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PROCESSES AND PROPERTIES INDEX

CA

2

Structure of the gelatinous ortho-ferric hydroxide obtained by oxidizing ferrous carbonate. A. Krause and L. Skorupska. *Rocznik Chem.* 15, 114-21(1935). The gel obtained by adding H_2O_2 to an aq. suspension of freshly pptd. $FeCO_3$ is probably $Fe(OH)_2O.[FeO.OH]_2FeO$. B. C. A.

METALLURGICAL LITERATURE CLASSIFICATION

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BC

a -1

Ferric hydroxides, and ferrous and silver ferrites. A. KRAUSS (Rocz. Chem., 1936, 16, 318—322).—Polemical, against Rodt (cf. A., 1934, 1320).

R. T.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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PROCESSES AND PROPERTIES INDEX

A-1

Amphoteric metal hydroxides as mono- and poly-component catalysts, in the rôle of inorganic enzymes. XLIX. A. KRAUSS (Rocz. Chem., 1939, 19, 129—134).—Hydrated CuO added to amorphous $Fe(OH)_3$–$Mg(OH)_2$ mixture, prepared by simultaneous pptn., gives a highly active catalyst (Fe : Mg : Cu = 1 : 0·06 : 0·17) of the reaction $HCO_2H + 2H_2O_2 \rightarrow CO_2 + 2H_2O$, at 20°. The reaction mechanism is discussed.

R. T.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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CA

2

Lecture demonstration of catalysis in homogeneous and heterogeneous systems. A. Krause. *Roczniki Chem.* 19, 365-70(1939).—The catalytic action of ferric ions, $FeO(OH)_n$, cupric ions, $Cu(OH)_n$, cobaltous ions, or $Co(OH)_n$ is demonstrated by the reaction between indigo-carmine and H_2O_2. B. C. P. A.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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BC

Lecture demonstrations of action of uni- and multi-component catalysts in heterogeneous systems. A. KRAUSE (Rocz. Chem., 1939, 19, 477—479).—Indigo-carmine is rapidly decolorised by dil. H_2O_2 in presence of a CuO-FeO-OH catalyst.

R. T.

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1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3rd AND 4TH ORDERS

COMMON ELEMENTS

MATERIALS INDEX

Active iron and copper compounds as inorganic catalysts in reactions of peroxidative oxidation, in the light of the theories of oxygen and hydrogen activation. A. KRAUSE (Rocz. Chem., 1939, 19, 481—486).—Activation of ortho-ferric oxide by CuO in the reaction of oxidation of HCO_2H by H_2O_2 is represented by the reactions: $Cu(OH)_2 + H_2O_2 \rightarrow CuO_2 + 2H_2O$; $\cdot Fe(OH)\cdot O\cdot Fe(OH)\cdot$ (I) + $CuO_2 \rightarrow O\langle^{Fe\cdot O}_{Fe\cdot O}$ (II) + $Cu(OH)_2$; (II) + $HCO_2H \rightarrow$ (I) + CO_2. The process is thus one of activation of oxygen. R. T.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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CA

2

Theory of catalytic decomposition of hydrogen peroxide. Alfons Krause. *Poznań. Towarz. Przyjaciół Nauk, Prace Komisji Mat. Przyrodniczej, Ser. A, 3, No. 3,* 183-80(1948).—When chem. agents accelerate the electrolytic dissocn. of H_2O_2 into H and HO_2, decompn. occurs, the anion HO_2^- being unstable. It is assumed that the aq. soln. of H_2O_2 contains 2 kinds of isomeric mols., one acting as oxidizing agent (I) O^{HOH}, the other as reducing agent (II) HOOH, the two kinds of mols. being in definite equil., but apt to change under effect of various factors. Catalytic decompn. of H_2O_2 by metallic catalysts occurs, because mol. I is the final acceptor, whereas molecule II is dehydrogenated, the final product being O_2 and OH_2. In this reaction free radicals HO and HO_2 appear, able to initiate an uninterrupted chain of catalytic reaction, accompanied by electronic resonance. When the resonator is working quickly, only a contact catalyst is observed, active even in minimal quantity. Sylvia Nowinska

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1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

Oxidation-reduction catalysts. LXVIII. Alfons Krause. *Przeglad Chem.* 6, 129-35(1948).—Mechanism of the action of oxidation-reduction catalysts is discussed in the light of current theories, special consideration being given to metallic hydroxides. 33 references. A. S.

COMMON ELEMENTS

COMMON VARIABLES INDEX

MATERIALS INDEX

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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GA

Chemistry of catalysts. A. Krause (Univ. Poznań, Poland). *Przemysł Chem.* 5(28), 267-72(1949); cf. *C.A.* 43, 2070h.—The chemistry of catalysts is reviewed in the light of current theories, and the mechanisms of a no. of typical reactions are discussed in detail. Frank Gonet

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CA

2

Use of the benzidine reaction in the study of catalytic properties of metallic oxides. A. Krause, K. Appelt, and St. Kotkowski (Univ. Poznań, Poland). *Przemysł Chem.* 5(28), 351-6(1949).—The catalytic oxidation of benzidine by H_2O_2 in the presence of ferromagnetic and diamagnetic ferric oxides was used to study the catalytic properties of a no. of metallic oxides. A close dependence was noted between the occurrence of a pos. benzidine reaction and the ferromagnetism of ferric oxides. Thus x-ray cryst. γ-FeOOH is not ferromagnetic and gives no benzidine reaction. Dry FeOOH heated above 240° becomes strongly ferromagnetic γ-Fe_2O_3 which gives an intense benzidine reaction. At temps. above 417° γ-Fe_2O_3 is transformed into paramagnetic α-Fe_2O_3 and gives no reaction. In general, the ferromagnetic Fe compds. give a pos. benzidine reaction, and may be used to investigate the catalytic activity of the metallic oxides in industrial processes. 24 references. F. G.

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2

Mystery of contact catalysts. A. Krause (Univ. Poznań, Poland) *Przemysł Chem.* 5(28), 558-63(1949).—Contact catalysts are solid substances in which free radicals (formed by defects or disturbances in the space lattice) can exist. These free radicals are identical with the active centers of Taylor (*C.A.* 19, 2442). Free radicals disappear when the space lattice is organized, e.g., by strong heating. Contact catalysts can therefore be looked upon as transitory radical structures. The transitory phases are typified by a marked increase of paramagnetism and by a large amt. of energy. Free radicals are very reactive because their outermost electronic group does not form a complete octet. However, a chem. reaction of this type will not always result in a catalytic reaction because a catalyst radical can form a stable product with a foreign mol. and block the active centers of the catalyst. To set a catalytic reaction in motion, it is necessary for the contact catalyst to react with a foreign mol. A to give an activated radical KA, which in turn deforms or activates another mol. B. The radicals A and B form a new compd. (AB), which then separates from the catalyst K. 33 references. Frank Conet

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CA

18

Soda ash production. A. Krause and W. Broekere (Univ. Poznań, Poland). *Przemysł Chem.* 5 (28), 581-5(1949). The regeneration of by-products and the final reaction of obtaining Na_2CO_3 from $NaHCO_3$ are of great importance in the manuf. of soda ash. Expts were carried out on transforming tech. $NaHCO_3$ into Na_2CO_3 in the presence of NH_3 or a current of air at moderate temp. (max. 98°). The reaction of moist $NaHCO_3$ is incomplete in both NH_3 and air, although the reaction proceeds better in NH_3 than in air. The reaction: $2NaHCO_3$ (dry) $\rightleftharpoons$ $Na_2CO_3 + H_2O + CO_2$ proceeds without difficulty when a current of air at 98° is used. The soda ash obtained contains more than 98% Na_2CO_3, and the product is dry and without lumps.

Frank Gonet

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CA

4A

Catalase and peroxidase as enzymes of the same type. Alfons Krause. *Polska Akad. Umiejętności. Bezpraw. Wydziału Lekarsk.* 10, No. 7, 12 pp (1949). If it is assumed that H_2O_2 soln. contains two forms of the compds., the oxidizing form (HOH)(O) in equil. with the reducing one HOOH, then the reactions of the 2 enzymes can be explained as follows: Catalase dehydrogenates HOOH, while peroxidase acts on org. substrates. (HOH)(O) serves as the final acceptor in catalase activity.

I. Z. Roberts

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Krause A.

Krause A., Kotkowski St. and Karolewicz S. "Impact of Multicomponent-Catalyst Structure on Catalytic Activity." (Wplyw struktury katalizatorow wieloskladnikowych na aktywnosc katalityczna). Przemysl Chemiczny, No. 1, 1950, pp. 25--32, 1 fig., 4 tabs.

A mixture has been composed of ferric and cupric hydroxides; the atomic relation Fe:Cu in one case was 1:0,5, in the second case --1:1. With the raising of the temperature of drying, the hydroxides showed a decreasing catalytic activity, which was tested by way of osication of formic acid with 0.6% hydrogen peroxide at a temp. of 37°C. At a certain, not very high, temperature there appears sensitization and activation of the peroxidative properties--resulting from cupric ferrite formation in which the most active transitory phases are obtained at 350--400°C. Within this temperature range, there appears ferromagnetism and a certain increase of apparent volume. A Roentgenographic examination of samples heated above 400°C demonstrated the spinel structure of cupric ferrite, forming itself through different transitory phases, of a radical structure. At higher temperatures the radical structure disappears and at the same time catalytic activity.

SO: Polish Technical Abstracts - No. 2, 1951

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Krause A.

Krause A., "The Catalytic Properties of Iron-Rust." (Własności katalityczne rdzy). Przemysl Chemiczny, No. 6, 1950, pp. 318--323, 4 tabs.

