Alkhas'ev. *Acta Physicochim. U. R. S. S. R.*, 335-42; *J. Phys. Chem. (U. S. S. R.)* 11, 242-7(1934); cf. preceding abstract.—It was found that thiocarbamide, cysteine and malonic ester do not poison org. catalysts for the oxidation of iodide salts by persulfates. Changes in the rate of the reaction are due to the change in pH of the soln. VI. The mechanism of the action of organic catalysts. *Acta Physicochim. U. R. S. S. R.*, 491-92; *J. Phys. Chem. (U. S. S. R.)* 11, 376-83(1934).—Expts. using aromatic amines indicate that the catalytic effect consists of (1) decreasing the activation energy of the electron transition in the oxidizing process and (2) decreasing the collision frequency. . . . A. A. Vernon

ASSOCIATED METALLURGICAL LITERATURE CLASSIFICATION

SUBJECTS SUBJECTS

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

PROCESSING AND PROPERTY INDEX

A-1

BC

Catalytic oxidation of iodides by persulphates. VI. Mechanism of the effect of organic catalysts.
P. V. APANASHEV (J. Phys. Chem. Russ., 1938, 11, 378-383).—It is suggested that $S_2O_8^{2-}$ oxidizes the semiquinonoid form (I) of the catalyst to its fully quinonoid form (II) which oxidizes I^- to I_2 . The reactions between $S_2O_8^{2-}$ and (I) and between (II) and I^- are quicker than that between $S_2O_8^{2-}$ and I^- because (I) and (II) are positively charged (in the case of a diazine (I) is a uni- and (II) is a bi-valent cation) and meet the anionic $S_2O_8^{2-}$ and I^- much more often than these meet together. This suggestion explains many of the results obtained (cf. A., 1938, I, 464). It is also applicable to many anionic reactions.

J. J. B.

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

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

P O R T U G A L U S S O V I E T U N I O N S P A I N I T A L Y

1ST AND 2ND EDITIONS PROCESSES AND PROPERTIES INDEX 3RD AND 4TH EDITIONS

18

CA

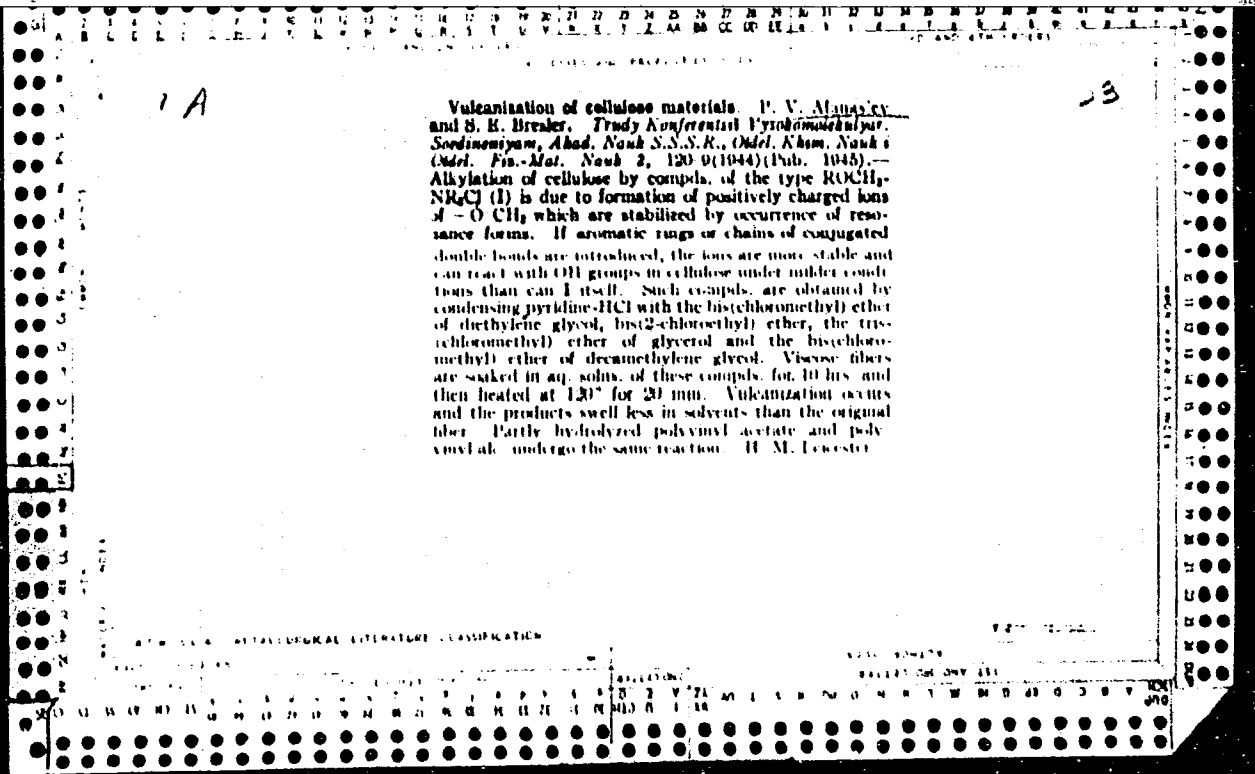
Extraction of iodine and bromine from oil well and similar brines. L. V. Almas'ev. Russ. 54,304, Jan. 31, 1939. The brines are treated with oxidizing agents, and I and Br are adsorbed by porous material satd. with a high-mol. quaternary ammonium salt, e. g., trimethyl-myrcylammonium chloride.

