

BOGDANOV, G.

USSR/Miscellaneous - Rural radio

Card 1/1 Pub. 89 - 6/27

Authors : Bogdanov, G.; Belaya, E.; and Golutzkiy, I.

Title : Radio in new agricultural districts

Periodical : Radio 1, 10-11, Jan 1955

Abstract : An increase in the number of radio centers at collective farms and villages in new agricultural districts of Altai and Kazakhstan regions is pointed out. Also, an increase in the number of individual radio receiving sets among the collective farm workers of the same district is reported. The Kytmanovsk and Volchikha districts of Altai region and Kytmanovsk region are mentioned.

Institution:

Submitted :

BOGDANOV, G.
~~BOGDANOV, G.~~; KOMOV, A.; LIEPA, Yu.

Shock absorbers of the "Moskvich-402" automobiles. Avt. transp. 36
no.1:24-25 Ja '58. (MIRA 11:1)

1. Moskovskiy karburatornyy zavod.
(Automobiles--Shock absorbers)

L 16911-63

EPR/EPP(c)/EWP(q)/EWT(m)/BDS

AFFTC

PS-4/Pr-4 WN/JW/JD

S/076/63/037/004/002/029

AUTHOR: Savina, M., Bogdanov, G., Petrova, G. L., and Yurchenko, G. K. 69TITLE: Catalytic decomposition of H_2O_2 under the combined action of sodium molybdate and salts of the elements of the zinc subgroup. I 68

PERIODICAL: Zhurnal fizicheskoy khimii, V. 37, No. 4, 1936, 746-752

TEXT: The article examines the combined effect of zinc sulfate and sodium molybdate on the catalytic decomposition of H_2O_2 in neutral and acid media. Zinc sulfate retards the rate of the decomposition of H_2O_2 by sodium molybdate, the catalytic process being the slower, the higher the concentration of $ZnSO_4$. The reaction is of the first order regardless of the temperature and of the hydrogen ion and substrate concentration. The activation energy is 12.3 Kcal/mole. The electroconductivity under all conditions diminishes as the decomposition of H_2O_2 progresses. The change in electroconductivity and in the rate of catalysis is determined by the concentration and nature of the intermediate products which are formed in the solution. New zinc peroxomolybdates with very high decomposition constants ($ZnMoO_4 \cdot nH_2O$ or $ZnMoO_4 \cdot 2H_2O_2 \cdot nH_2O$ and $ZnMoO_5 \cdot nH_2O$ or $ZnMoO_4 \cdot H_2O_2 \cdot nH_2O$) have been isolated. The experimental results indicate that the retarding action of the zinc ions is due to the low equilibrium constant of zinc

Card 1/2

L 16911-63

S/076/63/037/004/002/029

Catalytic decomposition of H₂O₂ ...

peroxomolybdates which are the intermediate products in the catalytic reaction.
There are 4 figures and a table.

ASSOCIATION: Moskovskiy tekstil'nyy institute (Moscow Textile Institute)

SUBMITTED: February 3, 1962

Card 2/2

SUN' PAN'-SHOY [Sun P'an-shou]; LI VEN'-YAN' [Li Wen-yen]; LI MU-CHZHEN'
[Li Mu-chên]; LYATOKHO, V.P. [translator]; KOTOV, A.V. [translator];
BOGDANOV, G.A. [translator]; POTAPENKO, F.I. [translator]; SUN' TSZIN-
CHZHI [Sun Ching-chih], *otv. red. kitayskogo izdaniya*; MIKHAYLOV, A.F.,
otv. red.; KHAR'KOVSKAYA, L.M., *tekh. red.*

[Central China] Tsentral'nyi Kitai. *Otv. red. kitaiskogo izd. Sun
Ching-chih. Moskva, Izd-vo inostr. lit-ry, 1961. 436 p.*
(MIRA 14:10)

(China—Economic geography)

LINEV, S.; BOTVIN, N. (Vologodskaya obl.); LISTOPAD, G. (Vologodskaya obl.);
SHIBAYEV, V. (Volgograd); BOGDANOV, G., pomoshchnik instruktora
profilaktiki (Kuybyshevskaya obl.); PANOV, A., pomoshchnik
instruktora profilaktiki (Kuybyshevskaya obl.); GRINKEVICH, S.
(Novosibirskaya obl.); SLUPKO, A. (Karel'skaya ASSR); LAVRENKOV, I.
(g. Vladimir) sibirskaya

Readers' letters. Pozh.delo 8 no.5:29 My '62. (MIRA 15:5)

1. Glavnyy inzh. lesoperevalochnoy bazy, pos.Malinovka, Kemerovskaya
obl. (for Linev).

(Fire prevention)

KHRABROV, I.; BOGDANOV, G.

Imperfections of the stern tube arrangement on the motorship
"Murmanets." Mor.flot 23 no.2:33 F '63. (MIRA 16:2)

1. Starshiy gruppovoy inzh.-mekhanik Murmanskogo portovogo flota (for Khrabrov).
2. Starshiy inzh. otдела tekhnicheskogo kontrolya Murmanskogo portovogo flota (for Khrabrov).
(Motorships--Design and construction)

DANILENKO, I.A.; BOGDANOV, G.A., kand. sel'khoz. nauk; GRIGOR'YEV, Ye.P.,
red.; YELIZAVETSKIY, V.S., tekhn. red.

[Corn and sugar beets in swine feeding] Kukuruz i sakharnaia
svekla v kormlenii svinei. Moskva, Sel'khozizdat, 1962. 229 p.
(MIRA 15:6)

1. Chlen-korrespondent Vsesoyuznoy akademii sel'skokhozyaystven-
nykh nauk im. V.I.Lenina (for Danilenko).
(Swine--Feeding) (Corn as feed) (Sugar beets as feed)

BOGDANOV, G.A.

~~BOGDANOV, G.A.~~, mladshiy nauchnyy sotrudnik.

Effectiveness of supplementary microelement feeding to calves.
Zhivotnovodstvo 20 no.1:42-46 Ja '58. (MIRA 11:1)

1. Nauchno-issledovatel'skiy institut zhivotnovodstva Lesostepi i
Poles'ya USSR.

(Calves--Feeding and feeding stuffs) (Trace elements)

DANILENKO, I.A.; BOGDANOV, G.A., kand.sel'skokhoz.nauk

Protein nutrition of swine receiving potato-corn meat-making rations. Zhivotnovodstvo 21 no.10:30-37 0 '59.
(MIRA 13:2)

1. Chlen-korrespondent Vsesoyuznoy akademii sel'skokhoz.nauk imeni V.I.Lenina i Ukrainskoy akademii sel'skokhoyaystvennykh nauk (for Danilenko).
(Swine--Feeding and feeds) (Potatoes as feed)
(Corn as feed)

BOGDANOV, G.A.

Feeding of some fishspecies in Ust'-Kamenogorsk Reservoir. Sbor.rab.
po ikht. i gidrobiol. no.2:234-244 '59. (MIRA 12:11)
(Ust'-Kamenogorsk Reservoir--Fishes--Food)

CHABAN, A.P.; BOGDANOV, G.A.

Find of the common bullhead (*Cottus gobio* Linne) in the Irtysh
Basin. Zool.zhur. 39 no.7:1102 JI '60. (MIRA 13:7)

1. Altai Ichthyological Station of the Institute of Zoology, Academy
of Sciences of the Kazakh S.S.R.
(Irtysh River--Sculpin)

BOGDANOV, G.A.

Variations of the fatness factor in the White Sea herring in
relation to the state of its sexual products. Dokl. AN SSSR 144
no.3:652-655 My '62. (MIRA 15:5)

1. Institut morfologii zhivotnykh im. A.N. Severtsova AN SSSR.
Predstavleno akademikom Ye.N. Pavlovskim.
(White Sea--Herring)

PROCESSES AND PROPERTIES INDEX

a-1

BC

Effect of more than one catalyst on a reaction in a homogeneous medium. I. Catalytic decomposition of hydrogen peroxide in presence of molybdenum and iron salts of the same kind. G. A. Landauer and M. N. Patai, *J. Gen. Chem. Assoc.*, 1942, 1A, 269-280. Although Na molybdate and $FeSO_4$ have, singly, little or no effect on the decomp. of H_2O_2 in acid solution, they show a strong catalytic action in combination. The reaction velocity is independent of the initial concn. of H_2O_2 and approx. \propto the product of the concns. of the salts and approx. $\propto [H^+]$ within the range of concn., 0.01961-0.05484M, of H_2SO_4 . It is suggested that H_2O_2 reacts reversibly with Na molybdate to form a per-compound which is then decomposed irreversibly in presence of Fe salts, giving O_2 and regenerating the catalyst. Experiments with Na permolybdate (stated to be Na_2MoO_6) in place of H_2O_2 , yield the same types of kinetic curves. G. S. S.

Sub. Gen. Chem., Moscow State U. in. Molotov
Sub. Chem. Kinetics + Catalysis, AS USSR

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

SEARCHED	INDEXED	ABSTRACTED	REPRODUCED

BOGDANOW, G. A.

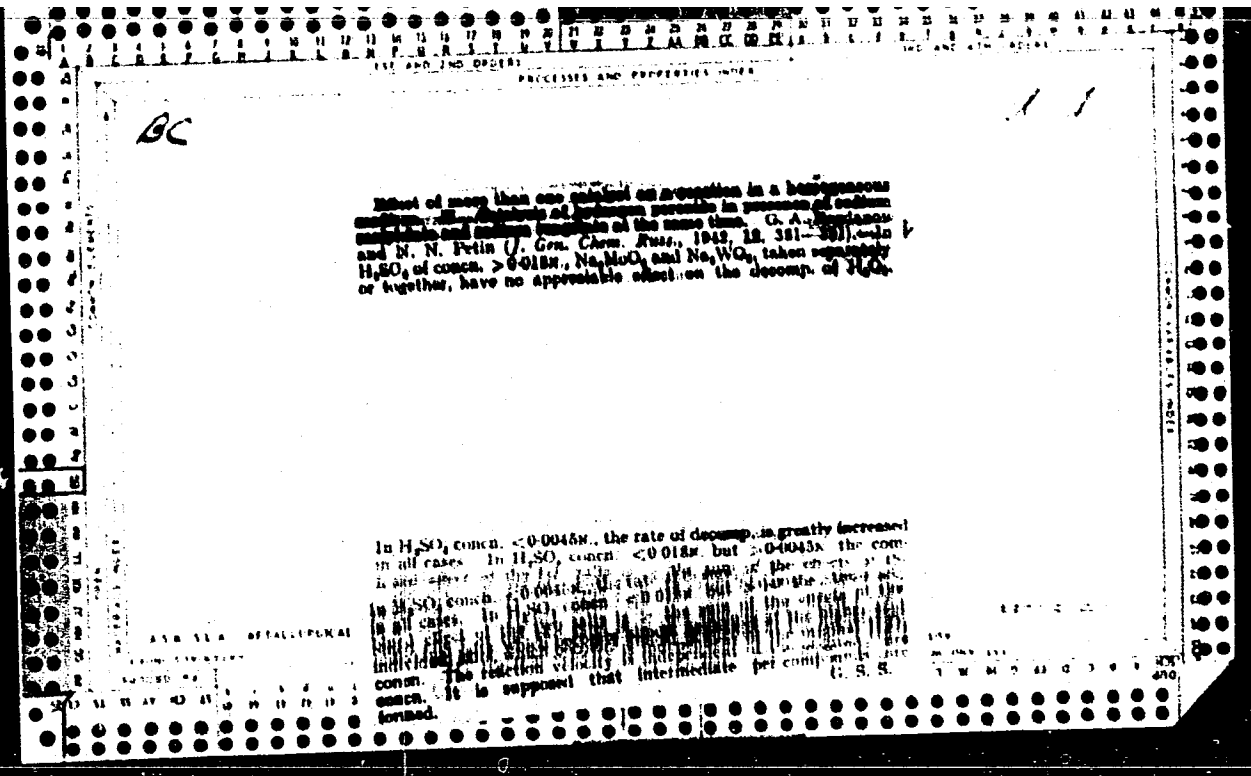
"A contribution to the problem of the effect of several catalysts upon the same reaction in homogeneous medium. I. Catalytic decomposition of hydrogen peroxyde during a simultaneous presence of the salts of molybdenum and iron." Bogdanow, G. A., and Petin, N. N. (p. 379)