An introductory survey of experiments with ferrous oxides and of the process of peroxiding ferric hydroxide, based on research work carried out by the author as well as by other scientists. Further on, the catalytic properties of iron-rust are confirmed on the basis of such experimental material as: catalytic decomposition of hydrogen peroxide or peroxidative reaction of oxidating formic acid with hydrogen peroxide. Serving as catalyst, iron-rust forming at moderate temperatures, in humid air, is chiefly composed of -- Fe OOH. Its catalytic properties are based on the formation of free radicals HO and HO_2.

SO: Polish Technical Abstracts - No. 2, 1951.

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P.T.A.

Chemistry & Chemical Technology

511 128 33

Kraus: A. The Role of Carrier in the Structure and Manufacture of Catalysts.

„Znaczenie nośnika dla konstrukcji i wytwórczości katalizatorów" Przemysł Chemiczny No. 10, 1950, pp. 575 - 580, 5 tabs.

The combined catalyst composed of Zn (OH)₂ (gel) as carrier and of the Co^{++} ion located (absorbed) on it has been investigated. The Co^{++} ions act very slightly in the peroxidic oxidation (decoloration) of indigocarmine. The dry Zn (HO)₂ behaves similarly. However the Co^{++} ions located on the Zn (OH)₂ carried become very active and accelerate very distinctly the reaction of catalytic oxidization of indigocarmine. A greater concentration of hydrogen peroxide and a greater amount of the carrier increase the catalytic ability of the Co^{++} ions. It was stated that in these conditions even as little as 10^{-9}g Co^{++} in a dilution such as 1 : 18 milliards is catalytically active. The mechanism of the reaction is presented by means of the radical cobaltous stacate creating an uninterrupted chain of catalytic reaction, in which the radicals HO and HO_2 also take part. With the same amount of the catalyst multiple (practically indefinite) portions of indygocarmine can be decolorated.

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The benzidine reaction of ferric oxides and hydroxides

A. Krause, A. Swida, and A. Hermanowna (Univ. Poznań, Poland). *Roczniki Chem.* 24, 77-86, English summary, 86-7(1950). Orthoferric hydroxide, polyorthoferric hydroxide, isoorthoferric hydroxide, polyisoorthoferric hydroxide, α-FeOOH, goethite, γ-Fe(OH)$_3$, ferrous ferrite, Fe_2O_3, α-Fe_2O_3, $FeSO_4$, and $FeCl_3$ were examd. for their effect in the benzidine reaction in the presence of 6% H_2O_2 and in 0.0001 N 96% AcOH, in a neutral medium, or in 0.001 N 0.1 N NaOH. Orthoferric hydroxide is a particularly good catalyst. γ-FeOOH gives only a slight (greenish) benzidine reaction in 8 N (or stronger) AcOH. The black ferrous ferrite shows the most infuse (blue) benzidine reaction, in acid, neutral, or alk. medium in a manner similar to the reaction of blood. The ferromagnetic γ-Fe_2O_3 was not so active but also showed distinct coloration in acid medium. The action of these compds. is similar to that of peroxidase or of the hemins of blood; α-FeOOH, goethite, and α-Fe_2O_3 were indifferent.

I. J. Piotrowski

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CA

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Catalytic properties of coal and charcoals. A. Krause. *Przemysl Chem.* 29, 377-8(1950).—The catalytic properties of coal, coke, lampblack, animal and other charcoals, and graphite in the reactions of decompn. of H_2O_2 and peroxidative oxidation of formic acid and of indigo carmine are compared. Graphite is inactive, and the activity of the other substances appears to depend on their Fe, Ca, and Mg contents, and on their adsorptive power. H. A.

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CA

2

Catalytic decoloration of colored natural juices. A. Krause and A. Witkowska (Univ. Poznan, Poland). *Bull. soc. amis sci. lettres Poznan* B11, 100-15(1951)(in English). —The decoloration of red beet juice at 37° by H_2O_2 in the presence of $Fe(OH)_3$ (I) and Cu compds. as catalysts was studied spectrophotometrically with λ = 520 mμ. The rate of the reaction with I corresponded to a 1st-order reaction. The peroxidative properties of I were greatly activated by CuO when mixts. of air-dried I and CuO were used. The activation was still greater when the combined catalysts were pptd. together as hydroxides and air-dried, as little as 10^{-10} g. Cu as $Cu(OH)_2$ showing activity compared to about 10^{-6} g. Cu as CuO. Moist gel catalysts were even more strongly active, since they had more surface.

In this case, 10^{-13} g. Cu as $Cu(OH)_2$ contained in I (corresponding to 8×10^{-6} g. Fe) accelerated the decoloration of the juice at 37°. The combined catalyst of a compn. corresponding to an at. ratio Fe:Cu $1:10^{-6}$ caused the decoloration in 9 hrs., whereas I alone needed 9 hrs. 20 min. The mechanism of the reaction was discussed. R. G. Rice

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KRAUSE, ALFONS Poland CA: 47:12091

with WIKTOR GABRYEL and BOGUSLAW BOHROWSKI

Univ. Poznan, Poland

"Benzidine reaction of amorphous ferric hydroxides and their dehydration products."

Roczniki Chem. 25, 287-96 (1951) (English summary); cf. C.A. 46, 5654c.

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POL

Vaporosol of iso-orthoferric hydroxide. / Alfons Krause (Univ. Poznań, Poland). *Roczniki Chem.* 26, 525-30(1952) (German summary).—An x-ray-amorphous gel of iso-orthoferric hydroxide (*C.A.* 27, 3416), boiled in water, is volatile with steam. The vaporosol obtained has a concn. of 2-3 mg. Fe_2O_3 in 100 l. H_2O vapor. M. Falk

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POL.

540.3-36 : 511.182.5 : 545.824

3157

Krause A., Rychlewska M. On the Preparation of Durable, Radiologically Amorphous Gels from Amphoteric Metal Hydroxides.

„O otrzymywaniu trwałych rentgenobezpostaciowych żeli amfoterycznych wodorotlenków metalu". Roczniki Chemii (PAN). No. 4, 1953, pp. 417—425, 4 tabs.

An attempt was made to obtain and stabilize amphoteric hydroxide gels of certain metals. During the process of stabilization by means of electrolytic solutions it was determined that in 5 N solutions of LiCl and NiCl, ferric orthohydroxide remained fully radiologically amorphous for periods of 5 and 9 months. Study of the effect of $CaCl_2$ on the dehydration of ferric ortho-hydroxide gel, revealed that it was most resistant in boiling 1 N $CaCl_2$. A weaker concentration of $CaCl_2$ gave less satisfactory results. The gel, precipitated out of $FeCl_3$ with a small admixture of As_2O_3, resisted dehydration in boiling water for 6 hours. It was further established that the hydroxides of certain divalent metals, Co, Ni, Mg, Cu, could, when the relative gels were precipitated together with ferric ortho-hydroxide, which here played the role of a protective colloid, be obtained in a radiologically amorphous state.

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KRAUSE, A.

5

Krause A., Kotkowski S., Dzialoszyński B. Characteristics of Some [redacted] Resins as Catalysts.

„Charakterystyka niektórych tworzyw sztucznych jako substancji katalizujących". Przemysł Chemiczny, No. 6, 1953, pp. 277–279, 6 tabs.

Orthocresol resins I and II, urea resin, bakelite, nylon and viscose rayon (used in quantities of 0.1 g) do not activate the decomposition of 0.3% hydrogen peroxide (200 ml) at 37°. These substances used as carriers may form active compound catalysts. Bakelite is activated by $Cu^{\cdot\cdot}$ ions, the activity of which is inhibited in various degrees by other resins. With $Fe^{\cdot\cdot\cdot}$ ions bakelite is the most active, while the other resins (except urea resin) inhibit the reaction. In the system ($Cu^{\cdot\cdot}$ + $Fe^{\cdot\cdot\cdot}$ + $[Fe(CN)_6]^{\cdot\cdot\cdot\cdot}$ + the resin) bakelite is the carrier which inhibits the reaction, while urea resin (and in some degree orthocresol resin I) is an activating carrier. Towards the ions $Mn^{\cdot\cdot}$ or $[Fe(CN)_6]^{\cdot\cdot\cdot\cdot}$ the resins reveal a varying degree of inhibiting action. The resins are because of their ionite character, able to form active complex compounds of radical structure with suitable ions.

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KRAUSE, A.

Characteristics of some synthetic resins as catalysts. A. Krause, S. Korkowski, and H. Działoszyńska (Univ. Poznań, Poland). *Przemysł Chem.* 9, 277-9(1953)(English summary).—o-Cresol resins I and II, urea resin (I), Bakelite (II), nylon, and viscose rayon used in quantities of 0.1 g. do not activate the decompn. of 200 ml. 0.3% H_2O_2 at 37°. Since they have ionite character, they are able to form active complex compds. of radical structure with suitable ions and to be active compd. catalysts. Fe^{+++} and Cu^{++} activate II, whereas their catalytic action is inhibited in various degrees by the other resins. I is an activating carrier in the system (Cu^{++} + Fe^{+++} + $[Fe(CN)_6]^{4-}$ + resin), whereas II inhibits the reaction in this system. The resins show inhibiting action in various degrees toward the Mn^{++} and $[Fe(CN)_6]^{4-}$ ions.

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KRAUSE, A.