ASB-51A METALLURGICAL LITERATURE CLASSIFICATION

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

AFANAS'YEV, P. V.

Mbr., D. L. Talmud's Lab. Inst. Biochemistry in. A. N. Selez, Dept. Biol. Sci., Acad. Sci.
-1944-. Mbr., Inst. Physical & Chemical Researches, Leningrad, -1939-; "The
Catalytic Activity of Ferments on Organic Adsorbents," Acta Phys., 10, No. 3, 1939;
Proteins: III. A Theor. of Structural Formations of Globular & Fibrous Proteins,"
(P. V. Afanas'Yev -....- D. L. Talmud) Dok. A", 55, No. 7, 1944;
"Synthesis of Albumin-Like Substances in a Globular State," Ibid., 54, 1943.



PROCESSES AND PROPERTIES INDEX

1ST AND 2ND ORDERS 1ST AND 2ND ORDERS

CA

11A

The nature of globular proteins. III. A theory of structural transformations of globular and fibrous proteins. P. V. Afanas'ev, B. A. Talmud, and D. L. Talmud. *Compt. rend. Acad. Sci. U.R.S.S.* 55, 609-11 (1947); cf. *C.A.* 30, 1428^{1A}.—A theory and evidence are presented to explain the varying degrees of asymmetry observed in globular proteins and their reversible unfolding in certain solns. While the presence of hydrophobic side-chains tends to cause a globular shape to form, the presence of and the uneven distribution of the hydrophilic side-chains on the surface of the globule tends to cause the unfolding of the globule. For this reason, the compn. of the solvent directly affects the form of the globule. Thus the presence of dehydrating substances in the solvent should cause a decrease in the asymmetry of the globule. This was confirmed by a study of the relative viscosity (cf. Simha, *C.A.* 34, 1535^{2A}) of egg and serum albumin and gelatin at 20 and 45° in various concns. of (NH₄)₂SO₄.

W. S. Port

ASR-51A METALLURGICAL LITERATURE CLASSIFICATION

AUTHOR INDEX SUBJECT INDEX

1ST AND 2ND ORDERS 1ST AND 2ND ORDERS

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

1ST AND 2ND ORDERS 3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

CA 11A

Globular proteins. IV. P. V. Afanas'ev, B. A. Talmud, and D. L. Talmud. *Compt. rend. acad. sci. U.R.S.S.* 53, 717-18(1947)(in English); cf. C.A. 41, 8006g.—Curves are given to show the relation between the surface area of serum albumin (I) and the concn. of urea (II) in the soln. and between the rate of fermentation hydrolysis of I and the concn. of II. The similarity in

shape of the 2 curves lead the authors to conclude that the susceptibility of I to hydrolysis is detd. by the surface area of the attacked protein. Even before the protein assumes a completely globular shape, it is no longer susceptible to enzymic attack. This is due to screening of the peptide bonds by the hydrophilic side chains. A method of calc. the no. of amino acid residues in a globular mol. is discussed. For moderate elongations of I, the no. of amino acid residues in the mol. is about 600.