SO: Journal of General Chemistry (Zhurnal Obshchei Khimii) 1942, Vol 12, No 7-8.

BOGDANOV, G. A.

"A contribution to the problem of the effect of several catalysts upon the same reaction in homogeneous medium. II. Catalysis of hydrogen peroxide in the simultaneous presence of sodium molybdate and wolframate." Bogdanov, G. A., and Petin, N. N. (p. 390)

SO: Journal of General Chemistry (Zhurnal Obshchei Khimii) 1942, Vol 12, No 7-8.



111 AND 2ND CROSS

PERIODIC AND PROPERTIES INDEX

111

Bc

Effect of more than one catalyst on a reaction in a homogeneous medium. III. Simultaneous effect of Na_2MoO_4 and CuSO_4 on the catalytic decomposition of hydrogen peroxide at relatively high acid concentrations. IV. Catalytic decomposition of hydrogen peroxide in presence of Na_2MoO_4 and CuSO_4 at the same time under conditions of relatively low acid concentration. G. A. Bogdanov and N. N. Putin (J. Gen. Chem. Russ., 1942, 13, 599-600, 601-618). -- Na_2MoO_4 and CuSO_4 in combination they show a strong catalytic action which attains its max. val. in 0.0001M- H_2SO_4 . The reaction order changes with $[\text{H}^+]$. In 0.00294M- H_2SO_4 an initial first-order reaction drops rapidly to one of nearly zero order. In 0.0001M- H_2SO_4 the kinetic curve has a max. and the rate of decomp. is the greater the lower is the original $[\text{H}_2\text{O}_2]$. In 0.001M- H_2SO_4 the reaction is almost of zero order while the rate of decomp. is the greater the higher is the original $[\text{H}_2\text{O}_2]$. If the salts are added separately the effect is the same if Na_2MoO_4 is added first, but if CuSO_4 is first the rate of decomp. on adding Na_2MoO_4 is greater if the pretreatment time has been 3 hr., and less if it has been 24 hr. or more, than when the two salts are added together. In more dil. acid the rate of decomp. is greater when either salt is added first than when they are added together. It is considered that several intermediate compounds are formed, but not instantaneously; Cu^+ may form a passive compound, possibly Cu_2O (cf. Konovalova et al., A., 1938, 1, 140), and an active compound. G. S.

ASTM 51A METALLURGICAL LITERATURE CLASSIFICATION

LITERATURE INDEX

PERIODIC AND PROPERTIES INDEX

BOGDANOV, G. A.

"Homogeneous Catalysis of H_2O_2 under the influence of the Catalyst Na_2WO_4 "
(p. 896)

SO: Journal of General Chemistry, (Zhurnal Obshchei Khimii), 1947, Vol. 17, No. 5

1ST AND 2ND COPY (R) 3RD AND 4TH COPY (R)

PROCESSED AND PREPARED BY

2

Kinetics of the catalytic process in the presence of several catalysts in a homogeneous medium. I. The homogeneous catalysis of hydrogen peroxide decomposition by the simultaneous action of sodium molybdate, sodium tungstate, and ferric sulfate. G. A. Bogdanov. (Pant Inst., Moscow). *J. Phys. Chem. (U.S.S.R.)* 21, 31-33 (1947) (in Russian). -- Na_2MoO_4 (0.004 N), Na_2WO_4 (0.004 N), and $\text{Fe}_2(\text{SO}_4)_3$ (0.001 N), dissolved separately or in pairs in dil. H_2SO_4 , do not markedly accelerate the decomn. of H_2O_2 , but when present together they catalyze this decomn. Its rate V depends only on the present, not on the original, concn. of H_2O_2 . At H_2O_2 concn. C above 0.5 N, V is independent of C ; at lower C , V is proportional to C . One sample of catalyst can decompose many successive amts. of H_2O_2 without any change in V ; a true catalyst is present. The V is inversely proportional to the concn. of H_2SO_4 between 0.01 and 0.09 N and proportional to the concns. of Na_2MoO_4 , Na_2WO_4 , and $\text{Fe}_2(\text{SO}_4)_3$; no range is given for the first two salts, but the proportionality is observed for $\text{Fe}_2(\text{SO}_4)_3$ only below 0.002 N, whereas at higher $\text{Fe}_2(\text{SO}_4)_3$ concns. V increases more rapidly. The temp. coeff. of V is 3 for 10° between 18° and 35° . Na_2MoO_4 and Na_2WO_4 alone, together, or each with $\text{Fe}_2(\text{SO}_4)_3$, do not react with H_2O_2 , but a mixt. of all three salts is indistinguishable from $\text{Na}_2\text{MoO}_4 + \text{Na}_2\text{WO}_4 + \text{Fe}_2(\text{SO}_4)_3$ in H_2O_2 ; it catalyzes H_2O_2 decomn., V being inversely proportional to the concn. of H_2SO_4 and having the temp. coeff. equal to 3. Presumably, the actual catalyst is a compd. of the 3 salts with OH^- . The equations for the reaction rate derived from this assumption agree with the exptl. data. J. J. B.

ASB-51A METALLURGICAL LITERATURE CLASSIFICATION

REGIONAL SYMBOLS SYMBOLS REGIONAL SYMBOLS

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
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BOGDANOV, G. A.

USSR/Chemistry - Hydrogen Peroxide Apr 1947
Chemistry - Compounds, Unstable

"The Homogeneous Decomposition of H_2O_2 in the
Simultaneous Presence of Na_2MoO_4 and $Fe_2(SO_4)_3$,"
G. A. Bogdanov, 9 pp

"Zhur Fiz Khim" Vol XXI, No 4 439-447

Technical discussion of the effect of temperature
on the speed of reaction, the effect of the initial
concentration of H_2O_2 on the speed of reaction,
the effect of the relationship of the catalyzer
of the concentration, the effect of the hydrogen
ion concentration upon the kinetics of catalytic
decomposition of H_2O_2 . Illustrated with tables,
formulae, and graphs.

14T99

Bogdanov, G. A., Docent

Doc Chem Sci

Dissertation: "New Materials on the Theory of Homogeneous Catalysis in Solution."

27 April 49

Moscow Order of Lenin Chemicotechnological Inst imeni D. I. Mendeleev.

SO Vecheryaya Moskva
Sum 71

FA 170118

USSR/Chemistry - Catalysis of Hydrogen Peroxide

Dec 50

"New Materials for the Theory of the Intermediate Products in Homogeneous Catalysis," G. A. Bogdanov

"Zhur Fiz Khim" Vol XXIV, No 12, pp 1450-1458

Study of kinetic curves of decomposition of H₂O₂ by action of K₂WO₄ indicated formation of intermediate products. This was confirmed by isolation of K₂WO₈ and of K₂WO₆·H₂O in the form K₂WO₆·H₂O. Former was extremely active in the reaction and is explosive in pure form. Latter was less active, and K₂WO₆·H₂O is explosive to lesser degree, so it can be stored.

170118

180715

USSR/Chemistry - Peroxids and Hydrogen Peroxide Jan 51

"New Materials on the Theory of Intermediate Products in Homogeneous Catalysis. II. Kinetics of Decomposition of Peroxyformates of Sodium in Solution," G. A. Bogdanov

"Zhur Fiz Khim" Vol XXV, No 1, pp 49-60

Deid effect of diln and temp on kinetics of decompn of $Mn_2O_3 \cdot 2H_2O$ and effect of pH on rate of decompn. By study of kinetics of catalysis of H_2O_2 by Mn_2WO_4 detd presence of and explained mech of formation of

IC

180715

USSR/Chemistry - Peroxids and Hydrogen Peroxide (Contd) Jan 51

3 Intermediate products ($Mn_2MO_6 \cdot 2H_2O$ (active), $Mn_2MO_7 \cdot H_2O$ (not active), $Mn_2MO_8 \cdot 2H_2O$ (active)); having high elec cond and not obeying Ostwald's law.

180715

18519

BOGDANOV, G. A.

USSR/Chemistry - Hydrogen Peroxide Mar 51

"Theory of the Combined Action of Catalysts in Solution, I," G. A. Bogdanov, Moscow

"Zhur Fiz Khim" Vol XXV, No 3, pp 323-331

Studied kinetics of homogeneous catalysis of decomposition of H_2O_2 by $K_2Cr_2O_7$ + Na_2WO_4 and $K_2Cr_2O_7$ + Na_2MoO_4 . These compounds are effective separately and in combination. In cases of both combinations of catalysts, formation of combined intermediate peroxidic product was indicated and kinetic eq was derived on this basis.

18519

USSR/Chemistry - Hydrogen Peroxide Mar 51
(Contd)

Cryoscopic exams in both cases confirmed presence of intermediate products whose rate of formation detd character of kinetic curves.

18519

BOGDANOV, G. A.

185T10

USSR/Chemistry - Hydrogen Peroxide Mar 51

"Theory of the Combined Action of Catalysts in Solution: II. The Role of Intermediate Products on the Basis of the Catalysis of H₂O₂ With Copper and Molybdenum Salts," G. A. Bogdanov, Moscow

"Zhur Fiz Khim" Vol XXV, No 3, pp 332-340

Studied in detail kinetics of decompn of H₂O₂ under action of combined catalysts Na₂MoO₄ + CuSO₄ (both ineffective catalysts separately) in acid medium. Using kinetic curves of reaction and taking into account acidity of soln, concn

185T10

USSR/Chemistry - Hydrogen Peroxide Mar 51
(Contd)

of catalysts and H₂O₂; preliminary treatment of catalyst, discusses formation of isolated intermediate products CuWO₄ (active with respect to H₂O₂) and CuWO₃ (slightly active), neither previously known in lit.