1 2

Active trace elements and multicomponent catalysts suitable for laboratory use and for lecture experiments. A. Krause and W. Wolski (Poznan Univ., Poland). *Przemysl Chem.* 9, 606-8(1953)(English summary).—The decompn. of the soln. of 0.2*N* H_2O_2 (90 ml.) by $CaCN_2$ (I) fertilizer and 5 mg. of Mn^{++} (in 5 ml. of distd. H_2O) at room temp. is so strong that the titer of H_2O_2 falls to zero within 2 min. $CaCN_2$ or Mn^{++} separately are inert in the expt. The above multicomponent catalyst is so highly active that at 37° the presence of even 10 moles of Mn^{++} is detectable. In these conditions 1 gram-atom of Mn^{++} decomps. in 1 sec. more than 20,000 mols. of H_2O_2. The action of this artificial superferment consists in forming trace quantities of surface complex compds. of mixed structure. The action of Co^{++} is analogous to that of Mn^{++}.

Gene A. Worny

Chem

Remark

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KRAUSE, A.

2691 542.073 3

Krause A., Wolski W. Active Trace Elements and Multicomponent Catalysts Suitable for Laboratory Use and for Lecture Experiments.

„O aktywnych pierwiastkach śladowych i katalizatorach wieloskładnikowych nadających się do zadań laboratoryjnych i pokazów wykładowych", Przemysł Chemiczny. No. 12, 1953, pp. 606—608, 5 tabl.

So strong is the decomposition of a solution of 0.2 n H_2O_2 (50 ml) by 0.1 g calcium cyanamide fertilizer + 5 mg Mn^{++} (in 5 ml. of distilled water) at room temperature that the titre H_2O_2 falls to zero after 2 minutes. Calcium cyanamide or ions of Mn^{++} separately, remain inert in this experiment. The multicomponent catalyst, cyanamide/Mn^{++}, is so active that at a temperature of 37°C even the presence of 10^{-8} of Mn^{++} is still detectable. In one case, the lowest limit of action trace quantities of Mn^{++} reached 10^{-9} Mn^{++} in a dilution of 1 : 150 thousand millions. In these conditions, 1 gram-atom of Mn decomposes, in a second, more than 20,000 mols of H_2O_2. The action of this artificial superferment consists in forming trace quantities of surface complex compounds of radical structure. The action of Co^{++} ions is analogous to that of Mn^{++} ions.

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KRAUSE, ALFONS

(2)

Dehydration of amorphous ortho-ferric hydroxide. Alfons Krause (Univ. Poznań, Poland). Roczniki Chem. 27, 3-8(1953)(German summary).—An x-ray-amorphous ortho-ferric hydroxide gel is gradually dehydrated in boiling water, forming x-ray-cryst. α-Fe_2O_3. Michael Falk

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KRAUSE, A.

Catalytic ion antagonism. Alfons Krause (Univ. Poznań, Poland). *Roczniki Chem.* 27, 9-10(1953)(German summary).—Co^{++} and Ni^{++} catalyze the reduction of aq. H_2O_2. The catalysis of each ion is increased when $Ca(CN)_2$ is present as a carrier, but the increase is much smaller if both ions are present. Similar ion antagonism is observed for Cu^{++} and Fe^{+++} in H_2O_2 reduction with $Zn_2[Fe(CN)_6]$ as a carrier, and for Cu^{++} and $[Fe(CN)_6]^{----}$ in oxidation of HCOOH by H_2O_2. This behavior is attributed to adsorption of one of the ions on the carrier to form active centers which are destroyed by the subsequent adsorption of the 2nd (more sol.) ion.

Michael Falk

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KRAUSE, ALFONS

6

[illegible] Abstracts
[illegible], 1954
[illegible] and Physical
[illegible]ry

Delaying action of distilled water on catalytic decomposition of hydrogen peroxide. Alfons Krause and Gwidon Olejnik (Univ. Poznań, Poland). *Roczniki Chem.* 27, 17-25(1953)(German summary).—The decompn. of H_2O_2 by Ag_2O at 37° was delayed by distd. water contg. H_2CO_3. Small amts. of HCl, H_2SO_4, Na_2SO_4, H_3PO_4, and CH_3COOH have similar action, attributed to formation of complex compds. with Ag_2O.

Michael Fall

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KRAUSE, ALFONS

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Chemical Industry and
Miscellaneous Industrial Products

Activation of γ-FeOOH by amphoteric metal hydroxides and abnormal behavior of some complex catalysts of this type. Alfons Krause and Jerzy Wiśniewski (Univ. Poznań, Poland). [illegible] 27, [illegible] (1953) (German summary).—In the oxidation of HCOOH with H_2O_2, γ-FeOOH is a comparatively weak catalyst but is activated by copptd. $Mg(OH)_2$, $Pb(OH)_2$, and especially $Cu(OH)_2$. Dry mixing of CuO with FeOOH has the same effect. An abnormal increase in the activation is observed with decreasing concns. of the complex γ-FeOOH/CuO catalyst. M. Fall

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KRAUSE, ALFONS

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Specific catalytic action of traces of iron, [illegible] and nickel in reduction-oxidation systems. Alfons [illegible] and Włodzimierz Wolski (Univ. Poznań, Poland) [illegible] Chem. 27, 321-6(1955)(German summary). [illegible] and Ni^{++} of the order of $10^{-[illegible]}$ and $10^{-[illegible]}$, respectively, [illegible] decompn. of H_2O_2 soln. at 37° when $CaCrO_4$ [illegible] carrier. Concn. of Ni^{++} below $10^{-[illegible]}$ g./l. [illegible] feet on $CaCrO_4$. Similarly, when amorphous $Fe(OH)_3$ is used as a carrier, Fe^{+++} above $10^{-[illegible]}$ g./l. [illegible] decompn. of H_2O_2, has a poisoning effect between $10^{-[illegible]}$ and $10^{-[illegible]}$, and has no action below $10^{-[illegible]}$ g./l. This [illegible] blocking of the active center, on the carrier by very [illegible] amts. of metal ion adsorbed. The increased activity at higher concns. is attributed to the formation of [illegible] complexes with the carrier.

Michael [illegible]

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KRAUSE, Alfons

Chemical Abstracts
May 25, 1954
Miscellaneous
Industrial Products

(2)

Multicomponent complex-reduction oxidation catalyst. Alfons Krause and Stanisław Zieliński (Univ. Toruń, Poland). *Roczniki Chem.* 27, 327-31(1953)(German summary). Ferric-cupric-ferrocyanide catalyst slowly decomp. H_2O_2 but greatly accelerates the oxidation of HCOOH by H_2O_2 at 37°. The activity of this type of catalyst is attributed to its radical structure and to a continuous valence change chain of the ferric, ferrous, cupric, and cuprous ions.
Michael Fall.

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KRAUSE, ALFONS

POL.

Preparation of stable amphoteric hydroxides amorphous to x-rays. Alfons Krause (Univ. Poznan, Poland) and Maria Rychlew[illegible] Germ. 17, 417-25(1953)(German summary).—Amorphous gels of amphoteric hydroxides can be stabilized by lowering the osmotic vapor pressure of free water contained in them. This was done by addn. of (1) neutral electrolytes, (2) catalytic traces of stabilizing substances, (3) orthoferric hydroxide (I) as a protective colloid when pptg. amphoteric hydroxides of other metals. The I was prepd. by pptn., at 20° with 15 ml. of concd. NH_4OH, from a soln. contg. 5 g. $FeCl_3.6H_2O$ dissolved in 100 ml. H_2O. The ppt. was thoroughly washed. The gels were analyzed by the Debye-Scherrer-Hull x-ray method and the degree of aging was detd. by the amount of α-Fe_2O_3 formed insol. at 20° in 32.5% HNO_3. The I maintained its x-ray amorphous state for 5 months in 5*N* soln. of LiCl, and for 9 months in 5*N* soln. of NaCl. In less-concd. LiCl solns. I would crystallize at a rate inversely proportional to concn. of the electrolyte. Some resistance to crystn. was acquired by boiling in H_2O amorphous I gels pptd. from satd. NaCl solns. When boiled in *N* $CaCl_2$ soln., I was resistant to dehydration, whereas both higher and lower concns. of this electrolyte did not maintain it in the amorphous state. An addn. of 0.04 mol. of As_2O_3 to the soln. out of which I was pptd. stabilized the hydroxide against dehydration by boiling for 6 hrs. Effectiveness of such a small amt. of stabilizer indicates autocatalytic nature of crystn. of I. Amorphous $Co(OH)_2$ and $Ni(OH)_2$ were obtained by pptn. from solns. contg. $FeCl_3$ + $Co(NO_3)_2$ and $FeCl_3$ + $NiSO_4$ in 1:1 mol. ratio, with a weak excess of *N* NaOH at 20°. The hydroxides were filtered, washed, and dried over solid NaOH. The I in this case, acts as protective colloid stabilizing the nascent hydroxides of $M(OH)_2$ type. It is possible, too, that the stabilized form is here due to an incipient formation of ferrites. On the other hand the hydroxides of Mg, Zn, Cd, and Ni, when pptd. at 20° with *N* NaOH from satd. NaCl soln. were obtained immediately in cryst. form.

Henry W. Lawendel

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POL.

542.941/.943 : 546.621 : 541.128.3

3153

Kruge A. On the Catalytic Action of Al +++ Ions in Redoxy Systems. "O katalitycznym działaniu jonów Al +++ w układach redukcyjno-oksydacyjnych". Roczniki Chemii (PAN). No. 1, 1954, pp. 3-11, 5 tabs.

The Al +++ ions are in practice inactive in the reaction of decomposition of H_2O_2 and in reaction of peroxidative oxidation of various organic substrata at 37° C. But in conjunction with other microelements and suitable carrier substances, the activity of Al +++ may be strong and the specific action of this element in then of importance.

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KRAUSE A.

Chem 3

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3327 667.622 : 546.482.21 : 542.973

Krause A., Kranz M. Characteristics of Cadmium Yellows as Catalysts.

„Charakterystyka pigmentów żółcieni kadmowej jako substancji katalizujących". Przemysł Chemiczny. No. 1, 1954, pp. 19—22, 5 tabs.