W. S. Port

COMMON ELEMENTS

CHEMICAL SYMBOLS INDEX

ASB. I. I. A. METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS 3RD AND 4TH ORDERS

1ST AND 2ND ORDERS 3RD AND 4TH ORDERS

CR

2

A new method for measurement of free diffusion in solutions. P. V. Afanas'ev (A. N. Bakh Biochem. Inst., Moscow). *Doklady Akad. Nauk S.S.S.R.* 58, 1383-4 (1947).—An exptl. method for the application of Wiener's equation (*Ann. Phys. Chem.* 49, 103(1893)) in the coordinate system dn/dx and n (n is refractive index and x the height of the soln. layer) was developed. The dn/dx factor is obtained on the vertical axis as a result of the striation effect, whereas the n component appears on the horizontal axis as a result of refraction produced by the diffusion cell constructed in triangular shape (horizontal section); the solvent is layered onto the soln. in the cell, and the image of the point source of light is stretched by the diffusion layer into the curve with coordinates dn/dx and n . It is most satisfactory to use a square cell with diagonal partition, one of the compartments being filled with pure solvent; this provides a differential method of measurement. Application of Wiener's equation to the system is discussed in detail.
G. M. Kosolapoff

1ST AND 2ND ORDERS PROCESSES AND PROPERTIES INDEX 3RD AND 4TH ORDERS

11A

CA

The nature of enzyme activity. P. V. Alfans'ev. (polymerization states up to 1224) show that these can be well fitted into a scheme of hydrolysis in which the surface energy changes overshadow the energy of peptide bond cleavage; at polymerization state of 1224, degree of asymmetry making feasible a di-spherical cleavage is but 1.7-7.0. The degree of enzymic susceptibility as dependent on a degree of asymmetry of a globule can be also considered in this manner, which explains the relative stability of native proteins and proteins in presence of reagents like capric acid which increases the degree of symmetry, whereas denaturing substances which increase the degree of asymmetry enhance enzyme activity. Similar concepts are examd. to explain the mode of enzyme action; if substrate mols. are bifunctional, they lead to formation of (enzyme)-substrate aggregates; under conditions energetically unfavorable to such fusion, the complexes are unstable and the decompn. leads to the breakdown of the substrate mol. Thus the protein part of the enzyme plays a simple but important role in enzyme action.

G. M. Kosoapoff

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS 3RD AND 4TH ORDERS

1ST AND 2ND ORDERS	3RD AND 4TH ORDERS	1ST AND 2ND ORDERS	3RD AND 4TH ORDERS
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z	A B C D E F G H I J K L M N O P Q R S T U V W X Y Z	A B C D E F G H I J K L M N O P Q R S T U V W X Y Z	A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

PROCESSES AND PROPERTIES INDEX

23

CA

Vulcanization of cellulosic materials. P. V. Afanas'ev and S. E. Bresler. *Kolloid. Zhur.* 10: 240-28(1948).-- Viscose threads were immersed for 10 hrs. in 5-20% aq. soln. of $(C_2H_5NCl_2CH_2O)_n$ (I), heated for 20 min. at 120°, washed with H_2O , and dried at room temp. These "vulcanized" threads had the tensile strength (σ) of, and the same extension in dry air as, untreated threads, but their extension in moist air was much smaller. Filter paper soaked in 2% soln. of $(C_2H_5NCl_2CH_2O)_n$ (I), CH_2O , CH_2NCl_2 , and heated at 120° for 25 min. had σ which in dry air was approx. 2 and in moist air approx. 1000 times that of untreated paper; also the modulus of elasticity of paper was increased by vulcanization. Vulcanized cellulose was not sol. in Schweizer reagent. The soly. and swelling of polyvinyl acetate and polyvinyl alc. were reduced by I. Several compds. contg. the CH_2O - CH_2Cl group were synthesized but not described.

T. T. Bickernan

ASB-51A METALLURGICAL LITERATURE CLASSIFICATION

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	00
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

CA

115

Mechanism and kinetics of enzyme synthesis. P. V. Alanas'ev. *Biochimiya* 14, 421-31(1979); cf. C. I. 41, 6905g; 43, 7520a; 44, 676f. --In enzyme synthesis, the active complex [enzyme]-substrate combines with another mol. of the substrate. The kinetic equation of the synthetic process represents a symmetrical function, in contrast to the unsymmetrical function for the hydrolytic process. This has been verified experimentally in the hydrolysis and resynthesis (at 6000 atm.) of egg albumin by trypsin. Ordinarily, when a protein has been completely hydrolyzed, enzyme synthesis (at high pressure) is no longer possible. However, synthesis in this case can still be achieved by changing the pH in the direction of the isoelec. point of the enzyme, or by the addn. of caprylic acid, which improves the symmetry of the enzyme mol. Hydrolysis of gelatin by trypsin is also more complete in the presence of caprylic acid. H. Priestley