185T10

BOGDANOV, G. A.

PA 196T15

USSR/Chemistry - Oxidants

Nov 51

"Theory of the Combined Action of Catalysts in Solution, III. Intermediate Products Under Catalysis of H_2O_2 With Salts of Calcium and Wolfram," G. A. Bogdanov, T. I. Berkengeym, Moscow

"Zhur Fiz Khim" Vol XXV, No 11, pp 1313-1317

Studied gasometric kinetics of catalytic decomposition of H_2O_2 in simultaneous presence of Ca salts and Wolframat. Established that process is case of ideal catalysis in which intermediate products form momentarily and reversibly.

196T15

USSR/Chemistry - Oxidants (Contd)

Nov 51

Kinetic curves indicated formation of 2 active intermediate products. Worked out methods for prepn of intermediate products: yellow-green $CaWO_6$ and colorless $CaWO_6$.

196T15

BOGDANOV, G. A.

PA 197T25

USSR/Chemistry - Hydrogen Peroxide Dec 51

"Theory of the Combined Action of Catalysts in Solution. IV. Kinetics of the Catalysis of H_2O_2 in the Presence of $AgNO_3$ + Na_2WO_4 ," G. A. Bogdanov, A. I. Pastukova, Moscow

"Zhur Fiz Khim" Vol XXV, No 12, pp 1450-1454

Found that decomn of H_2O_2 is catalyzed by $AgNO_3$ + Na_2WO_4 in acid and neutral soln, but not by $AgNO_3$ alone. Catalysis is accomplished by sol of Ag formed at certain concn of Ag and by yellow intermediate product (isolated for 1st time and found to be Ag_2WO_6). Ag_2WO_6 after almost

1C 197T25

USSR/Chemistry - Hydrogen Peroxide Dec 51
(Contd)

total decomn of H_2O_2 changes to white ppt Ag_2WO_4 . Reaction catalyzed by both Ag sol and Ag_2WO_6 obeys 1st-order eq.

1C 197T25

BOGDANOV, G. A.

FA 242T13

USSR/Chemistry - Hydrogen Peroxide NOV 52

"The Role of Intermediate Products in Catalysis by Means of a Deposit," G. A. Bogdanov and T.I. Berkengeym

"Zhur Fiz Khim" Vol 26, No 11, pp 1659-1663

Investigated the joint action of barium chloride and sodium tungstate in the form of a deposit on the decomn of H₂ O₂. Determined that the kinetic course of the catalytic reaction is very complex: at a relatively high initial concn of the substrate there was a zero-order reaction, then a quite abrupt decrease in the rate, a zero order reaction, and a slowing down of the rate at the end of the expt; at a relatively low initial concn of the substrate, there was a very abrupt decrease of the rate, a zero-order reaction, and a slowing down of the rate at the end of the process. This change in the order of the reaction brings with it also an unexpectedly abrupt decrease in the vol and a change in the color of the deposit. The authors surmise that the observed effects are caused by the formation of certain intermediate compps of different properties and compn. As a result of this work, they isolated hitherto unknown barium pertungstates, established their compn, and developed a method for obtaining them.

242T13

BOGDANOV, G. A.

USSR/Chemistry - Peroxidic Compounds

Oct 53

"Investigation of a Catalytic Process Occurring in
Solution and Isolation of a New Intermediate Product,"
G. A. Bogdanov, A. I. Pastukhova

Zhur Fiz Khim, Vol 27, No 10, pp 1556-63.

Investigated the combined action of nickel sulfate and sodium wolframate on the process of decomn of hydrogen peroxide under various conditions. On the basis of the data obtained, concluded that a new compd, i.e. nickel perwolframate (I) must exist. Prepared I by two different methods and investigated its properties.

272114

BOGDANOV, G. I.

Category: USSR / Physical Chemistry - Kinetics. Combustion.
Explosives. Topochemistry. Catalysis.

B-9

Abs Jour: Referat Zhur-Khimiya, No 9, 1957, 29997

Author : Bogdanov G. A., Petrova G. L.

Inst : not given

Title : Homogenous Catalysis of H₂O₂ by Sodium Chromate and New Peroxide
Compounds

Orig Pub: Zh. fiz. khimii, 1955, 29, No 1, 84-94

Abstract: Rate of decomposition of H₂O₂ (v) at 15°, and concentrations 0.00125 M H₂SO₄ and 0.005 M Na₂CrO₄, conforms to the 2nd order and does not depend on initial concentration of H₂O₂. At 25° and constant initial concentrations of H₂O₂ and Na₂CrO₄, v increases in proportion to the concentration of H₂SO₄, and the 1st order of the reaction changes to 2nd order. At 5-15° the apparent energy of activation E = 11.0 kcal/mole, at above 25° v does not depend on temperature and E = 0. On the basis of kinetic data the authors had predicted, as intermediate products of the reaction, peroxide compounds (different in the case

Card : 1/2

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BOGDANOV, G.A.
Category: USSR

B 9

Abs Jour: Zh--Kh, No 3, 1957, 7526

Author: Bogdanov, G. A., Berkengeym, T. I., and Sherbinin, V. A.

Inst : Not given

Title : Additional Materials on the Theory of the Joint Action of Catalysts in Solution. I. Intermediate Products of the Decomposition of H_2O_2 Catalyzed by Calcium and Molybdenum Salts

Orig Pub: Zh. Fiz. Khimii, 1956, Vol 30, No 4, 889-895

Abstract: The gasometric method (G. A. Bogdanov, Zh. fiz. khimii, 1950, Vol 24, 1450; 1951, Vol 25, 323) has been applied to the investigation of the homogeneous catalytic decomposition of H_2O_2 using a mixture of $CaCl_2$ and Na_2MoO_4 . The rate of decomposition vs. H_2O_2 concentration curve passes through a maximum independently of the temperature and the H ion concentration. The shape of the

Card : 1/2

MOSCOW AVIATION⁸⁻ TECHNICAL INST.

Category: USSR

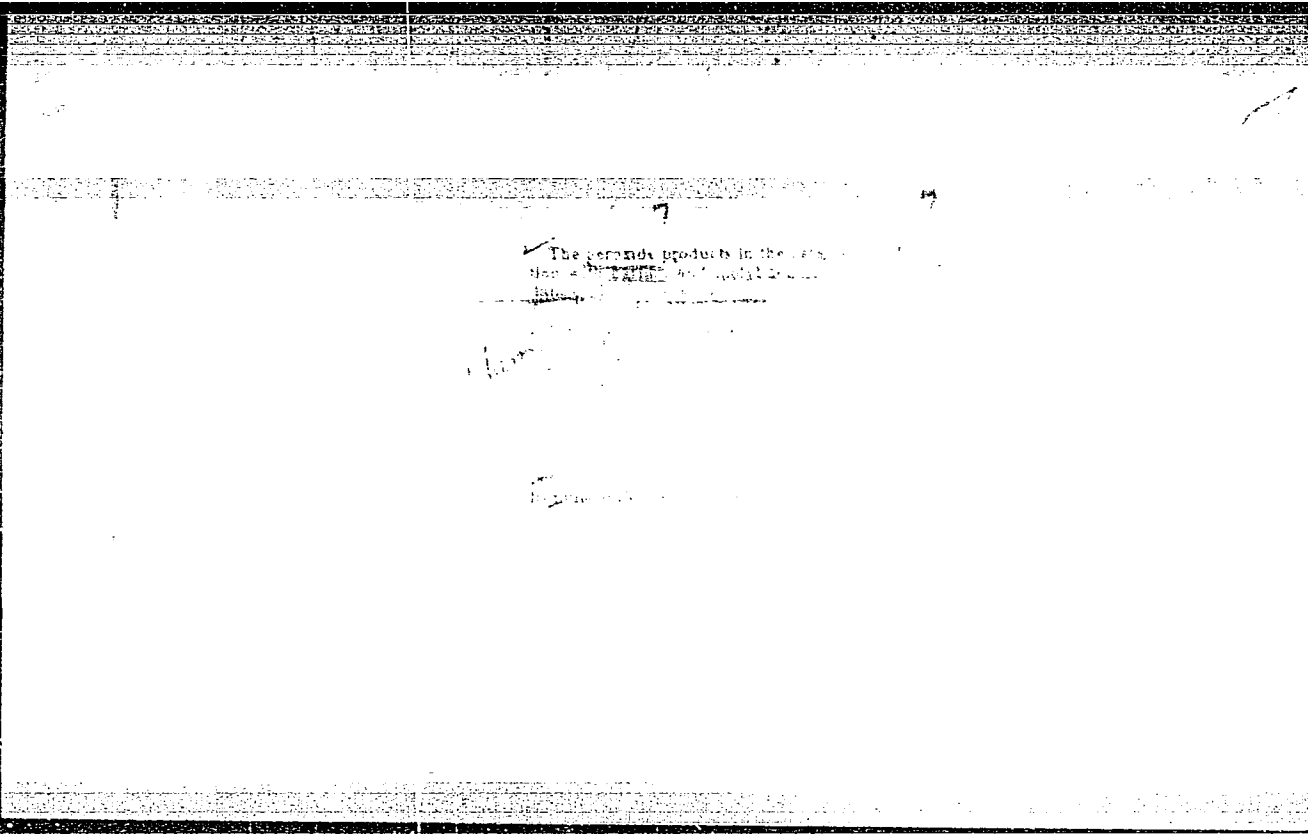
B-9

Abs Jour: Zh--Kh, No 3, 1957, 7526

kinetic curves remains unchanged in the absence of CaCl_2 but a sharp increase is observed in the reaction rates. The authors explain the relationships observed by the formation of two intermediate substances of varying peroxide oxygen content. Two salts with the following compositions have been isolated from the reaction mixture: $\text{Ca}_2\text{Mo}_2\text{O}_{13} \cdot 9\text{H}_2\text{O}$ and $\text{CaMoO}_8 \cdot n\text{H}_2\text{O}$.

Card : 2/2

-9-



theory of the homogeneous reaction of catalytic solution
III. Kinetics of the

catalyzed by the
potassium dichromate
solution. The rate
of reaction is
independent of the
concentration of the
catalyst.

It is shown that
the catalytic reaction
is first order with
respect to the reactant
and a decrease in the $K_2Cr_2O_7$ concentration
causes a decrease in the rate of reaction.