Investigation was made of cadium sulphide pigments obtained from $CdSO_4$ solution at temperatures of 0-100°C, or in topochemical reaction between CdC_2O_4 or $CdCO_3$ and H_2S (gas) or Na_2S, coloured from lemon-yellow to dark-orange. Some of these pigments were subjected to thermal treatment at 500-1000°C. The decomposition of H_2O_2 by these pigments at 37°C is negligible. The pigments can, however, act as active carriers of different ions (e.g. $CU^{\cdot\cdot}$) adsorbed on their surface. Characteristic differences in H_2O_2 decomposition (reaction of the Ist degree) were observed as a result of applying CdS as carrier for such ions as $Co^{\cdot\cdot} + [Fe(CN)_6]^{\cdot\cdot\cdot\cdot} + CN^{\cdot\cdot}$ Among the six possible combinations (catalytic mutation) suitable for this purpose are multicomponent catalysts which have been prepared successively: $CdS + Co^{\cdot\cdot} + [Fe(CN)_6]^{\cdot\cdot\cdot\cdot} + Cu^{\cdot\cdot}$ or $CdS + [Fe(CN)_6]^{\cdot\cdot\cdot\cdot} + Co^{\cdot\cdot} + Cu^{\cdot\cdot}$ They must be considered as colloidal supercomplex compounds of radical structure. Being one of the most sensitive methods, the procedure described is suitable for technical control of individual cadmium sulphide pigments.

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KRAUSE, A

POL.

3311 546.44'121 : 542.913 : 546.215

Krause A., Kotkowski S., Mieżyński M. Zinc Sulphides in the Process of Decomposition of Hydrogen Peroxide Solution.

„Siarczki cynku jako katalizatory w procesie rozkładu wody utlenionej". Przemysł Chemiczny, No. 2, 1954, pp. 66—68, 7 tabs.

The process was investigated of decomposing H_2O_2 in the presence of zinc sulphides: wurtzite, sphalerite and ZnS precipitated from $ZnSO_4$ solution. Natural and precipitated sulphides, activated by ions, form catalytic compounds showing distinct differences as regards the rate of decomposition of hydrogen peroxide solution. In this way, some minerals can be characterized and isolated as industrial catalysts.

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KRAUSE, M.

POL

3328 667.622.1 : 661.846.511.4 : 66.097.8

Krause A., Kranz M. Stabilisation of Cadmium Yellows.

„O stabilizacji pigmentów żółcieni kadmowej". Przemysł Chemiczny. No. 3, 1954, pp. 132—134, 1 fig., 5 tabs.

Cadmium yellows can be readily oxidised by using H_2O_2 at 20°C. The reaction is autocatalytic. Fe^{+++} ions and in the first place $PO_4^{\cdot\cdot\cdot}$ and $AsO_4^{\cdot\cdot\cdot}$ ions have stabilizing properties and protect CdS against oxidation. These ions should be considered as stabilizers of the special lattice of CdS resulting in the formation of trace quantities of stale complex compounds (which exert a blocking effect) in active points on the surface of CdS. To stabilise air dryed CdS pigments, the solution of sodium phosphate is added in a weight relation CdS : $PO_4^{\cdot\cdot\cdot}$ = 100 : 1.

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KRAUSE, ALFONS

POLON

The importance of colloids and trace elements as catalysts. Alfons Krause (Univ. Poznań, Poland). *Wiadomości Chem.* 8, 374-81(1954).—A review with 20 references.
Adam Sporzyński

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KRAUSE, A.

3842 542.941/.943 : 542.973 : 547.758.5

Krause A., Granieczny S., Wolski W. Concerning Double-Faced Carrying Properties of Aluminium Hydroxide in Redox Systems.

„O dwulicowych własnościach nośnikowych wodorotlenku glinowego w układach redukcyjno-oksydacyjnych". Roczniki Chemii (PAN). No. 3, 1954, pp. 377-384, 4 tabs.

Double-faced properties of aluminium hydroxide in the reaction of oxidation of water solution of indigo carmine by means of hydrogen peroxide at 37°. Aluminium hydroxide alone inhibits this reaction, but in combination with traces of certain other cations—such as Cu^{++}, Cr^{+++}, Co^{++}, it has an accelerating influence, intensified with the increasing concentration of $Al(OH)_3$.

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KRAUSE, A.

3472 546.215 : 542.976.7 : 546.814-35

3

Krause A., Borkowski B. Stabilization of Solutions of Hydrogen Peroxide by α-Stannic Acid Gel.

POL

„O stabilizacji roztworów nadtlenku wodoru przy pomocy żelu kwasu α-cynowego". Przemysł Chemiczny, No 8, 1954, pp. 392—398, 1 fig., 9 tabs.

Results of investigation have shown that the α-$Sn(OH)_4$ gel is perfectly suitable for stabilising every concentration of H_2O_2 in the temperature range of 15—80°C (5 mg of SnO_2 per 1 l of H_2O_2 is sufficient for this purpose). The minimum quantity of gel which still exercises some degree of stabilising effect is 0.05 mg/l. The influence was investigated of the pH at which α-$Sn(OH)_4$ gel was prepared on the stabilising properties of such gel. The decomposition of H_2O_2 was determined by gasometric and manganometric methods. Pure aqueous solutions of H_2O_2 preserved in glass vessels underwent a slow decomposition in consequence of dilution of trace quantities of glass imparting alkaline reaction to the solution. Ions OH^- exert an autocatalytic influence on the decomposition of hydrogen peroxide in accordance with the following reactions: $H_2O_2 \rightleftharpoons H^+ + O_2H^-$; $H^+ + OH^- \rightleftharpoons H_2O$; $2O_2H^- \rightarrow O_2 + 2OH^-$ etc. α-stannic acid gel, as an amphoteric acid product, stabilises hydrogen peroxide by absorbing OH^- ions.

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[illegible], A.

"Importance of Colloids and of Other Elements in Small Amounts for Catalyzers", P. 374, (WIADOMOSCI CHEMICZNE, Vol. 8, No. 8, August 1954, Wroclaw, Poland)

DO: Monthly List of East European Accessions (EEAL), LC, Vol. 4, No. 3, March 1955, Uncl.

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KRAUSE, A.; KRANZ, M.

"Characteristics of Cadmium Pigments as Catalysts," P. 19. (PRZEMYSL CHEMICZNY, Vol. 10, No. 1, Jan. 1954, Warszawa, Poland)

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 4, No. 1, Jan. 1955 Uncl.

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KRAUSE, A.; KOTKOWSKI, S.; MIEZYNSKI, M.

"Zinc Sulfides in the Process of the Decomposition of Hydrogen Peroxide Solution; Inorganic Ferments and Mineral Ferments." P. 66. (PRZEMYSL CHEMICZNY, Vol. 10, No. 2, Feb. 1954, Warszawa, Poland)

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 4, No. 1, Jan. 1955 Uncl.

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KRAUSE, A.; KRANZ, M.

Stabilization of yellow pigments of calcium sulfide. p. 132. (PRZEMYSL CHEMICZNY, Vol. 10, No. 3, Mr. 1954, Warszawa, Poland)

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 3, No. 12, Dec. 1954, Uncl.

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KRAUSE, A.; BORKOWSKI, B.

Stabilization of hydrogen peroxide solutions with the help of -stannic acid gel. p. 392. (PRZEMYSL CHEMICZNY, Vol. 10, No. 8, Aug. 1954, Warszawa, Poland)

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 3, No. 12, Dec. 1954, Uncl.

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KRAUSE, A.

Catalytic action of aluminum ions in reduction-oxidation systems. Alfons Krause (Univ. Poznań, Poland). *Roczniki Chem.* [redacted] (German summary).—Al^{+++} ions are inactive in the decompn. of H_2O_2 and in the oxidation of org. substances by H_2O_2 at 37°. However, they promote or inhibit the action of other catalysts. Inhibition by Al^{+++} is observed in the catalytic decompn. of H_2O_2 by CuO, by mixed gels of $Al(OH)_3$-$Cr(OH)_3$-$Fe(OH)_3$, $Cu(OH)_2$-$Pb(OH)_2$-$Fe(OH)_3$, and $Mg(OH)_2$-$Cu(OH)_2$-$Fe(OH)_3$, and by $Cu_3[Fe(CN)_6]_2$ gel. Al promotes the catalytic decompn. of H_2O_2 by Cu Fe ferricyanide gel. Formation of complexes and blocking of active centers in the catalyst by the Al^{+++} ions explain some of the phenomena. M. Falk

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KRAUSE, A.

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1962. **Inorganic indicator applicable to acidimetric titrations.** A. Krause and M. J. Dalewska. (*Roczn. Chem.*, 1954, 28 (1), 124-128).—When to an aq. soln. of $FeSO_4.7H_2O$ some H_2O_2 is added at 20° C, a yellow basic ferric sulphate is pptd. This is converted by OH' into red *iso*-orthoferrihydroxide amorphous to X-rays. The coagulation of the ppt. is best achieved at the iso electric point (pH = 8), which is identical with the acid - base neutralisation point. The basic ferric sulphate is a convenient indicator for titrations with NaOH of strong inorganic acids in dilutions to 0·01 *N*, and of strong organic acids like formic and acetic acids at dilutions to 0·1 *N*. The indicator, however, cannot be used to titrate bases with acids. To prepare the indicator, dissolve 3 g of $FeSO_4.7H_2O$ in 100 ml of distilled water at 20° C, filter, mix with 15 ml of H_2O_2; after 2 to 3 hr. filter the yellow coagulate, wash with distilled water to remove all $Fe^{\cdot\cdot\cdot}$ and SO_4'', and dry as much as possible on a Buchner funnel. The indicator is used in form of a pulp, which is obtained by thoroughly mixing the filter cake with twice its amount of water. Very accurate results are obtained in the titration of H_2SO_4, owing to the common anion; to titrate dil. HCl, some K_2SO_4 should be added to suppress the peptising influence of HCl. The indicator is not applicable to the titration of orthophosphoric, tartaric and citric acids, owing to the formation of complex compounds. Comparison with phenolphthalein and methyl orange indicators showed agreement to 1 per cent. for inorganic acids and approx. 4 per cent. for organic acids.