CM

110

Factors which influence the rate of enzymic processes and the activity of enzymes. P. V. Afanas'ev and Yu. N. Il'ina. *Izvest. Akad. Nauk S.S.S.R., Ser. Biol.* 1949, 405-508; cf. *C.A.* 43, 7526a.—The rate of sucrose hydrolysis by invertase is linear in respect to enzyme concn.; a lower limit of the latter exists below which the rate is zero. This limit depends on substrate concn.: 0.005% at 0.4 mole/l. to less than 0.001% at 0.01 mole/l. The enzyme activity also depends on substrate concn. and has a limiting max. value reached at about 0.25 mole/l. The influence of H ion concn. in the alk. region on the reaction rate is ascribed to decreased concn. of undissocd. part of the enzyme; the decrease is apparent at H ion concn. 4×10^{-7} . The effect of salts (Na_2SO_4) which slowly declines the enzyme activity may be ascribed to physico-chem. changes in the enzyme proper, the same being the case with addenda such as urea. The complex temp. effect must be due to complexity of the reactions involved. The data from which the theoretical considerations are made were drawn from earlier work. 18 references. G. M. K.

AFANAS'YEV, P. V.

Doc Biolog Sci

Dissertation: "On the Nature and Kinetics of Fermentation Processes."
29/5/50

Inst of Biochemistry imeni A. N. Bakh, Acad Sci USSR

AFANAS'EV F.V. AND IL'INA YU. N.A.N.

3965. Afanas'ev F.V. and Il'ina Yu. N.A.N. Dokl. Biochem. Inst., Acad. Sci. U.S.S.R. Moscow. Determination of concentration and activity of enzymes, Izvest. Akad. Nauk S.S.S.R., Ser. biol. 1950, 4, (20-30)

The generally used methods for determination of enzymes concentration used in enzymology are shown to be inadequate by mathematical analysis of the kinetics of the reactions involved. The determination of conversion extent over determined periods of time, i.e. reaction rate, cannot give correct relation between reaction rate and concentration of enzyme. The use of differentials to express instantaneous rates is discussed as the only suitably precise method of activity and concentration determination. Analysis of invertase in this manner showed clearly that in thermal inactivation the residual enzyme retains activity fully equivalent to that of the original specimen. As temperature is raised from 25° to 65° enzyme activity rises, as does the retardation of reaction by the products of the reaction.

Dosolapoff - (Chemical Abstracts)

SO. Excerpta Medica Section II Volume 4 Number 8

C n

11A

Temperature optimum of invertase activity. P. V. Afanas'ev and Yu. N. Il'ina. *Doklady Akad. Nauk S.S.S.R.* 75, 71-3(1960); cf. *C.A.* 44, 676f.—The optimum character of the dependence of the rate of enzymic reaction on temp.

is not caused by thermal inactivation of the enzyme; the latter merely distorts the optimum character of the dependence that is dictated by kinetic peculiarities of the particular reaction. If the rate equation for invertase (*C.A.* 43, 7520a) is combined with the expression for unimol. thermal inactivation, it is shown that at $t = 0$ (i.e. at initiation of the reaction) thermal inactivation does not affect the rate of the enzymic reaction and comparison of the initial reaction rates in invertase-sucrose systems at various temps. (shown graphically from 10° to 70°) in acetate buffer at pH 4.63 still displays a max. of reaction rate at 55°, although the shape of the curve is somewhat different from that obtained by the usual plot of the total amt. of conversion per unit of time vs. temp. Logarithmic plot of initial reaction rates vs. $1/T$ give linear dependence only at low temps., while at moderate temp. a sharp deviation is observed and the curve shows a sharp min. The results cannot be explained by mere thermal inactivation of the active principle.
G. M. Kosolapoff

AFANAS'YEV, P.V.; TALMUD, D.L.

Possible ways of biosynthesis of protein. Izv. Akad. nauk SSSR. Ser.
biol. no.6:115-120 Nov-Dec 51. (CML 21:5)

1. Presented by Academician A.I. Oparin. 2. Institute of Biochemistry
imeni A.N. Bakh, Academy of Sciences USSR.

AFANAS'YEV, P. V. and TALMUD, D. L.