$\Delta H_{12}^\ddagger > 0$, but for reaction
the activation energy is

BOGDANOV, G. A., Cand Agr Sci -- (diss) "Effects^d of trace elements
(cobalt, copper, and manganese) upon growth, development and meta-
bolism in calves of the Red Steppe breed." Khar'kov, 1958. 19 pp
(Min of Agriculture USSR, Khar'kov Vet Inst), 200 copies (KL, 15-58,
117)

-57-

Country : USSR
Category : Farm Animals. Q-2
Cattle.
Abs. Jour : Ref Zhur-Biol., No 16, 1958, 74046
Author : Bogdanov, G. A.
Institut. :
Title : The Effectiveness of Additional Microelement Feeding of Calves.
Orig. Pub. : Zhivodnovodstvo, 1958, No 1, 42-46
Abstract : The live weight of 3-month old young bulls of the 2nd group (additional feeding with cobalt chloride) was by 13.6 kg larger and that of the 3rd group (additional feeding with cobalt chloride, copper sulfate, and manganese sulfate) was by 18.6 kg larger than in the control group (without additional feeding); at the age of 12 months the corresponding figures were 27.8 and 51 kg. At the age of 3-4 months calves of the 3rd group utilized 12.79 percent more of the nitrogen which they took in, 15.64
Card: 1/2

Country : USSR
Category : Farm Animals. Q-2
 Cattle.
Abs. Jour : Ref Zhur-Biol., No 16, 1958, 74046
Author :
Institut. :
Title :

Orig. Pub. :

Abstract : percent more of digested nitrogen; at the age
 of 10-11 months, correspondingly, 6.14 and 7.6
 percent more than controls. Additional feeding
 with cobalt chloride augmented adaptation of
 Ca (by 2.10-3.90 percent) and of P (by 4.93-
 8.27 percent) during lactation as well as post-
 lactation periods. During the course of the
 entire experiment the complex of microelement
 salts augmented the utilization of Ca (by 4.32
 -6.43 percent).

Card: 2/2

AUTHORS: Bogdanov, G. A., Petrova, G. L. 76-32-4-2/43

TITLE: An Anomalous Case of Catalysis in the Liquid Phase I (Anomal'nyy sluchay kataliza v zhidkoy faze I)

PERIODICAL: Zhurnal Fizicheskoy Khimii, 1958, Vol. 32, Nr 4, pp. 746 - 755 (USSR)

ABSTRACT: This paper treats the joint effect of sodium chromate with nickelsulphate on the catalytic process of the decomposition of hydrogen peroxide in solution. As the experimental part quoted shows, the determination was accomplished by means of a volumetric method described earlier. The experiments showed the catalytic velocity independant of the initial concentration of the hydrogen peroxide, while determination under various temperatures and constant nickel sulphate content showed that the catalytic effect of nickel sulphate rises with the temperature. Determination of the effect of the concentration of nickel sulphate (0,005 to 0.05M) at 15°C led to the conclusion that an increase of concentration caused only a minor increase of reaction, that is only 1.2 times, so that the concentration is not in linear proportion to the velocity of

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An Anomalous Case of Catalysis in the Liquid Phase

catalysation. Investigation into the influence of the concentration of sodium-chromate on the velocity of catalysis conducted for this reason yielded interesting and unexpected results. The concentration of sodium chromate was changed in an interval of 0.000625 to 0.05806 M at 25°C and it was observed that the reaction velocity rises proportionally to the square root of the catalyst concentration, reaching a maximum at $c_{\text{Na}_2\text{CrO}_4} = 0.0025$ M and then sharply declining to $c_{\text{Na}_2\text{CrO}_4} = 0.02$ M, from where it rises again to a final maximum, so that the function has two maxima. Another interesting observation showed that in a ratio of $\text{NiSO}_4 : \text{Na}_2\text{CrO}_4$ an increase of the quantity of nickel sulphate caused a decrease in the catalytic properties of the nickel sulphate, while it rose with an increase of the quantity of sodium chromate, reaching a maximal effect at $c_{\text{Ni}}/c_{\text{Cr}} = 1$. Investigation on the influence

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of temperature on the velocity of reaction at $c_{H^+} = 0.00125$ M;

$c_{Cr} = 0.005$ M, $c_{Ni} = 0.01$ M, $c_{H_2O_2} = 0.15$ M and temperatures

of 5 - 75°C showed that the influence of temperature on the velocity of reaction does not, in the case presented, follow van't Hoff's rule, the formula seems to be identical with Ye. I. Shpital'skiy's, which is, however, not applicable. Single determination and a diagram of the change of activation energy with the temperature showed that the activation energy decreases at first, passing through a minimum at about 35°C and rising to a maximum at about 63°C. It is indicated in conclusion that the second report will cover the influence of H^+ - ions, of electro-conduction properties and cryoscopy of the solutions, as well as an examination of intermediate products of catalysis. There are 7 figures, 3 tables and 9 references, all of which are Soviet (including 1 translation).

SUBMITTED:
AVAILABLE:
Card 3/3

March 31, 1956

Library of Congress

1. Sodium chromate--Catalytic properties 2. Nickel sulfate--Catalytic properties 3. Hydrogen peroxide--Decomposition 4. Hydrogen peroxide--Catalysis

AUTHORS: Bogdanov, G. A., Petrova, G. L. SOV/76-32-6-2/46

TITLE: An Anomalous Case of Catalysis in the Liquid Phase. II.
(Anomal'nyy sluchay kataliza v zhidkoy faze. II.)

PERIODICAL: Zhurnal fizicheskoy khimii, 1958, Vol. 32, Nr 6, pp. 1205-1210
(USSR)

ABSTRACT: As a continuation of a previous paper, the influence of hydrogen ions on the velocity of catalysis, the electric conductivity and the cryoscopic nature of solutions of catalysts Na_2CrO_4 and NiSO_4 in the catalytic decomposition of hydrogen peroxide were investigated. Special experiments were concerned with the intermediate products. The investigations of the influence of H^+ -ions was investigated at concentrations of sulfuric acid of from $6,25 \cdot 10^{-4}$ to $50,00 \cdot 10^{-4}$ mol/liter, at 15°C and $c_{\text{Cr}} = 0,005$, $c_{\text{Ni}} = 0,01$, $c_{\text{H}_2\text{O}_2} = 0,17$ mol/liter.

It was found that at $c_{\text{H}^+} < c_{\text{Cr}}$ the velocity of catalysis increases as the concentration of the H^+ -ions, the kinetic curves corresponding to a reaction of first order. If $c_{\text{H}^+} > c_{\text{Cr}}$

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An Anomalous Case of Catalysis in the Liquid Phase. II

the velocity of reaction decreases with an increase of the H^+ -concentration. The kinetic curves show a maximum. This second type of reaction is considered to be due to the formation of perchromic acids. In connection with the experiments by Ye. I. Shpital'skiy tests with calcium chromate were conducted by R. V. Kolobkova, showing an analogy with sodium chromate. The investigations of electric conductivity and of the freezing point of the solutions conducted with a solution of $Na_2Cr_2O_7 + NiSO_4$ and an addition of hydrogen peroxide showed that at the addition of the substrate the electric conductivity drops sharply. This is explained by the formation of an active (unstable) and of an inactive (stable) intermediate product. The process of complex formation and of decomposition, respectively, is divided into several macro stages. Experiments with the freezing point showed that a stabilization can be reached for several days, according to the complex modifications. The decrease of the freezing temperature takes place only after heating to from $70-80^\circ$, which fact substantiates the effect of the complexes. It may be seen from the experimental results of the separation of the complexes of the intermediate products, that $NiCrO_5$

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An Anomalous Case of Catalysis in the Liquid Phase. II

is present as an individual substance and not as an incidental mixture of NiCrO_4 and NiCrO_6 in the decomposition of the latter. There are 3 figures and 6 references, which are Soviet.

ASSOCIATION: Moskovskiy aviatsionnyy tekhnologicheskii institut
(Moscow Institute of Aviation Technology)

SUBMITTED: March 3, 1956

1. Hydrogen peroxide--Decomposition
2. Catalysis--Velocity
3. Catalysts--Performance
4. Hydrogen ions--Chemical effects

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AUTHORS: Shcherbinin, V. A., Bogdanov, G. A. sov/76-32-6-10/46

TITLE: Supplementary Data Concerning the Theory of the Joint Action of Catalysts in Solutions (Dopolnitel'nyye materialy k teorii sovmeznogo deystviya katalizatorov v rastvore) II. The Kinetics of the Catalytic Decomposition of Hydrogen Peroxide by the Joint Action of Strontium and Molybdenum Salts (II. Kinetika kataliticheskogo razlozheniya peroksid vodoroda sovmeznym deystviyem soley strontsiya i molibdena)

PERIODICAL: Zhurnal fizicheskoy khimii, 1958, Vol. 32, Nr. 6, pp. 1252-1261 (USSR)

ABSTRACT: The influence of sodium molybdate and of strontium chloride was investigated in a neutral, an acid and an alkaline medium with a simultaneous measurement of the electric conductivity of the solutions. Reference is made of the papers by Ye. A. Shilov et al. (Ref 2) and by L. A. Nikolayev (Ref 3). The kinetics of the process was investigated according to the amount of oxygen separating per unit time. On the strength of the evidence obtained it is believed that in this case of a true catalysis the theory of the formation of intermediates is valid. The shape of the kinetic curves leads to

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Supplementary Data Concerning the Theory of the Joint Action of Catalysts in Solutions. II. The Kinetics of the Catalytic Decomposition of Hydrogen Peroxide by the Joint Action of Strontium and Molybdenum Salts

the assumption that at least three intermediates are formed. They determine the complex variation of the velocity of the decomposition of hydrogen peroxide. The negative influence of the strontium ions on the velocity (caused by sodium molybdate) is due to the difference of the kinetic and thermodynamic properties of the intermediates. A study of the function of the velocity of catalysis versus the pH of the medium showed that the presence of hydrogen ions reduce the velocity of catalysis, and considerably change the character of the curve. This is not the case in an alkaline and neutral medium; the effect of the intermediates is explained in this connection. With a temperature increase the minima and maxima of the curve become more pronounced. It was observed that the temperature coefficient and the activation energy in an acid medium show higher values than in a neutral medium. In experiments serving for the investigation of the function of the velocity of catalysis versus the conditions of catalyst formation porous strontium chloride and sodium molybdate were

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Supplementary Data Concerning the Theory of the Joint Action of Catalysts
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used on the one hand, and on the other hand finished strontium molybdate was used. The investigations of electric conductivity show that initially it decreases. Then it either rises, or (dependent upon the pH) remains constant. At the end of the process it drops again. This can serve as a substantiation of the assumption of the theory of intermediates in homogeneous catalysis. There are 7 figures, 1 table, and 4 references, which are Soviet.