H. Burstin

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POL.

Rates of some catalytic reactions in complex reduction-oxidation systems. Alfons Krause and Jerzy Pawelkiewicz (Univ. Poznań, Poland). Roczniki Chem. 28, 317-27 (1954)(German summary).—The rate of the catalytic decompn. of aq. H_2O_2 at 37° by a $Fe(OH)_3$-$Mg(OH)_2$ catalyst was increased by the addn. of $Co(OH)_2$ and especially by $Cu(OH)_2$. The rate was not affected by $Mn(OH)_2$ or $Ce(OH)_4$. The rate of decompn. of H_2O_2 by a $Fe(OH)_3$-$Mg(OH)_2$-$Cu(OH)_2$ catalyst indicated a reaction of the order 0.5. The oxidation of HCOOH by H_2O_2 with the same catalyst was of the order 1.5. The formation of higher oxides of Fe, Mg, and Cu on the surface of the catalyst was proved analytically, and they are thought to take part in the catalytic process.

Michael Falk

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POL .

Properties of magnesium hydroxide as catalyst and carrier in reduction-oxidation systems. Alfons Krause, Jerzy Rosochowicz, and Krystyna Przylecka (Univ. Poznań, Poland). *Roczniki Chem.* 28, 339-30(1954)(German summary).—$Mg(OH)_2$ catalyzes weakly the decompn. of H_2O_2 and the oxidation of indigo carmine by H_2O_2 at 37°. Traces of Ag^+, Mn^{++}, Co^{++}, Ni^{++}, UO_2^{++}, Cr^{+++}, and Fe^{+++} act as catalyst poisons. Cu^{++} ions, even as low as 10^{-6} g./l. promote the action of $Mg(OH)_2$. The poisoning and promoting actions are explained by the formation or blocking of active spots on the surface of the $Mg(OH)_2$ carrier.

Michael Falk

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Lead hydroxide as component of reduction-oxidation catalysts. Alfons Krause and Stanisław Magas (Univ. Poznań, Poland). *Roczniki Chem.* 28, 337-50(1954) (German summary).—The decompn. of H_2O_2 by a $Pb(OH)_2$ catalyst at 37° is promoted by Cu^{++} and Mn^{++}. It is hindered by Ni^{++}, Co^{++}, UO_2^{++}, and NaOH. Ag^+, Hg^{++}, Mg^{++}, Zn^{++}, Fe^{+++}, and Pb^{++} show no effect. Cu^{++} is adsorbed on $Pb(OH)_2$ as CuO and is supposed to take part in a cycle: (1) $2CuO + H_2O_2 \rightarrow Cu_2O + H_2O + O_2$; (2) $Cu_2O + H_2O_2 \rightarrow 2CuO + H_2O$. The rates indicate a reaction of 1st order, and the activation energy is 18 Cal. per mole, with or without the catalyst. The catalytic oxidation of indigo carmine by H_2O_2 with $Pb(OH)_2$ is greatly promoted by Co^{++}. The mechanism is thought to include a deformation of HOOH to HOH.

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POL

Catalytic properties of cupric hydroxide and its activation. Alfons Krause and Ewa Wosińska (Univ., Poznań, Poland). *Roczniki Chem.* 28, 351-8(1954)(German summary).—Air-dried $Cu(OH)_2$ powder, pptd. from $Cu(NO_3)_2$ soln. with excess NaOH at 20°, was investigated as a catalyst in the oxidation of HCOOH by H_2O_2, alone and in combination with other compds. Ca, Mg, and Co(II) hydroxides promote the catalysis, when copptd. with the $Cu(OH)_2$. Hydroxides of Be, Pb(II), and Ni(II) are indifferent, whereas those of Cd and Zn act as inhibitors. Ca and Mg ions, adsorbed on the $Cu(OH)_2$ from their soln., do not promote the catalysis, whereas Co^{++} inhibits it. $Mn(OH)_2$ is a better promoter than is Mn^{++} ion.

Michael Falk

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POL.

Catalytic oxidation of indigo carmine with air oxygen. Alfons Krause and Benedykt Stasiński (Univ. Poznań, Poland). *Roczniki Chem.* 28, 359-65(1954)(German summary).—Metallic ions and ion combinations were tested as catalysts in the oxidation of aq. indigo carmine soln. by air at 37°. The ions Na^+, K^+, WO_4^{--}, and $[Fe(CN)_6]^{--}$ do not catalyze the reaction. Mg^{++}, Ba^{++}, Zn^{++}, Cd^{++}, Cr^{+++}, and (Mg^{++} + Pb^{++}) catalyze the oxidation; $CaCN_2$ does not affect the catalysis. NH_4^+, Co^{++}, (Mn^{++} + Pb^{++}), (Co^{++} + $[Fe(CN)_6]^{4-}$), (Pb^{++} + Cr^{+++} + Mn^{++}), (Mg^{++} + Pb^{++} + Mn^{++}) are catalysts; their action is promoted by $CaCN_2$. Hg^{++}, Cu^{++}, Fe^{+++}, Ni^{++}, (Mg^{++} + Mn^{++}), (Cu^{++} + Fe^{+++}), (Cu^{++} + Fe^{+++} + Co^{++}), and (Cu^{++} + Fe^{+++} + $[Fe(CN)_6]^{4-}$) are also catalysts, but their action is retarded by $CaCN_2$. Complex compds. with radical structure, formed on the surface of $CaCN_2$, are thought to be responsible for both the starting and terminating of the reaction chain; thus the action of catalysts is promoted or retarded. M. Falk

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KRAUSE, A.

POL. 3

Hydroxides of aluminium, and their differentiation by means of catalytic mutation. A. Krause and E. Borzeszkowski. (Roczn. Chem., 1954, 28, 307.) [illegible] position of H_2O_2 is not catalysed by various hydroxides of Al. Addition of traces of Fe^{2+} to the systems leads to slow decomposition, which is, however, less than in the absence of Al hydroxides. Treatment of the hydroxides successively with solutions of Cu^{2+}, Fe^{2+}, and Mn^{2+} (1 mg. per 0·1 g. of Al hydroxide) gives more active catalysts, activity diminishing in the series Al hydroxides absent (only heavy metal ions) > amorphous $Al(OH)_3$ > boehmite > hydrargillite > α-Al_2O_3 > bayerite. This order bears no relation to that of the grain size of the hydroxides.

R. Truscoe.

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KRAUSE ALFONS

POL

Catalytic amphoteric of manganese^{++} and the activity of micro traces of this element. Alfons Krause and Wlodzimierz Wolski (Univ. Poznan, Poland). Roczniki Chem. 28, 539-48(1954).—The catalytic action of small amts. of Mn^{++} ions ($MnSO_4$) on the dissocn. of H_2O_2 at 37° is extremely low. The action can be accelerated by use of Ca nitride as carrier. Traces of Mn down to 10^{-7} g. Mn^{++} in a diln. of 1:1.5 billion could still be easily detected. This is considered an example of true trace catalysis for which, incidentally, the temp. of 21° was found to be more favorable than 37°.

M. O. Holowaty

PM

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KRAUSS, A.

KRAUSS, A. Importance of ions in catalysis. . 3(.

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So: East European Accessions, Vol. 5, May 1956

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KRAUSE, A.

KRAUSE, A.

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135 542.973 : 546.35

Krause A. Effect of Metal Hydroxides as Four-Component Catalysts in the Decomposition of Hydrogen Peroxide.

„O działaniu czterozkładnikowych katalizatorów wodorotlenków metali w rozkładzie H_2O_2". Przemysł Chemiczny. No. 6, 1955, pp. 291—294, 6 tabs.

The following metal hydroxides as four-component catalysts in the decomposition of H_2O_2 at 37°C are investigated: 1) $Fe(OH)_3 + Cu(OH)_2 + Co(OH)_2 + Mg(OH)_2$; 2) $Cu(OH)_2 + Mn(OH)_2 + Co(OH)_2 + Ni(OH)_2$. The air-dried catalysts were used in amounts of 1 and 0.1 mg for 150 ml of H_2O_2 (0.3%). The rate of H_2O_2 decomposition corresponds approximately to the first order reaction. The effect of the first catalyst is most advantageous at a molar ratio of the hydroxides: Fe : Cu : Co : Mg = 1 : 1/2 : 1/3 : 1/3, the optimum molar ratio for the second catalyst being: Cu : Mn : Co : Ni = 1 : 1.5 : 1 : 0.25. The amount of moles of H_2O_2 decomposed on the first and the second catalyst per minute are respectively: 11 M for one gram-atom of Fe and 14 M for one gram-atom of Cu. The introduction of $Mg(OH)_2$ to the second catalyst as the fifth component is disadvantageous (antagonistic influence). The practically amorphous structure of the first and the second catalysts observed on the radiographs justifies the assumption of the existence of active transitory phases of radical structure. In precipitating mixed hydroxides from the solution of their salts, a small excess of NaOH is in general advantageous, but the second catalyst should be equivalently precipitated. The question is discussed in connection with the structure of the catalysts described taking into account the Tammann principles of crystallisation adapted for these systems by A. Krause.