"Possible Ways of Biosynthesis of Protein," Iz. AN SSSR, Ser. Biol., No.1, 1952

AFANAS'YEV, P.V.

Theory of biochemical processes in liver organism and processes generating ascending current in plants. Izv. Akad. nauk SSSR; Ser. biol. no.3:64-73
May-June 1953. (GIML 25:1)

1. Institute of Biochemistry imeni A. N. Bakh of the Academy of Sciences
USSR.

~~AFANSEY~~
AFANSEY, F.K.

USSR

Reaction of globular proteins with esters of α -amino acids
 P. V. Afanas'ev, B. A. Talmud, and D. I. Palmud. *Doklady Akad. Nauk S.S.S.R.* 90, 619-22(1953); cf. *C.A.* 47, 1169f. — Treatment of egg albumin in phosphate buffer at pH 7.5 with $H_2NCH_2CO_2Et$ in 1:2 molar ratio and incubation at 37° led to gradual decline of pH to 4.5, with reduction in the content of acidic groups of the protein. Dialysis and paper chromatography of the product showed the liberation of 21% of aspartic acid (based on total content of it in the protein). The dialyzed product was hydrolyzed, yielding 4.20% glycine, in comparison with 3.13% in the initial albumin, which corresponds to the amt. of displaced aspartic acid. Probably the ester is hydrolyzed, with transesterification being the concurrent reaction in which glycine replaces aspartic acid in the protein. G. M. Kosolapoff

USSR/ Chemistry - Biochemistry

Card 1/1 Pub. 22 - 28/54

Authors : Afanasyev, P. V., and Mosolov, V.V.

Title : ~~Combined action of ferments~~
Combined action of ferments

Periodical : Dok. AN SSSR 100/3, 507-510, Jan 21, 1955

Abstract : Theoretical investigations were conducted to determine the combined effect of two ferments (biological catalysts) catalyzing one and the same chemical process and to establish whether the catalytic effect will considerably deviate from the total effects produced by individual ferments. The results obtained are described. Eight references: 4 USSR, 1 USA and 3 German (1898-1950), Table, graph.

Institution : Academy of Sciences USSR, The A. N. Bakh Institute of Biochemistry

Presented by: Academician A. I. Oparin, October 20, 1954

A. S. A. N. A. S. 'y. e. u., P. V.

INIKHOV, Georgiy Sergeyevich, zasluzhennyy deyatel' nauki i tekhniki, doktor khimicheskikh nauk; AZIMOV, G.I., retsenzent; ~~AFANAS'YEV, P.Y.~~, retsenzent; GLAGOLEV, Yu.F., retsenzent; D'YACHENKO, P.F., retsenzent; KRSTOVICH, V.L., spetsredaktor; AKIMOVA, L.D., redaktor; GOTLIB, E.M., tekhnicheskii redaktor

[Biochemistry of milk] Biokhimiia moloka. Moskva, Pishchepromizdat, 1956. 342 p. (MLRA 10:3)
(MILK--ANALYSIS AND EXAMINATION)

A P H I O T T O Y E V , T I T

AUTHORS Afanas'yev, P.V. and Shul'mina, A.I. 20-4-35/60

TITLE On the Mechanism of the Action of Catalase.
(O mekhanizme deystviya katalazy.)

PERIODICAL Doklady Akademii Nauk SSSR, 1957, Vol. 115, Nr 4,
pp. 759-762 (USSR)

ABSTRACT A great number of investigations were devoted to the study of the catalase process. The current conceptions on the kinetics and the mechanism of the action of catalase, however, are unsatisfactory. Especially strange is the incongruity of the most widely spread schemes with the experimentally obtained data and with the concepts of the newer chemical kinetics. In the latter the problem of composition, structure and properties of the activated transition complex is fundamental. Equally fundamental in enzymology is an analogous problem concerning the transition complex of the enzyme with the substratum. The mechanism of the enzymatic process of catalase and that of the thermal, catalytic and photochemical decomposition of hydrogen peroxide are no doubt related with each other and essentially contain equal terms. According to Semenov the linear structure of the transition complex and the participation of free

CARD 1/4

20-4-35/60

On the Mechanism of the Action of Catalase.