ASSOCIATION: Moskovskiy energeticheskiy institut
(Moscow Institute of Power Engineering)

SUBMITTED: January 12, 1957

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SOV/76-32-6-10/46
Supplementary Data Concerning the Theory of the Joint Action of Catalysts
in Solutions. II. The Kinetics of the Catalytic Decomposition of Hydrogen
Peroxide by the Joint Action of Strontium and Molybdenum Salts

1. Hydrogen peroxide--Decomposition
2. Strontium chloride--Chemical effects
3. Molybdenum chlorides--Chemical effects
4. Catalysts--Theory

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BOGDANOV, G. A.

AUTHORS:

Shcherbinin, V. A., Bogdanov, G. A.

SOV/76-32-7-4/45

TITLE:

Further Data on the Theory of the Joint Action of Catalysts in Solution (Dopolnitel'nyye materialy k teorii sovmejnogo deystviya katalizatorov v rastvore). III. Strontium Permolybdates, Intermediate Products in the Catalytic Decomposition of H_2O_2 by Strontium and Molybdenum Salts (III. Permolibdaty strontsiya-promezhutochnyye produkty kataliza razlozheniya H_2O_2 solyami strontsiya i molibdena)

PERIODICAL: Zhurnal fizicheskoy khimii, 1958, Vol. 32, Nr 7, pp.1466-1471 (USSR)

ABSTRACT:

Three peroxide compounds were obtained by a direct synthesis from the components representing the reaction mixture in which the catalysis took place. The substances were of dark-claret, a brick-red and a yellow color. A fourth peroxide which was obtained by the decomposition of the yellow peroxide compound was also isolated. According to the results obtained from the analysis the first compound had the composition $SrMoO_8 \cdot 4H_2O$, the second the composition $SrMoO_7 \cdot nH_2O$ and the third the composition $SrMoO_6 \cdot 3H_2O$. The claret-red

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SOV/76-32-7-4/45

Further Data on the Theory of the Joint Action of Catalysts in Solution.
III. Strontium Permolybdates, Intermediate Products in the Catalytic Decomposition of H_2O_2 by Strontium and Molybdenum Salts

compound represents regular crystals of a hexaparallelohedric form with a density of 3,052-3,062, which is rather stable at room temperature in the presence of humidity; on a rise of temperature, in the presence of humidity and in vacuum it converts into the yellow compound. The claret-red peroxide is not soluble in some organic solvents, however, it can well be solved in water. For producing the substance the yellow permolybdate is reacted with hydrogen peroxide, by dissolving it in a 30 % H_2O_2 -solution under cooling conditions. The brick-red peroxide² compound represents a fine powder which dissolves well in water; it is unstable and converts into the yellow compound. It can also be obtained from the yellow permolybdate, however, with a 20-22 % H_2O_2 -solution. The yellow permolybdate also represents a powder with a density of 2,922-2,938, which is rather stable at room temperature but decomposes at higher temperature. It is not well soluble in water; the authors assume that a better soluble product $SrMoO_5$ is formed on this occasion,

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Further Data on the Theory of the Joint Action of Catalysts in Solution.
III. Strontium Permolybdates, Intermediate Products in the Catalytic Decomposition of H_2O_2 by Strontium and Molybdenum Salts

which then converts into the final decomposition product $SrMoO_4$. The compound is obtained from a cooled 30% H_2O_2 -solution with sodium molybdate and strontium chloride under intense stirring. The experiments carried out for the investigation of the degree of the hydrolysis of permolybdates showed that the hydrolysis with the brick-red compound was more thorough than with the two others. There are 5 tables.

ASSOCIATION: Moskovskiy energeticheskiy institut
(Moscow Institute of Power Engineering)

SUBMITTED: January 12, 1957

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Further Data on the Theory of the Joint Action of Catalysts in Solution.
III. Strontium Fermolybdates, Intermediate Products in the Catalytic De-
composition of H_2O_2 by Strontium and Molybdenum Salts

1. Catalysts--Chemical reactions
2. Hydrogen peroxide--Decomposition
3. Strontium--Chemical reactions
4. Molybdenum salts--Chemical reactions

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AUTHORS: Shcherbinin, V. A., Bogdanov, G. A. SOV/76-32-9-2/46

TITLE: Further Material on the Theory of the Joint Effect of Catalysts in Solution (Dopolnitel'nyye materialy k teorii sovmeznogo deystviya katalizatorov v rastvore) IV. The Kinetics of Conversion of Strontium Permolybdates (IV. Kinetika prevrashcheniy permolibdatov strontsiya)

PERIODICAL: Zhurnal fizicheskoy khimii, 1958, Vol 32, Nr 9, pp 1942 - 1950 (USSR)

ABSTRACT: The authors investigated the decomposition of strontium permolybdates in aqueous solution and in the presence of various amounts of hydrogen peroxide. The decomposition was measured for 0,008 m. solutions of wine-red (SrMoO_8) red (SrMoO_7), and yellow (SrMoO_6) permolybdate at 15° , 25° , and 35° (Figs 1-3; curves 1, 2, and 3); under the same conditions but in the presence of Na_2MoO_4 and SrCl_2 decomposition curves were obtained in good agreement with the first ones (Figs 1-3, curves 4, 5, and 6); the sharp deviations in the curve for the yellow permolybdate (SrMoO_6)

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Further Material on the Theory of the Joint

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Effect of Catalysts in Solution. IV. The kinetics of Conversion of

Strontium Permolybdates

in figure 6 indicate that an intermediate compound, in all probability SrMoO_5 , is being formed. The activation energies for the decomposition of the wine-red and the yellow permolybdates is given in figure 7. The conductivity of the aqueous solutions was also determined during the course of the decompositions (Fig 8). The formation of water and the decomposition were investigated using a vacuum desiccator (Table). Besides the compounds already mentioned, also calcium permolybdate (CaMoO_6)₂ $0,9 \text{ H}_2\text{O}$ was investigated. It was found that in the decomposition intermediate compounds, SrMoO_6 and SrMoO_5 , arise, the existence of which are hereby confirmed. The endproduct is always SrMoO_4 . The yellow permolybdates SrMoO_6 , CaMoO_6 , and SrMoO_5 are true peroxides, while the highly red-colored permolybdates are considered to be peroxyhydrates of the yellow ones. There are 8 figures, 1 table, and 8 references, 8 of which are Soviet.

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Further Material on the Theory of the Joint
Effect of Catalysts in Solution. IV. The Kinetics
of Conversion of strontium Permolybdates

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ASSOCIATION: Moskovskiy energeticheskiy institut (Moscow Institute of
Power Engineering)

SUBMITTED: January 12, 1957

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5(4)

AUTHORS: Shcherbinin, V. A., Bogdanov, G. A. SOV/76-32-10-6/39

TITLE: Further Material on the Theory of the Joint Action of Catalysts in Solution (Dopolnitel'nyye materialy k teorii sovmestnogo deystviya katalizatorov v rastvore) V. Catalysis of the Conversion of Hydrogen Peroxide by a Joint Action of Sodium Molybdate and Cobalt Chloride (V. Kataliz prevrashcheniya perekisi vodoroda sovmestnym deystviyem molibdata natriya i khlorida kobal'ta)

PERIODICAL: Zhurnal fizicheskoy khimii, 1958, Vol 32, Nr 10, pp 2256-2265 (USSR)

ABSTRACT: The catalytic properties of cobalt in solutions, a continuation of the hitherto carried out investigations of the homogeneous catalysis in solution, as well as the determination of peroxide compounds that might be present contain cobalt were the objects of the present investigations. A graph of the decomposition rate of the peroxide caused by cobalt chloride in the presence of caustic soda shows that cobalt chloride has in this case a high catalytic activity, with the increase in the concentration of the lye (with a simultaneous concentration of the cobalt

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Further Material on the Theory of the Joint Action of Catalysts in Solution
V. Catalysis of the Conversion of Hydrogen Peroxide by a Joint Action of
Sodium Molybdate and Cobalt Chloride

salt) leading to a marked increase of the reaction velocity and a change of the reaction order. A joint action of sodium molybdate and cobalt chloride showed that the latter considerably increases the catalytic activity of the former, with a maximum obtained at a ratio of $C_{Co} : C_{Mo} = 1 : 4$ and $1 : 2$. A maximum in the concentration ratio of the catalysts points to the fact that in the catalysis intermediate products are formed. The catalysis is homogeneous only to a certain extent. The formation of a deposit observed in an experimental series is explained by the hydrolysis of the cobalt chloride and a subsequent oxidation. The experiments on the influence of the pH on the velocity of the catalysis showed that the hydroxyl ions are completely used up whereas the H ions are regenerated. The latter react with the catalytically active intermediate products and decrease their activity, and thus transform the normal catalyst into a less active acid salt. In the joint action of cobalt chloride and sodium molybdate the process takes place at lower activation energies due to the formation of the catalytically active intermediate products. The activation energies are lowest in acid

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Further Material on the Theory of the Joint Action of Catalysts in Solution
V. Catalysis of the Conversion of Hydrogen Peroxide by a Joint Action of
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medium, and highest in alkaline medium. An excess substrate hampers the catalytic process, which fact may be explained by an action of the peroxide on the catalytic activity of the intermediate compounds. There are 4 figures, 4 tables, and 2 references, 2 of which are Soviet.

ASSOCIATION: Moskovskiy energeticheskiy institut (Moscow Institute of Power Engineering)

SUBMITTED: April 17, 1957

Card 3/3

5(4)

AUTHORS: Petrova, G. L., Bogdanov, G. A. SOV/76-32-10-15/39

TITLE: The Activating Effect of Cobalt Sulfate on the Sodium Chromate Catalysis of H_2O_2 (Aktiviruyushcheye vliyaniye sulfata kobal'ta na kataliz H_2O_2 khromatami natriya)

PERIODICAL: Zhurnal fizicheskoy khimii, 1958, Vol 32, Nr 10, pp 2324-2332 (USSR)

ABSTRACT: The investigations mentioned in the title were carried out in acid media; some observations on the activating effect of iron sulfate were made for purposes of comparison. The method of the kinetic investigations had already been described (Refs 2,3). The catalyst solutions were added to the reaction mixture one after the other; first $CoSO_4$, and after the temperature balance had been obtained also Na_2CrO_4 . In all experiments 20 ml H_2O_2 solution and 2 ml catalyst solution each were used. The following experimental conditions were maintained: $c_{H_2O_2} = 0,16 M$

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$c_{H_2SO_4} = 0,00125 M$, $c_{Cr} = 0,005 M$, $c_{Ni} = 0,01 M$ (used as $NiSO_4$),

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The Activating Effect of Cobalt Sulfate on the Sodium Chromate Catalysis of
 H_2O_2

$c_{Co} = 0,01$ M. An especially strong activating effect of cobalt salt was observed at 45 and 55°. The iron salts showed an even stronger effect on the decomposition of hydrogen peroxide. Thus, the activating effect of the salts of the elements of the side group of iron increases with the decrease of the ordinal number within the Mendeleev system. The course of the kinetic reaction of the decomposition of hydrogen peroxide is almost independent of the initial concentration of the substrate. Robertson (Ref 5) found that the activation of the H_2O_2 decomposition in potassium

bichromate by cobalt chloride is a logarithmic function of the amount of cobalt chloride added. No direct proportionality between the concentration of cobalt sulfate and the catalytic decomposition of H_2O_2 could be found. A comparison of the

activating effect of nickel ions and cobalt ions showed that an increase in concentration of the cobalt salt causes a higher reaction velocity than the nickel salt. An increase in temperature in activation with the cobalt salt (in contrast to nickel salt) causes an increase of the temperature coefficient and of the activation energy. The influence of the H^+ - ion concentration

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SOV/76-32-10-15/39

The Activating Effect of Cobalt Sulfate on the Sodium Chromate Catalysis of H_2O_2

on the process must be observed at $c_{H^+} < c_{Cr}$ and $c_{H^+} > c_{Cr}$.