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KRAUSE, ALFONS

Specificity of phosphates as carriers of catalysts in oxidation reduction systems. Alfons Krause (Inst. Inorg. Chem., Posen, Poland). Roczniki Chem. 29, 165-72 (1955)(German summary). The decompn. of H_2O_2 (200 cc., 0.3%) was inhibited by $Mg_2P_2O_7$ (0.1 g.) (I) in the presence of most ion activators, was decreased by I with Fe^{++} and $Fe(CN)_6^{4-}$, was catalyzed by I with Cu^{++} ion in concns. greater than 10^{-4} g. Likewise $MgNH_4PO_4 \cdot 6H_2O$ inhibited the H_2O_2 decompn. except with Co^{++} ion in concns. greater than 10^{-4} g. A mechanism is given for the Co^{++} catalysis. I with the ion pairs $Cu^{++} + Mn^{++}$ or $Cu^{++} + Co^{++}$ and the three ions, $Fe^{++} + Al^{++} + Fe(CN)_6^{4-}$ was also a catalyst. A similar effect was observed in the oxidation of HCOOH. I with H_2O_2 at 37°, with Fe^{++} or Cu^{++} or $Fe^{++} + Cu^{++}$ inhibited, whereas I with Co^{++} or $Cu^{++} + Co^{++}$ catalyzed the reaction. P. Dreyfuss

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KRAUSE, ALFONS

A polychromatic chameleon reaction. Alfons Krause (Inst. Inorg. Chem., Poznań, Poland). ~~Roczniki Chem. 29, 173-81(1955)~~ (German summary).—The reduction of $KMnO_4$ by HCOONa in dil. alk. sol. at room temp. was a chameleon reaction, in which a blue color due to K_2MnO_4 appeared after reaction. Thus mixing 50 cc. H_2O_2 (0.6%) with 50 cc. 0.5N HCOOH, adding 0.1 g. PbO_2, making alk. with 2N NaOH, removal of the pptd. red-brown $Pb_2O_3.H_2O$, dilg. the soln. of HCOONa thus made with distd. H_2O, and adding 0.1N $KMnO_4$ gave color changes from red-violet to blue to green; acidifying with 2N H_2SO_4 made the red-violet color return; making alk. and acidifying 4 or 5 times repeated the color changes until the MnO_4 formed stopped the reaction. The rate of the reaction was increased by trivalent aluminum ion and bivalent cobalt ion, decreased by bivalent nickel ion, and unaffected by bivalent copper ion and trivalent iron ion. Added KI reduced $KMnO_4$ directly to the green color and added As_2O_3 led only to MnO_2.

P. Dreyfuss

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KRAUSE, ALFONS

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V The reactivity of mixed hard amphoteric metal hydroxides. Alfons Krause (Univ., Posen, Poland). *Roczniki Chem.* 29, 201-8(1955)(German summary).—Certain solid amphoteric metallic hydroxides show superadditive activity when ground together and used as mixed catalysts. Thus $Ni(OH)_2$ (I) (0.1 g.) with 1 mg. of CuO, ortho $Fe(OH)_3$, or $Co(OH)_2$ did not activate the H_2O_2 decompn. at 37°, whereas mixing I (0.1 g.) with 1 mg. of $Mg(OH)_2$ (II), or $Mn(OH)_2$ greatly activated it. $PbO.^1/_2H_2O$ (III) with CuO and $Mn(OH)_2$ was inactive, while III with II was an excellent catalyst. A mech. mixt. of ortho $Fe(OH)_3$ (shown to be amorphous by x-ray) (IV) and II failed to activate the peroxidative HCOOH oxidation but melting II and IV together made an active catalyst. An explanation for this change in activity is given.

P. Dowlin

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Krause, Alfons

CH

Calcium cyanamide as catalyst and carrier of other catalysts. Alfons Krause (Univ. Posen, Poland). *Roczniki Chem.* [illegible] (German summary).—$CaCN_2$ (I) catalyzed the decolorization of an indigo carmine soln. by H_2O_2 (II) at 37°. I did not work as a carrier of O_2 and the decompn. of II was weak in its presence, but I as a carrier of Mn^{++}, Co^{++}, Cu^{++}, Fe^{+++}, Mg^{++} ions activated the decompn. in decreasing order. I as a carrier of Ca^{++} was inactive. In the peroxidative HCOOH oxidation with H_2O_2 at 37° I alone or with Ni^{++} was inactive, I with Mn^{++}, Co^{++}, and WO_4^{--} inhibited, and I with Cu^{++}, Fe^{+++}, and $K_4[Fe(CN)_6]$ catalyzed. P. Dreyfuss

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KRAUSE, ALFONS

Characterization of α- and β-stannic acids on a catalytic basis. Alfons Krause and Bogusław Borkowski [Univ. Poznań, Poland]. *Roczniki Chem.* 29, 307-24(1955)(German summary).—α- and β-Stannic acids were investigated in the catalytic decompn. of H_2O_2 and in the peroxidative oxidation of indigo carmine at 37°. They were used as carriers of univalent Ag ion, bivalent Co, Cu, Ni, Mn, Zn, Hg, Pb, Ba, and Mg ions, trivalent Fe, Al, and Cr ions, $[AuCl]^{4-}$, $[Fe(CN)_6]^{4-}$, and certain combinations of these ions. A difference in activities of the acids with the various ions was observed. It was suggested that the acids might be distinguished catalytically. P. Dreyfuss

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KRAUSE, A.

7

Investigations in catalysis. A. Krause (Univ. Poznań, Poland). *Przemysł Chem.* 34, 11-13(1955)(English summary).—The reaction $2SO_2 + O_2 = 2SO_3$ in which V_2O_5 is used as a catalyst in which V does not change its valency during the reaction is explained. If V_2O_5 is 2 separate radicals: O_2V and $O_2V.O$, the following equations can be written: (1) $(O_2V)_2 + 2SO_2 + 2O_2 \rightarrow O_2V.O.SO_2.O.O.SO_2.O.VO_2 + 2SO_3 \rightarrow 4SO_3 + (O_2V)_2$. (2a) $(O_2V.O)_2 + 2SO_2 + O_2 \rightarrow O_2V.O.SO_2.O.O.SO_2.O.VO_2 \rightarrow 2SO_3 + (O_2V.O)_2$. (2b) $(O_2V.O)_2 + 2SO_2 + O_2 \rightarrow O_2V.O.SO_2.O.O.SO_2.O.VO_2 + 2SO_2 \rightarrow 4SO_3 + (O_2V)_2$; $(O_2V)_2 + O_2 \rightarrow (O_2V.O)_2$. (3) $(O_2V + O.VO_2)_2 + 4SO_2 + 3O_2 \rightarrow (O_2V.O.SO_2.O.O.SO_2.O.VO_2)_2$; $O_2V.O.SO_2.O.O.SO_2.O.VO_2 + SO_2 \rightarrow 3SO_3 + O_2V + O.VO_2$. L. G. Manitius

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[illegible]

[illegible] Krause and Aleksandra S[illegible]: "[illegible] of [illegible]," [illegible], Vol 3, No 2, Warsaw, 19[illegible]. [illegible] Laboratory of Inorganic Chemistry, Poznan University, 3 Jan [illegible].

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KRAUSE, A.

27

Krause A. Ferromagnetic Compounds of Metal Oxides and a New Method of Preparation.

„O ferromagnetycznych związkach tlenków metali i nowej metodzie ich otrzymywania". Przemysł Chemiczny. No. 11, 1956, pp. 623—625, 1 tab.

A new wet method of preparing ferromagnetic ferrites, consisting of precipitating hydroxides of nonferrous metals in the presence of γ-FeOOH in neutral or slightly alkaline medium. The mixed gels, washed and dried were roasted at 700—1300°C.; the cooling was carried out in a normal way or even rapid cooling was applied. Ferrites of magnesium, copper, manganese, nickel and cobalt, very hard and ferromagnetic to a high degree, were, together with mixed ferrites, prepared by this method. Barium ferrite shows weaker ferromagnetic properties. The ferromagnetic properties of zinc ferrite, which appeared after drying in air, disappeared above 300°C. Ferrous-cobalt ferrite is characterised by two Curie points. Ferrites of magnesium, copper, manganese, cobalt and nickel did not, heated at 1000°C., lose their ferromagnetic properties when in composition they deviated from the spinel formula. The magnesium ferrites of the composition $MgO.10Fe_2O_3$ or $60\ MgO.Fe_2O_3$ were found to be ferromagnetic. For the ferrites described a Polish patent 39903 (1955) has been taken out.

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KRAUSE, A.

POLAND/Kinetics. Combustion. Explosions. Topochemistry. Catalysis. B-9

Abs Jour : Ref Zhur - Khimiya, No 8, 1957, 26221

Author : A. Krause, M. Kranz.
Title : Preparation of Red Iron Oxide by Topochemical Method

Orig Pub : Przem. chem., 1956, 12, No 6, 312-315

Abstract : The dehydration of yellow sulfate from iso-ortho-hydroxide of Fe in a basic solution in an autoclave at raised temperature and pressure is a topochemical process; red α-Fe_2O_3 containing admixture of yellow α-FeOOH is mainly forming, when the speed of origination of crystal nuclei is great.

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KRAUSE, A.

"Relation between colloids and glass, and the undercooled condition of matter respectively. In German."

p. 91 (Bulletin. Serie B: Sciences Mathematiques Et Natu-relles.)
No. 13, 1954/55 (published 1956)
Poznan, Poland

SO: Monthly Index of East European Accessions (EEAI) LC. Vol. 7, no. 4, April 1958

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"APPROVED FOR RELEASE: Monday, July 31, 2000 CIA-RDP86-00513R000826220

KRAUSE, A.