radicals, as intermediate reaction products, are of great importance. In the case of suitable mechanism, sufficiently deep activation barriers of the reaction can be imagined. The free radicals, similar to the neutrons on the occasion of nuclear transformation of atoms, enter almost without activation energy into a close interaction with the molecules and considerably increase their reactivity. The decomposition of hydrogen peroxide can, according to a number of characteristics, be classified with the class of branched chain reactions. A probable scheme with participation of the free radicals OH and HO₂ is given. It is obvious that an increase in the speed of development of one or the other of the two free radicals accelerates the reaction. But the tests of a simple transference of the data and conceptions of the chemical kinetics to the enzymatic catalysis failed. The authors believe that additional assumptions are necessary for understanding the mechanism of the enzymatic catalysis. The theory expects the appearance of a higher hydrogen peroxide in the process of catalase (comp. Bakh). Emanuel' and Kruglyakova proved the formation of a considerable concentration of an

CARD 2/4

20-4-35/60

On the Mechanism of the Action of Catalase.

intermediate product (HO_2) which can permanently maintain itself in the solution (in form of H_2O_4). The formation of the higher peroxide in the process of catalase must also manifest itself in an incomplete separation of oxygen. The non-decomposed peroxide must contain more oxygen than is necessary for a normal peroxide. In their search for a convenient and reliable method the authors remained at a combination of:

- 1) Permanganate titration of peroxide, and
- 2) a somewhat modified Winkler method. The difference between the data of the two methods yields the quantity of the higher peroxide. Fig. 1 gives data on the values in time according to the two methods on the composition of peroxides of the reacting mixture (curves of types 1 and 2), the curve 3 = 2, i.e. to the content of the higher peroxide. Fig. 2 records the dependence of the moment at which the optimum concentration is reached on the concentration of the enzyme. A satisfactory inverse dependence of the optimum moment on the concentration of the catalase is obvious. Thus the obtained experimental data are in good agreement with theoretical

CARD 3/4

20-4-35/60

On the Mechanism of the Action of Catalase.

expectations. The performed investigations indicate a relationship of the catalase process with that of the decomposition of peroxide. Although this process fundamentally contains the same terms, it has its peculiarity: since it takes place under participation of free radicals, it possesses not all characteristic properties of the chain processes. There are 1 figure, and 9 Slavic references.

ASSOCIATION: Institute for Biochemistry AN USSR imeni A.N. Bakh.
(Institut biokhimii imeni A.N. Bakha Akademii nauk SSSR)

PRESENTED: By A.I. Oparin, Academician, May 9, 1957

SUBMITTED: May 6, 1957

AVAILABLE: Library of Congress.

CARD 4/4

AFANAS'YEV, P.V.; YAKOVLEV, V.G.; FRENKEL', G.L.; KHMEL'NITSKAYA, Z.D.

Biochemistry of thermal traumas. Izv. AN Kir. SSR no.5:121-131
'58. (MIRA 11:7)
(Cold--Physiological effect) (Heat--Physiological effect)

APANAS'YEV, P.V.; YAKOVLEV, V.G.; DENISOVA, I.S.

Biochemistry of radiation injury. Izv.AN Kir.SSR. Ser.biol.nauk
1 no.1:65-75 '59. (MIRA 13:6)
(RADIOACTIVITY--PHYSIOLOGICAL EFFECT)

17(3)

AUTHORS:

Shul'mina, A. I., Afanas'yev, P. V.

SOV/20-124-6-46/55

TITLE:

On the Catalase Process (O katalaznom protsesse)

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol 124, Nr 6, pp 1347-1349
(USSR)

ABSTRACT:

In the catalase process a higher hydrogen peroxide (X_4) is formed as intermediate product (Ref 1). The existence of this product in time must be subjected to the stationary laws. This period of time which corresponds to the maximum accumulation of X_4 must depend only on the concentration of the peroxide $H_2O_2(S)$. According to the scheme of catalase process suggested by the authors (Ref 1), the dependence of the resulting X_4 on the S -concentration can be derived (1). From this the dependence of the concentration of the free ferment F_0 on the concentration of the substrate S (2) is further derived. By substitution of (2) into (1) the dependence of the X_4 -concentration on the total concentration of the ferment F_0