In the former case an approximately direct proportionality between the reaction velocity and the acid concentration may be found. At $c_{H^+} > c_{Cr}$ the velocity of the catalysis decreases with the increase in the H^+ -ion concentration. The catalysis of H_2O_2 with Na chromate as well as nickel sulfate does not obey the van't Hoff law (Vant-Goff) (Refs 2,3), which fact was also observed with cobalt sulfate at temperatures of 15 and 25°. The formation of intermediate complex compounds of chromium and cobalt was proved by the method by Knorre-Il'inskiy (Ref 7). There are 6 figures, 2 tables, and 7 references, 6 of which are Soviet.

SUBMITTED: May 8, 1957

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5(4)

AUTHORS:

Shcherbinin, V. A., Bogdanov, G. A. SOV/76-32-11-7/32

TITLE:

Joint Action of Catalysts in Solution (Sovmestnoye deystviye katalizatorov v rastvore) VI. Investigation of the Electric Conductivity of Solutions During the Catalytic Decomposition Process of Hydrogen Peroxide Under the Influence of Sodium Molybdate and Cobalt Chloride (VI. Issledovaniye elektroprovodnosti rastvorov v protsesse kataliticheskogo razlozheniya perekisi vodoroda pod vliyaniyem melibdata natriya i khlorida kobal'ta)

PERIODICAL:

Zhurnal fizicheskoy khimii, 1958, Vol 32, Nr 11, pp 2507-2513 (USSR)

ABSTRACT:

The investigations mentioned in the title were carried out at the same time with a study of the kinetics of the catalysis in neutral and acid solutions. The experiments were carried out at 25° and with $c_{Co} = c_{Mo} = 0.002$ gram ion, $c_{H_2O_2} = 0.18$ mole. The addition of H_2O_2 to neutral sodium molybdate and

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cobalt chloride solutions leads to a relatively rapid formation

SOV/76-32-11-7/32

Joint Action of Catalysts in Solution. VI. Investigation of the Electric Conductivity of Solutions During the Catalytic Decomposition Process of Hydrogen Peroxide Under the Influence of Sodium Molybdate and Cobalt Chloride

of peroxide compounds that are apparently carriers as the electric conductivity of the solution considerably decreases. During the process of catalysis the electric conductivity remains constant all the time, then it abruptly increases (complete decomposition of H_2O_2) but does not reach the initial value. The increase of the electric conductivity at the end of the reaction reaches a higher value in acid solutions than in alkaline solutions. Two factors exert an influence on this stage: a) The regeneration of the H^+ ions (by the decomposition of the peroxy complex compounds formed as intermediate products), b) The acid considerably hinders the formation of cobalt oxides. At $pH > 7$ the electric conductivity depends only to a small extent on the OH^- ion concentration ($\partial k / \partial c_{OH} = 0$). It is assumed that first sodium permolybdates are formed from the sodium molybdate and hydrogen peroxide. These permolybdates then react in an exchange reaction with cobalt chloride and are transformed into cobalt molybdate. The concept of the role played by the OH^- and H^+ ions in the

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Joint Action of Catalysts in Solution. VI. Investigation of the Electric Conductivity of Solutions During the Catalytic Decomposition Process of Hydrogen Peroxide Under the Influence of Sodium Molybdate and Cobalt Chloride

catalysis as given on the basis of the data from the reaction kinetics (Ref 1) is proved: The OH^- ions irreversibly and the H^+ ions reversibly take part in the formation of the intermediate products of the catalysis. An abnormally big increase of the electric conductivity of solutions with a concentration of $\text{c}_{\text{H}_2\text{SO}_4} > 0.001 \text{ M}$ was observed on the addition of hydrogen peroxide. There are 4 figures and 3 Soviet references.

ASSOCIATION: Moskovskiy energeticheskiy institut (Moscow Institute of Power Engineering)

SUBMITTED: April 17, 1957

Card 3/3

5(4)

AUTHORS:

Shcherbinin, V. A., ~~Bogdanov, G. A.~~

SOV/76-32-12-16/32

TITLE:

The Joint Action of Catalysts in Solution (Sovmestnoye deystviye katalizatorov v rastvore) VII. Cobalt Peroxides as Intermediate Products in the Catalytic Dissociation of Hydrogen Peroxide by Sodium Molybdate and Cobalt Chloride (VII. Perekisnyye soedineniya kobal'ta - promezhutochnyye produkty kataliza razlozheniya perekisi vodoroda deystviyem molibdata natriya i khlorida kobal'ta)

PERIODICAL:

Zhurnal fizicheskoy khimii, 1958, Vol 32, Nr 12, pp 2761 - 2766 (USSR)

ABSTRACT:

Black cobalt permolybdate was produced the effect of which on hydrogen peroxide is analogous, according to the kinetic curve, to that of sodium molybdate and cobalt chloride. Because of the instability of the permolybdate it could only be produced at temperatures between -40° and -45° C. The permolybdate is a colloid, showing the Tyndall-effect and coagulating if bases or potassium chloride are added. According to the varying cobalt content of the compound these are closely related compounds which pass over into one another

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The Joint Action of Catalysts in Solution. VII. Cobalt Peroxides as Intermediate Products in the Catalytic Dissociation of Hydrogen Peroxide by Sodium Molybdate and Cobalt Chloride SOV/76-32-12-16/32

through intermediate products. The production of cobalt peroxide was also carried out at low temperatures (-25° to -35° C), resulting in a green CoO_2 compound with bivalent cobalt being isomeric with ² the black cobalt dioxide CoO_2 (with tetravalent cobalt). The researchers of N. N. Semenov's school: V. V. Voyevodskiy, N. N. Emanuel', and N. I. Kobozev advocated the theory that the intermediate products result in chain reactions. There are 3 tables and 3 references, 2 of which are Soviet.

ASSOCIATION: Moskovskiy energeticheskiy institut (Moscow Power-Engineering Institute)

SUBMITTED: April 17, 1957

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5(2)

SOV/156-59-2-11/48

AUTHORS:

Bogdanov, G. A., Prokhorova, I. K.

TITLE:

The Homogeneous Catalysis of H_2O_2 Caused by the Salts
 $Na_2WO_4 + SrCl_2$ and New Strontium Pertungstates (Gomogennyy
kataliz H_2O_2 solyami $Na_2WO_4 + SrCl_2$ i novyye pervol'framaty
strontsiya)

PERIODICAL:

Nauchnyye doklady vysshey shkoly. Khimiya i khimicheskaya
tekhnologiya, 1959, Nr 2, pp 264-267 (USSR)

ABSTRACT:

The catalysis mentioned in the title is reversible and homo-
geneous. The curves of figure 1 show the effect of the stron-
tium ion upon the decomposition of hydrogen peroxide: 1) The
addition of $SrCl_2$ reduces the velocity with increasing con-
centration of Sr^{2+} -ions; 2) in the case of increasing con-
centration of $SrCl_2$ the maximum of the curves becomes flatter.

Herefrom the conclusion is drawn that in the course of cata-
lysis intermediate products form, i.e. strontium pertungstates
of different composition. The activation energy E and the
temperature coefficient γ were not constant in neutral medium
but were dependent on the concentration and temperature:

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$dE/dc = d\gamma/dc < 0$ and $dE/dT = d\gamma/dT < 0$. In acid medium,

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The Homogeneous Catalysis of H_2O_2 Caused by the Salts Na_2WO_4 + $SrCl_2$ and
New Strontium Pertungstates

however, $dE/dc = dy/dc = 0$. The electric conductivity was measured in alkaline, acid and neutral medium (Fig 2, Table 1). Also from these measurements it was possible to draw conclusions to the formation of intermediate compounds. The latter were also found in isolated state and as strontium pertungstates of different composition: $SrWO_6 \cdot 3H_2O$, $SrWO_6 \cdot 2H_2O$, $SrWO_8 \cdot 3H_2O$, $SrWO_8 \cdot 2H_2O$. They decompose readily under separation of oxygen. Their heats of decomposition and the specific weights (Table 2) were determined for the purpose of proving their individualism. There are 2 figures, 2 tables, and 4 Soviet references.

PRESENTED BY: Kafedra obshchey i neorganicheskoy khimii Moskovskogo tekstil'-nogo instituta (Chair of General and Inorganic Chemistry, Moscow Textile Institute)

SUBMITTED: June 20, 1958

Card 2/2

SOV/78-4-2-4/40

5(2)
AUTHORS:

Shcherbinin, V. A., Bogdanov, G. A.