"Structure of radicals in solid bodies and its significance to surface chemistry, catalysis, and chromatography. In German."

p. 111 (Bulletin. Serie B: Sciences Mathematiques Et Natu-relles.)
No. 13, 1954/55 (published 1956)
Poznan, Poland

SO: Monthly Index of East European Accessions (EEAI) LC. Vol. 7, no. 4, April 1958

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KRAUSE, A

POLAND/Inorganic Chemistry - Complex Compounds. C.

Abs Jour : Ref Zhur - Khimiya, No 9, 1957, 30321

Author : Krause Alfons, Lewandowski Anzelm
Inst :
Title : Spontaneous Crystallization of Goethite and Its Preparation from X-Ray Amourphous Hydroxide of Trivalent Iron.

Orig Pub : Bull. Soc. amis sci. e lettres Poznan, 1954-1955 (1956), B13, 125-130.

Abst : Goethite (alpha-$Fe_2O_3 \cdot H_2O$) was obtained by an accelerated method from x-ray amorphous $Fe(OH)_3$ at moderate temperature, on regulation of nuclei formation and crystallization at a corresponding concentration of OH^- ions.

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Krause, Alfons

The catalytic gold test. Alfons Krause and Edmund Horzeszkowski (Univ. Poznań, Poland). *Bull. soc. amis. sci. et lettres Poznań Ser. B*, 13, 131-3(1938)(in German).—The Au contents of 8, 14, and 22 carat prepns. can be detd. without loss of material. Au is used as a carrier of Fe^{+++} for the catalytic reduction of H_2O_2 in a 0.3% soln. at 37°. The concn. of H_2O_2 is subsequently detd. manganometrically. The reduction of H_2O_2 effected is greatest for the 8-carat Au prepn.; the 22-carat Au is not distinguished from Fe^{+++}-peroxide mixts. J. R. McIlroy

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KRAUSE, A.

The transformation of natural α-Fe_2O_3 (hematite) to γ-FeOOH. Alfons Krause (Univ. Poznań, Poland). *Bull. soc. amis sci. et lettres Poznań* Ser. B, 13, 135-40(1950)(in German).—Fe_2O_3 or $Fe(OH)_3$, as well as goethite and hematite, may be changed to γ-FeOOH by a single treatment with H_2S in the presence of atmospheric O and H_2O at room temp. The presence of γ-FeOOH was verified by x-ray analysis after sepn. of the α-Fe_2O_3. The conversion proceeds through the intermediate forms, polyorthoferrihydroxide assocn. and polyorthoferrihydroxide.

J. R. McHenry

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KRAUSS, A.; VOLSKI, V.

"Catalytic properties of sea water. In Russian."

p. 141 (Bulletin. Serie B: Sciences Mathematiques Et Natu-relles.)
No. 13, 1954/55 (published 1956)
Poznan, Poland

SO: Monthly Index of East European Accessions (EEAI) LC. Vol. 7, no. 4, April 1958

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Krause, Alfons

6000

The benzidine reaction of platinum metals. Alfons Krause and Anastazia Hermann (Univ. Poznań, Poland). *Bull. soc. amis. sci. et lettres Poznań* Ser. B, 13, 147-54 (1956)(in German).—The benzidine color is developed in the presence of dil. (<0.1*N*) AcOH and 0.6% H_2O_2 as a function of the Pt activity. The reaction is a reversible reduction-oxidation type. Small amts. of $HgCl_2$ (6.75 γ), KCN (3.25 γ), Na_2S (13 γ), As_2O_3 (17 γ), and NaF (8.4 mg.) per 0.1 ml. are sufficient to poison the reaction in 0.005*N* AcOH. The reaction is more readily poisoned when the AcOH is added prior to the H_2O_2. Hydrazine and hydroxylamine do not appreciably poison the reaction.

J. R. McHenry

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KRAUSE, A.

"Research on catalysis; catalytic-analytic methods. In German."

p. 155 (Bulletin. Serie B: Sciences Mathematiques Et Natu-relles.)
No. 13, 1954/55 (published 1956)
Poznan, Poland

SO: Monthly Index of East European Accessions (EEAI) LC. Vol. 7, no. 4, April 1958

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KRAUSE, Alfons

Alfons Krause: "O Wlasnosciach Katalitycznych i Nosnikow Niektorych Zwiazkow Rtieci w Ukladach Redukcyjno-Oksydacyjnych," Roczniki Chemii, Vol 30, No 1, Warsaw, 1956. Published from the Research Laboratory of Inorganic Chemistry, Poznan University, 4 May 55.

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[illegible]fons Krause and Stefan Kotkowski: "Inv[illegible]igations on [illegible]ermium III - [illegible]yeroxide," [illegible], Vol 3[illegible], No 1, Warsaw, 19[illegible]. Published from the [illegible]search Laboratory of [illegible] Chemistry, Poznan University, [illegible] Jan 5[illegible].

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[illegible] Przeslaw Poszwinski: "[illegible] Catalysis," Roczniki Chemii, Vol 30, No 1, [illegible], 19[illegible]. Published from the [illegible] Laboratory of Inorganic Chemistry, [illegible], [illegible].

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[illegible] Krause, [illegible] Lewandowski and Henryka [illegible]: [illegible] (2-[illegible]). [illegible] [illegible], "[illegible]", Vol 30, [illegible], [illegible], [illegible]. [illegible] Laboratory of [illegible] Chemistry and the [illegible] Laboratory of [illegible] Chemistry, Poznan University, 30 [illegible].

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POLAND / Physical Chemistry. Colloid Chemistry. Disperso Systems. B

Abs Jour: Ref Zhur-Khimiya, No 24, 1958, 80926.

Author : Krause, A., Kotkowski, S.
Inst : Not given.
Title : Chromium Hydroxides.

Orig Pub: Roczn. chem., 1956, 30, No 1, 11-28.

Abstract: In the precipitation of violet and green Cr(3+) salt solutions with alkali at 20°, gels of chromium hydroxides (HO) are being formed of respectively grayish-greenish-blue (I) and blueish-green (II) color. These gels consist mainly from macromolecules that have long side chains. Further branching of these side chains results in a structure (not crystalline) which retains considerable amount of water. As air-dried materials the gels

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KRAUSE, Alfons

Alfons Krause and Wlodzimierz Wolski: "Kupfer II-Oxyd als Trager von Mehrstoffkatalysatoren," Roczniki Chemii, Vol 30, No 3, Warsaw, 1956. Published from the Research Laboratory of Inorganic Chemistry, Poznan University.

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"APPROVED FOR RELEASE: Monday, July 31, 2000 CIA-RDP86-00513R000826220

KRAUSE, Alfons

Alfons Krause, Edmund Borzeszowski*, and Wlodzimierz Wolski: "On the Structure of Cobalt II-Hydrozide," Roczniki Chemii, Vol 30, No 3, Warsaw, 1956. Published from the Research Laboratory of Inorganic Chemistry, Poznan University.

*Dr. Edmund Borzeszkowski, adjunct to the Chair of Inorganic Chemistry at Poznan University, author, and co-worker in this project, died at the age of 43 on 10 Oct 1954.

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[illegible] Krause, Wlodzimierz Wolski and [illegible] Wasiak: "[illegible] Glazowych [illegible] Katalitycznej Wodorotlenku [illegible]", [illegible], Vol 30, No 3, [illegible], 19[illegible]. [illegible] the Research Laboratory of Inorganic Chemistry, Poznan University. "The catalytic activity of nickelous hydroxide in reducing-oxidating [illegible] was examined on the base of mixed catalysts of the type Ni(OH)2/ion.

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KRAUSE, A.

3

Chem

Catalytic properties of oxides of uranium. A. Krause and P. Poszwiński (*Roczn. Chem.*, 1956, 30, 29–38).—The catalytic activity of oxides of U in the decomposition of $2H_2O_2$ varies in the order $UO_4 > UO_3 > U_3O_8$-c (prepared by u.v. irradiation of $UO_2(OAc)_2$ in aq. ethanol at room temp.) $< UO_3$-b (heated at 800°) $< UO_3$-a (heated at 600°) $< U_3O_8$-b (heated at 1000°) $< U_3O_8$-a (heated at 800°). The order of activity in peroxidative oxidation of HCO_2H at 37°, and of indigo carmine at 20°, is U_3O_8-a $< U_3O_8$-b $< UO_4 < U_3O_8$-c $< UO_3$-a $< UO_3 < UO_3$-b, and of benzidine in aq. AcOH is $UO_4 < UO_3 < U_3O_8$-a $< U_3O_8$-b $< UO_3$-a $< UO_3$-b. The oxides are of equal activity in peroxidative oxidation of pyrogallol. (14 references.)

K. Truscott.

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KRAUSE, A.

Catalytic and carrier properties of some mercury compounds in oxidation-reduction systems. A. Krause (*Bocrn. Chem.*, 1956, 30, 39–50).—Red HgI stabilizes H_2O_2 at 37°. The catalase activity of Cu^{2+} adsorbed on HgI_2 is much less, of Cr^{3+} slightly greater, and of CrO_4^{2-}, WO_4^{2-}, and $[Fe(CN)_6]^{4-}$ (I) considerably greater, than in solution. Oxidation of HCO_2H by H_2O_2 is unaffected by HgI_2, which inhibits the catalytic effect of Cu^{2+} and Fe^{3+} in this reaction, but enhances that of I. No activity was shown by HgS alone or with H, NH_4, Na, K, Ca, Sr, Pb^{2+}, Cr^{3+}, Mn^{2+}, Ni^{2+}, Cu^{2+}, Al, Fe^{3+}, Co^{2+}, OH, CN or WO_4 ions; the activity of I and $[Fe(CN)_6]^{3-}$ (II) was greatly enhanced by HgS, which also gives active complexes with Co^{2+} or Mn^{2+} + I or II, Al^{3+} + Fe^{3+} + I, and Cu^{2+} + Fe^{3+} + Co^{2+}. Hg_2O actively catalyzes decomp. of H_2O_2; its activity is enhanced by OAc, Al, Cu^{2+}, and Fe^{3+} + Cu^{2+} ions, unaffected by Fe^{3+}, and lowered by Br^- and Cr^{3+}. The velocity of oxidation of indigo carmine by H_2O_2 in presence of I or II is very greatly increased in presence of Hg_2O. The reaction $HgO + H_2O_2 \rightarrow H_2O + O_2 + Hg$ is inhibited by Co, Al, and Co + Al ions. (17 references.)