Card 1/3

SOV/20-124-6-46/55

On the Catalase Process

and on the substrate concentration $S(t)$ is determined, k_1, k_2, k_3, k_4 and k_5 being the rate constants of the corresponding reactions. The function (3) has its maximum at a positive real value of S . Thus the X_4 -concentration, which is formed in the catalase process, attains its maximum at a certain S -concentration. It was the purpose of the present paper to investigate experimentally and theoretically the dependence of the X_4 -concentration on the concentration S . Figure 1 presents data on the concentration of higher peroxide (determination method as described in Ref 1) on the basis of experimental kinetic curves $S(t)$. As may be seen, the concentration formed in the catalase process is largely dependent on the concentration of the substrate H_2O_2 . Figure 2 shows the dependence of the maximum concentration of higher peroxide on the H_2O_2 -concentration. Accordingly, experimental data are in good accordance with theoretical expectations. Figure 3 shows the dependence of the initial rate of the catalase process on the initial concentration of H_2O_2 as determined by graphic differentiation. It indicates that the rate of the

Card 2/3

On the Catalase Process

SOV/20-124-6-46/55

catalase process is really dependent on the substrate concentration as was expected. From figure 4 the supposed parallelism between the dependence of the rate of the catalase process on the substrate concentration on the one hand and the dependence of the concentration of higher peroxide on the same concentration on the other may be seen. It may be concluded from the above data that the mechanism suggested reflects to a certain extent the real catalase process. There are 4 figures and 3 Soviet references.

ASSOCIATION: Institut biokhimii im. A. N. Bakha Akademii nauk SSSR
(Institute of Biochemistry imeni A. N. Bakh of the Academy of Sciences, USSR)

PRESENTED: October 25, 1958, by A. L. Kursanov, Academician

SUBMITTED: June 9, 1958

Card 3/3

AFANASYEV, P. V., and SOKOLOVA, YE. V. (USSR)

"The Pyrophosphatase Properties of Metallic Ions."

Report presented at the 5th International Biochemistry Congress,
Moscow, 10-16 Aug 1961

IVANOV, Jordan Dechev; AFANAS'YEV, P.V., doktor biolog. nauk, otv. red.;
GORBACHEVA, L.B., red. izd-va; UL'YANOVA, O.G., tekhn. red.;
GOLUB', S.P., tekhn. red.

[Polarography of proteins, enzymes, and amino acids] Poliarografiia belkov, enzymov i aminokislot. Moskva, Izd-vo Akad. nauk SSSR, 1961. 254 p. (MIRA 15:1)

(Proteins)

(Enzymes)

(Amino Acids)

MOSOLOV, V.V.; SKARLAT, I.V.; AFANAS'YEV, P.V.

Nature of the effect of incomplete proteolysis products on the
development of microbial cultures. Biokhimiia 27 no.2:219-224
'62: (MICA 15:8)

1. Institute of Biochemistry, Academy of Sciences of the U.S.S.R.,
Moscow.

(PROTEINS) (PEPTIDES)
(BACTERIOLOGY--CULTURES AND CULTURE MEDIA)

MOSOLOV, V.V.; SKARLAT, I.V.; AFANAS'YEV, P.V.

Peptide transformations in the presence of "pH-5-enzyme" preparations.
Biokhimiia 28 no.3:418-425 My-Je '63. (MIRA 17:2)

1. Institute of Biochemistry, Academy of Sciences of the U.S.S.R.,
Moscow.

MOSOLOV, V.V.; SKARLAT, I.V.; AFANAS'YEV, P.V.

Interaction of peptides with some preparations of "pH 5-enzymes."
Dokl. AN SSSR 148 no.3:708-711 ^J_a '63. (MIRA 16:2)

1. Institut biokhimii im. A.N. Bakha AN SSSR. Predstavleno
akademikom A.I. Oparinym.
(PEPTIDES) (ENZYMES)

AFANAS'YEV, P.V.; KANAYEVA, A.M.

For well organized work in telecommunication enterprises. Vest.
svyazi 23 no.7:7-9 J1 '63. (MIRA 17:2)

1. Ministr svyazi BSSR (for Afanas'yev). 2. Sekretar' Tsentral'nogo komiteta professional'nogo soyuza rabotnikov svyazi, rabochikh avtomobil'nogo transporta i shosseynykh dorog (for Kanayeva).

AFANAS'YEV, P.V.; YAKOVLEV, V.G.

Some problems of the theory of spot seeding. Izv. AN SSSR
Ser. biol. 28 no.4:594-604 J1-Ag'63 (MIRA 16:11)

1. Institute of Biological Chemistry, Academy of Sciences of
the U.S.S.R., Moscow.

*

MOSOLOV, V.V.; AFANAS'YEV, P.V.

Effect of fatty acids on the enzymatic properties of trypsin.

Dokl. AN SSSR 152 no.3:748-750 S '63.