TITLE:

The Permolybdates of Strontium, Calcium, and Cobalt
(Permolibdaty strontsiya, kal'tsiya i kobal'ta)

PERIODICAL:

Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 2,
pp 260-271 (USSR)

ABSTRACT:

New permolybdates of strontium, calcium, and cobalt were produced and their composition, solubility, transformation mechanism in water, and the electric conductivity of their aqueous solutions were investigated. Four permolybdates of strontium were produced: $\text{SrMoO}_8 \cdot 4\text{H}_2\text{O}$ (bordeaux-red), $\text{SrMoO}_7 \cdot 4\text{H}_2\text{O}$ (red), $\text{SrMoO}_6 \cdot 3\text{H}_2\text{O}$ (yellow), and $\text{SrMoO}_5 \cdot n\text{H}_2\text{O}$ (cream-colored). The syntheses of these compounds are described in detail. The examination of the properties showed that only SrMoO_6 and SrMoO_5 are real peroxides, whereas the compounds $\text{SrMoO}_8 \cdot 4\text{H}_2\text{O}$ and $\text{SrMoO}_7 \cdot 4\text{H}_2\text{O}$ are perhydrates of these real peroxides. The perhydrate forms are as follows: $\text{SrMoO}_6 \cdot 2\text{H}_2\text{O} \cdot 2\text{H}_2\text{O}_2$ and $\text{SrMoO}_6 \cdot \text{H}_2\text{O}_2 \cdot 3\text{H}_2\text{O}$. The transformation

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The Permolybdates of Strontium, Calcium, and Cobalt

SOV/78-4-2-4/40

velocity of the permolybdates in water and the electric conductivity of the respective solutions were investigated. The electric conductivity of yellow permolybdate shows a sudden increase at the beginning of the process, reaches a maximum, and finally decreases. The electric conductivity of red and bordeaux-red permolybdate is constant at the beginning, increases some time later, reaches a maximum and then decreases. The dehydration of strontium permolybdate by phosphorous pentoxide at 19° and 20° was investigated; the results are shown in the figures 2, 3, and 4. The calcium permolybdates $(\text{CaMoO}_6)_2 \cdot 0.9\text{H}_2\text{O}$ and $\text{CaMoO}_8 \cdot n\text{H}_2\text{O}$ were also produced. The compound $(\text{CaMoO}_6)_2 \cdot 0.9\text{H}_2\text{O}$ is insoluble in organic solvents but easily soluble in water. The red permolybdate $\text{CaMoO}_8 \cdot n\text{H}_2\text{O}$ is a finely crystalline powder, soluble in water and several organic solvents. At room temperature the compound turns into yellow permolybdate $(\text{CaMoO}_6)_2 \cdot 0.9\text{H}_2\text{O}$ while oxygen becomes free. Red calcium permolybdate was used for the production of yellow permolybdate. CaMoO_6 is the real

Card 2/3

The Permolybdates of Strontium, Calcium, and Cobalt

SOV/78-4-2-4/40

peroxide, the crystalline product $(CaMoO_6)_2 \cdot 0.9H_2O$ is the perhydrate of this compound. The correct formula is $(CaMoO_6 \cdot 4H_2O)_2 \cdot H_2O_2$. The cobalt permolybdates $Co_2(MoO_6)_3$ and $Co_2(MoO_5)_2$, and cobalt peroxide were produced and their properties described. In cobalt permolybdates cobalt is tri and tetravalent. This valency change of cobalt increases the difficulty of colorimetric determinations. The permolybdates of cobalt are unstable at room temperature, practically insoluble in acetone, ether, and carbon tetrachloride, easily soluble and decomposable in water, while oxygen is separated. The solutions are colloidal and, on the effect of potassium chloride, alkali or direct current, coagulable. Cobalt peroxide CoO_2 is a green powder which, on heating, turns black while oxygen is separated. There are 5 figures, 4 tables, and 14 references, 7 of which are Soviet.

ASSOCIATION:

Moskovskiy energeticheskiy institut (Moscow Power Engineering Institute)

SUBMITTED:
Card 3/3

November 22, 1957

5(2)

SOV/63-4-3-29/31

AUTHORS: Prokhorova, I.K., Bogdanov, G.A.

TITLE: The Homogeneous Catalysis of H_2O_2 by the Salts $Na_2WO_4 + SrCl_2$

PERIODICAL: Khimicheskaya nauka i promyshlennost', 1959, Vol 4, Nr 3,
pp 413-414 (USSR)

ABSTRACT: It has been shown that $SrCl_2$ does not catalyze the decomposition process of H_2O_2 , whereas Na_2WO_4 decomposes hydrogen peroxide. The addition of $SrCl_2$ to Na_2WO_4 decreases the reaction rate considerably. The reaction rate is directly proportional to the concentration of OH^- ions. In the temperature interval of 25 - 45°C the reaction rate changes appreciably which is explained by the formation of intermediate products. The relative concentration of the intermediate peroxide products is a function of the substrate and the temperature. The change of electric conductivity as well as the rate of catalysis is determined by the intermediate complexes. For explaining all phenomena, it is necessary to assume the formation of at least 3 complexes.

Card 1/2

There are 5 Soviet references.

The Homogeneous Catalysis of H_2O_2 by the Salts Na_2WO_4 $SrCl_2$ SOV/63-4-3-29/31

ASSOCIATION: Moskovskiy tekstil'nyy institut (Moscow Textile Institute)

SUBMITTED: November 3, 1958

Card 2/2

BOGDANOV, G.A.; KOROTCHENKO, N.A.

Calcium peroxytungstates. Part 1. Zhur.ob.khim. 31 no.9:2812-2817
S '61. (MIRA 14:9)

1. Moskovskiy tekstil'nyy institut.
(Calcium tungstate)

BOGDANOV, G.A.; KOROTCHENKO, N.A.

Calcium peroxytungstates. Part 2. Zhur.ob.khim. 31 no.9:2817-2823
S '61. (MIRA 14:9)

1. Moskovskiy tekstil'nyy institut.
(Calcium tungstate)

BOGDANOV, G.A.; KOROTCHENKO, N.A. (Moskva)

Catalytic decomposition of H_2O_2 under the effect of $Ni(CH)_2$
Zhur. fiz. khim. 35 no.7:1616-1621 J1 '61. (MIRA 14:7)
(Hydrogen peroxide) (Nickel hydroxide)

BOGDANOV, G.A.; PETROVA, G.L.; MINAYEV, A.I. (Moskva)

Calcium peroxychromates and the mechanism of the catalytic decomposition of H_2O_2 by chromates. Zhur.fiz.khim. 35 no.8:1716-1717 Ag '61. (MIRA 14:8)

1. Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova
i Moskovskiy tekstil'nyy institut.
(Calcium chromate)
(Hydrogen peroxide)

PROKHOROVA, I.K.; BOGDANOV, G.A. (Moscow)

Strontium pertungstates. Part 1. Zhur.fiz.khim. 35 no.10:2177-
2181 0 '61. (MIRA 14:11)
(Strontium tungstate)

BOGDANOV, G.A.; PROKHOROVA, I.K.

Kinetics of decomposition of peroxy salts in solution. Zhur.
fiz. khim. 36 no.9:1932-1937 S '62. (MIRA 17:6)

1. Tekstil'nyy institut, Moskva.

SAVINA, M.V.; BOGDANOV, G.A.; PETROVA, G.L.; YURCHENKO, G.K. (Moscow)

Catalytic decomposition of H_2O_2 under the combined action of sodium molybdate and salts of the zinc subgroup. Part 1.
Zhur. fiz. khim. 37 no.4:746-752 Ap '63. (MIRA 17:7)

1. Moskovskiy tekstil'nyy institut.

L 12699-69 EFT(a)/EWT(m)/BDS/ Fr-4 RM/WW
ACCESSION NR: AP3002926 S/0076/63/037/006/1258/1263 57

AUTHOR: Bogdanov, G. A.; Savina, M. V.; Petrova, G. L.

TITLE: Catalytic decomposition of hydrogen peroxide under the combined action of sodium molybdate and salts of the zinc subgroup elements

SOURCE: Zhurnal fizicheskoy khimii, v. 37, no. 6, 1963, 1258-1263

TOPIC TAGS: hydrogen peroxide catalytic decomposition, sodium molybdate, zinc salt, kinetic curve, electroconductivity, pH curve

ABSTRACT: In a study of the catalytic decomposition of H_2O_2 under the action of $Na_2MoO_4 + Hg(NO_3)_2$ in solution it was found that the kinetic curves can possess one or two peaks, depending upon the conditions. The electroconductivity and pH curves also possess an involved relation to the substrate concentration. The findings when regarded in their entirety led to the conclusion that the catalytic process is due to the simultaneous: a) formation of intermediate mercury peroxomolybdates; b) occurrence of compensating reactions; and c) formation of chains. New mercury peroxomolybdates have been synthesized. Orig. art. has: 3 figures and 1 table.

Association: Moscow Textile Inst.

Card 1/2

L 16187-65 EWG(j)/EWT(m)/EPF(e)/EPR/EWP(j)/T/EWP(t)/EWP(b) Pc-4/Pr-4/Ps-4
IJP(e)/RPL/SSD(a)/BSD/ASD(a)-5/ASD(m)-3/AS(mp)-2 JD/WN/RM

ACCESSION NR: AP4044742

S/0153/64/007/003/04,06/0410

AUTHORS: Bogdanov, G.A.; Semenova, N. G.; Cherny'shev, A. S.

TITLE: Catalytic decomposition of hydrogen peroxide in the presence of NiSO_4 and Na_2MoO_4

SOURCE: IVUZ. Khimiya i khimicheskaya tekhnologiya, v. 7, no. 3, 1964, 406-410

TOPIC TAGS: hydrogen peroxide, catalytic decomposition, reaction kinetics, energy of activation, entropy of activation, equilibrium constant, nickel peroxomolybdate, synthesis, nickel sulfate containing catalyst, sodium molybdate containing catalyst

ABSTRACT: The kinetics were studied of the catalytic decomposition of H_2O_2 in neutral and acid solutions when NiSO_4 and Na_2MoO_4 were simultaneously present. The reaction was first order, independent of temperature (15-55C) or acidity of the solution (energy of activation = 14.4-14.9 kcal/mol, almost independent of acidity, although increased acidity retarded the catalytic process somewhat).
Card 1/2

L 16187-65

ACCESSION NR: AP4044742

Therefore the nature of the intermediate products was the same regardless of temperature and pH. The entropy of activation and the equilibrium constant of the intermediate complex was calculated; the decomposition of the latter was a monomolecular process. If the concentration of the NiSO_4 was much greater than that of the Na_2MoO_4 , the order of the reaction⁴ was higher, approaching second order. The nickel ions can either accelerate (at the start of the reaction) the action of the Na_2MoO_4 or retard it (as the H_2O_2 concentration decreased). It was assumed that nickel peroxomolybdates were formed as intermediate products. For confirmation, the relatively stable $\text{NiMoO}_5 \cdot n\text{H}_2\text{O}$ and the unstable $\text{NiMoO}_6 \cdot n\text{H}_2\text{O}$ were synthesized. Orig. art. has: 1 figure and 2 tables.

ASSOCIATION: Moskovskiy tekstil'nyy institut, Kafedra obshchey i neorganicheskoy khimii (Moscow Textile Institute, Department of General and Inorganic Chemistry)

SUBMITTED: 02Jul62

SUB CODE: IC, GC

Card 2/2

NR REF SOV: 007

ENCL: 00

OTHER: 000

1-41690-6
JD/WI/RM

EWI(m)/EPF(c)/EPR/EWP(j)/EWP(t)/EWP(b)

Po-4/Pr-4/Ps-4 IJP(c)

ACCESSION NR: AP5008914

3/0076/65/039/003/0751/0756

AUTHOR: Bogdanov, G. A.; Kolobkova, R. V.; Petrova, G. L.