(MIRA 16:12)

1. Institut biokhimii im. A.N.Bakha AN SSSR. Predstavleno
akademikom A.I.Oparinym.

*

TALMUD, B.A.; IL'INA, Yu.N.; AFANAS'YEV, P.V.

Quantitative determination of protein from the catalytic
action of copper of the biuretic complex. Dokl. AN SSSR
154 no.4:963-966 F '64. (MIRA 17:3)

1. Institut biokhimii im. A.N. Bakha AN SSSR. Predstavleno
akademikom A.I. Oparinym.

SKARLAT, I.V.; MOSOLOV, V.V.; AFANAS'YEV, P.V.

Participation of peptidases in the process of transformation of peptides
in the presence of aminoacyl-S RNA-synthetase. Dokl. AN SSSR 158 no.2:
477-479 S '64. (MIRA 17:10)

1. Institut biokhimi im. A.N.Bakha AN SSSR. Predstavleno akademikom
A.I.Oparinym.

IL'INA, Ya.N.; TALMIB, B.A.; SPANAS'YEV, P.V.

Determining microquantities of cysteine and glutathione by iodide
persulfate reaction. Izv. Akad. Nauk SSSR, Ser. Biol. i med. Biol. i no. 8:352-355
My-56 '65. (MIRA 18:7)

I. Institut biokhimi i imeni Bakha AN SSSR.

TAIMOV, B. I.; KRYAZHEV, F. V.

Methods of rapid mineralization of animal and vegetable materials for the quantitative determination of nitrogen. Prikl. biokhim. i mikrobiol. 1 no.2:227-232 Mr-Apr '65.

(MIRA 18:11)

I. Institut biokhimii imeni A.N.Bakha AN SSSR, Moskva.

AFANAS'YEV, P.V.

Completion of wire broadcasting networks in White Russia. Vest,
svyazi 25 no.5:22-23 My '65. (MIRA 18:5)

1. Ministr svyazi BSSR.

SKARLAT, I.V.; MOSOLOV, V.V.; AFANAS'YEV, P.V.

Nature of peptidases contained in the preparations of pH5-
enzymes from the rat liver. Biokhimiia 29 no.5:964-968
Jl-Ag '64. (MIRA 18:11)

1. Institut biokhimii imeni Bakha AN SSSR, Moskva.

AFANAS'YEV, S., inzh.; SAL'NIKOV, A., inzh.

Fuller use of hidden potentialities. Pozh.delo 6 no.2:20
F '60. (MIRA 13:5)
(Fire departments--Equipment and supplies)

AFANAS'YEV, S.

USSR (600)

Milk

Work of the skimmed milk industry in 1951 and tasks for 1952. Mol. prom 13
no. 5 1952.

9. Monthly List of Russian Accessions, Library of Congress, August 195~~1~~², Uncl.
2

AFANAS'YEV, S. (g. Bryansk)

Mechanized laying out of cloth. Prom.koop. no.1:27 Ja '57. (MIRA 10:4)

1. Tekhnolog konstruktorsko-tehnologicheskogo byuro Bryanskogo
promsoвета.

(Clothing industry--Equipment and supplies)

AFANAS 'YEV, S.

Take care of the valuable fruits of technical inventiveness. Izobr.1
rats. no.2:24-26 F '59. (MIRA 12:3)

1. Predsedatel' Leningradskogo sovnarkhoza.
(Efficiency, Industrial)

AFANAS'YEV, S.

Initiative of five Leningrad enterprises. Sots. trud 6 no.8:
94-101 Ag '61. (MIRA 14:8)
(Leningrad Economic Region--Socialist competition)

VORONIN, A. (Tula); AFANAS'YEV, S. (Tula)

A year and a half has passed... Prom. koop. 12 no.10:20-21 0 '58.
(MIRA 11:10)

1. Predsedatel' pravleniya oblpromsoveta (for Voronin). 2. Zamestitel'
predsedatelya pravleniya oblpromsoveta (for Afanas'yev).
(Tula Province--Service industries)

AFANAS'YEV, S., referent

New converter department at the Vöest Plant in Linz [from "Eisen
und Stahlwerke," no. 1, 1958, no. 4, 1959]. Metallurg 5 no.7:38-39 J1 '60.
(Linz, Austria--Metallurgical plants) (MIRA 13:7)

AFANAS'YEV, S.

Lengthen the service life of fire hose. Pozh.delo 8 no.7:25
J1 '62. (MIRA 15:8)

(Hose)