TITLE: Catalytic decomposition of hydrogen peroxide by sodium tungstate together with the salts of elements of the zinc subgroup

SOURCE: Zhurnal fizicheskoy khimii, v. 39, no. 3, 1965, 251-254

TOPIC TAGS: hydrogen peroxide, sodium tungstate, zinc sulfate, cadmium sulfate, mercuric nitrate, peroxide decomposition, redox potentials

ABSTRACT: The article describes the results of the catalytic decomposition of hydrogen peroxide in solution in the presence of the tungstate-sulfate pairs: $\text{Na}_2\text{WO}_4 + \text{ZnSO}_4$; $\text{Na}_2\text{WO}_4 + \text{CdSO}_4$; $\text{Na}_2\text{WO}_4 + \text{Hg}(\text{NO}_3)_2$. Kinetic, potentiometric methods and electrical conductivity measurements of the composition of H_2O_2 by sodium tungstate is appreciably reduced by the presence of Zn^{2+} and Hg^{2+} ions. The rate constants were calculated for the catalytic reaction. Curves of redox potentials versus time were obtained which indicate the formation of no less than three intermediate peroxide species in agreement with the kinetic data and colorimetric observations. The mechanism involving Hg^{2+} or Hg_2^{2+} ions, radical-chain processes and complex formation is discussed.
Card 1, 2

L 41690-65

ACCESSION NR: AP5008914

take place, and intermediate compounds are formed. Orig. art. has: 5 figures, 1 table and 7 formulas.

ASSOCIATION: Moskovskiy tekstil'nyy institut (Moscow Textile Institute)

SUBMITTED: 14Feb64

ENCL: 00

SUB CODE: IC

NO REF SOV: 009

OTHER: 002

ce
Card 2/2.

A

L 9737-66

EWT(m)/EWP(t)/EWP(b)

IJP(c)

JD/JG

ACC NR: AP5027169

SOURCE CODE: UR/0076/65/039/010/2359/2364

AUTHOR: Bogdanov, G. A.; Yurchenko, G. K.; Kuzenko, L. A.

36
B

ORG: Moscow Textile Institute (Moskovskiy tekstil'nyy institut)

TITLE: Study of sodium peroxooxyvanadates

SOURCE: Zhurnal fizicheskoy khimii, v. 39, no. 10, 1965, 2359-2374

TOPIC TAGS: vanadate, peroxide, vanadium compound, *sodium compound*

ABSTRACT: The methods of preparation of sodium peroxooxyvanadates, which are intermediates in the catalysis of hydrogen peroxide by sodium vanadate, were elaborated, and the compounds were isolated. Their composition was determined to be NaVO_4 , $\text{NaVO}_4 \cdot \text{H}_2\text{O}_2$, and $\text{NaVO}_4 \cdot 3\text{H}_2\text{O}_2$; the latter two have not been described before. NaVO_4 is a true peroxide with a fairly stable inner coordination sphere. The decomposition of sodium monoperoxovanadate in solution is homogeneous and occurs via an inner-sphere recombination without being accompanied by radical-chain processes. The dependence of the decomposition rate on the concentration obeys an equation that is close to first-order. The molar conductance of aqueous NaVO_4 solutions changes anomalously with dilution; Ostwald's and

UDC 541.128 + 541.124/.128

Card 1/2

1 9737-66
ACC NR: AP5027169

Werner's laws do not apply in this case. At room temperature, dry NaVO_4 is stable and decomposes with a vigorous evolution of heat at temperatures above 80°C . The process of thermal decomposition of NaVO_4 essentially obeys the topochemical laws and occurs at the interface. The equilibrium constants, free energy changes, and entropy changes of the decomposition of NaVO_4 in water were calculated for several temperatures. Orig. art. has: 5 figures and 2 tables.

SUB CODE: 07 / SUBM DATE: 04Apr64 / ORIG REF:005 / OTH REF: 002

Card 2/2

BOGDANOV, G.A.; YURCHENKO, G.K.; KUZENKO, L.A. (Moscow)

Theory of catalysis in solution. Part 1. Zhur. fiz. khim. 38
no.5:1229-1234 My '64. (MIRA 18:12)

BOGDANOV, G.A.; YURCHENKO, G.K.; KAMENKO, I.S.

Sodium peroxodihydroxyvanadates. Zhur. fiz. khim. 39 no. 10:2359-2364
9 '65. (MIRA 18:12)

1. Moskovskiy tekstil'nyy institut. Submitted April 4, 1964.

I 41694-66 EWT(d)/EWT(m)/EWP(h)

ACC NR: AP6005512

(A)

SOURCE CODE: UR/0256/66/000/001/0043/0047

AUTHOR: Bogdanov, G. A. (Major)

ORG: none

TITLE: Target interception at low altitudes

SOURCE: Vestnik protivovozdushnoy oborony, no. 1, 1966, 43-47

TOPIC TAGS: pilot training, target discrimination, target seeker, jet fighter aircraft, *INTERCEPTOR AIRCRAFT*

ABSTRACT: The problem of training jet interceptor pilots to perform more effectively at low altitudes is discussed. The author stresses the need for pilots to have a sound knowledge of the fuel consumption rate at low altitudes, the effects of the higher air density on pilot and aircraft, the problem of spotting targets while maintaining safe altitude and speed, and the problem of distinguishing true targets on the aircraft radar screen. Possible disruption of air-ground, air-air radar communication is also discussed. Orig. art. has: 2 photographs.

SUB CODE: 01,15/

SUBM DATE: none

Card 1/1 af

65
B

UVAROV, I.P.; PARSHUTKIN, Yu.A.; BALASHOV, N.N.; BOGDANOV, G.A.; BEZMOZGIN, E.S.;
NEMCHENKO, A.G.; YUDKEVICH, Yu.D.; KIPRIANOV, A.I.

Vapor-phase pyrolysis of wood-tar oils. Gidroliz. i lesokhim.
prom. 14 nb.8:5-6 '61. (MIRA 16:11)

1. Tsentral'nyy nauchno-issledovatel'skiy lesokhimicheskiy institut
(for Uvarov, Parshutkin, Balashov, Bogdanov).
2. Vsesoyuznyy
nauchno-issledovatel'skiy institut po pererabotke i ispol'-
zovaniyu topliva (for Bezmozgin, Nemchenko, Yudkevich).
3. Leningradskaya lesotekhnicheskaya akademiya im. S.M. Kirova
(for Kiprianov).

BOGDANOV, G.B. [Bohdanov, H.B.] (Kiyev); SENETSKII, S.A. [Senets'kyi,
S.U.] (Kiyev)

Gas discharge counter in an impulse magnetron. Avtomatyka 8
no.6:78-80 '63. (MIRA 17:8)

BOGDANOV, G.A.; ZIMINA, V.V.

Automatic weight proportioning equipment. Ogneupory 30 no.3:15-16
'65. (MIRA 18:5)

1. Borovichskiy kombinat ogneuporov.

BOGDANOV, G.A.; SAVINA, M.V.

Catalytic decomposition of H_2O_2 carried out by a simultaneous action of sodium molybdate and salts of the zinc subgroup elements. Part 3. Zhur. fiz. khim. 38 no.6:1539-1544 Je '64.
(MIRA 18:3)

1. Moskovskiy tekstil'nyy institut.

BOGDANOV, G.A.; KOLOPKOVA, R.V.; PETROVA, G.L.

Catalytic decomposition of H_2O_2 by sodium tungstate in the presence of salts of zinc subgroup elements. Zhur. fiz. khim. 39 no.3:751-756 Mr '65. (MIRA 18:7)

1. Moskovskiy tekstil'nyy institut.

BOGDANOV, G. B.

Cand Tech Sci - (diss) "Study of the properties of ferrites as thermoresistors." Kiev, 1961. 13 pp; (Ministry of Higher and Secondary Specialist Education Ukrainian SSR, Kiev Order of Lenin Polytechnic Inst); number of copies not given; price not given; (KL, 7-61 sup, 232)

22906

S/109/61/006/004/021/025
E140/E163

9.4000

9.2310 (2904)

AUTHOR: Bogdanov, G.B.

TITLE: The possibility of employing ferrites for the absolute measurement of microwave power

PERIODICAL: Radiotekhnika i elektronika, Vol.6, No.4, 1961, pp. 663-667

TEXT: The purpose of this note is to determine the properties of manganese ferrite as a ferromagnetic semiconductor thermistor for the absolute measurement of microwave power in well-known bridge circuits. The basis of this proposal is the dependence of ferrite electrical resistance on temperature and the strong heating (above 100 °C) of a ferrite sample through absorption of microwave power at ferromagnetic resonance. In principle the difference between the ferromagnetic semiconductor thermistor and the ordinary semiconductor thermistor is that the former interacts almost exclusively with the magnetic microwave field, while the latter, with the electric field. The advantages of the ferrite are that electrical breakdown between particles cannot take place in the interior of the sample and, with suitable installation,

Card 1/2

22906

S/109/61/006/004/021/025
E140/E163

The possibility of employing ferrites for the absolute measurement of microwave power

the ferrite does not reduce the electrical stability of the microwave system. The use of a magnetic bias field permits wide variation of the power level measured. Finally, the fact that with increased temperature the Curie point is approached, makes the ferrite "self-protecting". Acknowledgements are expressed to Ya.A. Monosov and V.I. Pronenko for discussion of the paper.

There are 4 figures and 4 Soviet references.

SUBMITTED: September 29, 1960

Card 2/2

37409

S/142/62/005/001/002/012
E192/E382

9.2/00

AUTHORS: Bokrinskaya, A.A. and Bogdanov, G.B.

TITLE: Ferrite thermoresistors (dynamic characteristics)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy,
Radiotekhnika, v. 5, no. 1, 1962, 26 - 36

TEXT: The characteristics of nonmagnetized ferrite temperature-dependent resistors (FTR) are investigated by using the earlier method proposed for thermistors (Ref. 2 - A.A. Bokrinskaya - Dinamicheskiye kharakteristiki termistorov (Dynamic characteristics of thermistors) pub. by Kiyev Order of Lenin Polytechnical Institute, 1956, 21). First, the static characteristics are given and an example of such a characteristic is shown in Fig. 1. This gives the resistance of various types of FTR as a function of temperature Θ . The first three curves refer to manganese ferrites, while curves 4 and 5 are for Mg-Mn materials. With regard to the dynamic operation of FTR, this refers primarily to their work in AC circuits, where the principal characteristic of the ferrite is its resistance-temperature dependence, $R_{\Omega} = \Psi(\Theta)$. The thermal balance in a Card 1/4

Ferrite thermoresistors

S/142/62/005/001/002/012
E192/E382

FTR can be described by:

$$C \frac{d\Theta}{dt} + H\Theta = R(\Theta) i^2(t) \quad (1)$$

where C and H represent the differential thermal capacitance and the differential dissipation constant of the resistor, while $\Theta = \Theta_1 - \Theta_0$, where Θ_0 is the temperature of the surrounding medium and Θ_1 is the temperature difference on the FTR. The equation is analyzed under the assumption that the resistor operates under conditions such that the load is much greater than R_1 ; secondly, the temperature of the resistor is uniform and C and H are independent of temperature. It is also assumed that the resistance as a function of temperature is in the form

$$R(\Theta) = A/\Theta^n \quad \text{where } n > 0 \quad \text{and } A \text{ is a constant. Eq. (1)}$$

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