R. TRUSCOE.

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KRAUSE, ALFONS

POLAND/Kinetics. Combustion. Explosions. Topochemistry. Catalysis. B-9

Abs Jour : Ref Zhur - Khimiya, No 8, 1957, 26231

Author : Alfons Krause, Anzelm Lewandowski, Henryka Rorecka
Title : Preparation of Goethite ($-Fe_2O_3 \cdot H_2O$) on X-ray-Amorphous Iron Orthohydroxide with Application of Seeding

Orig Pub : Roczn. chem., 1956, 30, No 1, 51-58

Abstract : The formation of yellow crystalline goethite (I) in the result of aging of X-ray-amorphous gel of iron orthohydroxide (II) in an alkaline medium is accelerated by the presence of seeds of the goethite phase, especially at a raised temperature. The percentual content of I is determined by dissolving the dried precipitate I + II in 32.5% HNO_3, in which I is insoluble. A higher alkali concentration and a longer heating increase the I content in precipitate. In the authors opinion, II accelerates the formation of I catalytically. Frest (2 to 3 days old) seeds of II produce the strongest action.

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KRAUSE, A.

2

Mineral enzyme-like catalysts. A. Krause and A. Smoczkiewiczowa (*Roczn. Chem.*, 1956, 30, 359—364).—A number of naturally-occurring Fe and Cu minerals possess very active catalase and peroxidase properties. (15 references.) R. TRUSCOE.

Chem

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KRAUSE, ALFONS

POLAND/Physical Chemistry - Kinetics, Combustion, Explosions, Topochemistry, Catalysis. B-9

Abs Jour : Ref Zhur - Khimiya, No 7, 1958, 20716

Author : Alfons Krause, Wlodzimierz Wolski.
Inst : -
Title : Copper Oxide as Carrier of Complex Catalysts.

Orig Pub : Roczn. chem., 1956, 30, No 3, 681-690

Abstract : Copper oxide was studied as a carrier of mixed catalysts of the type CuO-ion in reactions of H_2O_2 dissociation and peroxidation of indigo carmine at 37°.

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KRAUSE, H.

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Effect of some trace elements on catalytic activity of nickelous hydroxide. A. Krause, W. Wolski and H. Wasiak (Roczn. Chem., 1956, 80, 723—732). Air-dry $Ni(OH)_2$ has only a slight catalytic activity in the decomp. of H_2O_2. Addition of traces of cations, of the order of p.p.m., which alone do not catalyze the reaction, converts the $Ni(OH)_2$ into a very active catalyst; the order of activity is $Mn^{2+} > Co^{2+} > Ag^{+} > Cu^{2+}$. The most active catalysts are obtained by adding traces of $[Fe(CN)_6]^{3-}$ and of Cu^{2+}, or of Fe^{2+} and Cu^{2+}, to the suspensions; in the latter case, activity is higher when Cu is added before Fe than in the reverse order. In the per-oxidative oxidation of indigo-carmine, the ions Mn^{2+}, Co^{2+}, Ag^{+}, and Mg^{2+} alone are inactive, but they activate $Ni(OH)_2$, whereas the ions Cu^{2+} and Fe^{2+} actively catalyze the reaction in absence, but not in presence, of $Ni(OH)_2$.

R. Truscoe.

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KRAUSE, ALFONS

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Latent lattice imperfections and their importance in the investigations of contact catalysts. Alfons Krause (Univ. Poznań, Poland). *Roczniki Chem.* 36, 1047-54(1956)(German summary).—Catalytic activity of solids offers a much more sensitive test of the presence of latent lattice imperfections (active centers) than do other conventional methods. The proposed catalytic method consists in activation of a catalytically inactive solid by adsorption of certain ions. Catalytic decompn. of H_2O_2 on ZnO, α-Fe_2O_3, γ-Al_2O_3, and α-Al_2O_3 was studied at 37°. Practically inactive ZnO (previously heated at different temps. up to 1000°) showed activity after adsorption of Cu^{++}, Co^{++}, and Na^{+}. α-Fe_2O_3 in presence of adsorbed Co^{++} was active if heated previously to 700°, whereas it became inactive if heated to 800°. The transformation of γ-Al_2O_3 into α-Al_2O_3 at 1000° was confirmed in the same way. A. Krezlewski

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KRAUSE, ALFONS

The effect of low temperatures on structure and catalytic activity of certain ferric hydroxides. Alfons Krause and Gwidon Olejnik (Univ. Poznań, Poland). Roczniki Chem. 30, 1095-1102(1956)(German summary).—Cooling to liquid-air temp. of ortho- and isoorthoferric hydroxides (both amorphous to x-rays) and γ-FeOOH causes a decrease of their apparent d_4, and an increase in surface and catalytic activity in the reaction of H_2O_2 decompn. at 37°.

A. Krezlewski

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KRAUSE, ALFONS

3 9

Determination of the number of active centers on the surface of aluminum hydroxide carrier. Alfons Krause, Stanisław Zieliński, and Henryk Woźniczek (Univ. Poznań, Poland). *Roczniki Chem.* 36, 1101-10(1956)(German summary).—The catalyst formed by Co^{++} adsorbed on amorphous $Al(OH)_3$ is very active in the oxidation reaction of indigo carmine by H_2O_2 at 37°. The activity of Co^{++} increases with the amt. of the carrier. From the max. value of activity and the surface area of $Al(OH)_3$, the no. of active centers was calcd., with the assumption that one Co^{++} ion occupies one center on the unimol. layer of the carrier. A. K.

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KRAUSE A.

Catalytic method for the determination of the activity of aluminum hydroxides and oxides. A. Krause and S. Zelinski (Inorg. Chem. Univ., Poznań, Poland). *Przemysł Chem.* 15, 87-90(1957)(English summary).—A catalytic method using bivalent Co to accelerate the rate of decolorization of an indigo carmine soln. by H_2O_2 in the presence of Al hydroxides and oxides at 87° is described. The rate of decolorization of the indigo carmine was related to the degree of activity of the Al hydroxide. Bivalent Co in concns. as low as 1 part per 600 million was found to be an excellent activator for the reaction. F. Dreyfuss.

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KRAUSE, A.

POLAND/Physical Chemistry - Kinetics, Combustion, Explosions, Topochemistry, Catalysis. B-9

Abs Jour : Referat Zhur - Khimiya, No 1, 1958, 438

Author : A. Krause, W. Wolski, M. Sztukowski.
Inst : -
Title : Catalytical Oxidation of As_2O_3 by Oxygen in Air.

Orig Pub : Przem. chem., 1957, 13, No 4, 212-213

Abstract : The oxidation of relatively concentrated (5%-ual) As_2O_3 solutions by oxygen contained in air in presence of $Cu(OH)_2$ as of a catalyst was studied. It was established that the temperature, pH of the medium and the speed of the air passing through greatly influence the reaction speed. The speed of the oxidation reaction is the optimum at 75°, provided the alkalinity of the solution corresponded to 1 n. of NaoH. In order to reach the optimum reaction speed at 95°, it is necessary to decrease the alkalinity to pH 13. This is explained by the fact that

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POLAND/Physical Chemistry - Kinetics, Combustion, Explosions, Topochemistry, Catalysis. B-9

Abs Jour : Ref Zhur - Khimiya, No 1, 1958, 438

the content of oxygen in the solution decreases at a very high temperature or a very high concentration of NaOH. The fact that a greater yield of As_2O_3 is obtained in presence of a decreased volume of the alkaline As_2O_3 solution than in presence of a greater volume thereof may be explained by the same. The greatest yield (34.4% of oxidized As_2O_3) was obtained at 75° in a 1.5 n. NaOH solution at the ratio of $Cu(OH)_2$ to As_2O_3 = 1 : 50 by weight.

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POLAND/Physical Chemistry. Kinetics. Combustion. Explosions. Topochemistry. Catalysis. B-9

Abs Jour: Ref Zhur-Khim., No 13, 1958, 42627.

Author : Krause A., Zielinski S.
Inst :
Title : The Practical Importance of Catalytic Mutation.

Orig Pub: Przem. chem., 1957, 13, No 9, 503-505.

Abstract: It was ascertained that catalytic activity (CA) of $Cu(OH)_2$, on oxidation of As_2O_3 with air oxygen in an alkaline medium, depends not only on nature of ions utilized to activate this catalyst (C), but also on the sequence of addition of activating ions in the preparation of the C. C activated with the ions Mn^{2+}, Fe^{3+} and $[Fe(CN)_6]^{4-}$ (I) has the highest CA when the ions are added in the order Mn^{2+}, Fe^{3+}, I;

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POLAND/Physical Chemistry. Kinetics. Combustion. Explosions. Topochemistry. Catalysis.

Abs Jour: Ref Zhur-Khim., No 13, 1958, 42627.

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and the lowest CA when the sequence of addition is Fe^{3+}, Mn^{2+}, I. C activated with the ions Mn^{2+}, $[Fe(CN)_6]^{4-}$ (II) and Al^{3+}, is most active when they are added in the order Al^{3+}, Mn^{2+}, II, and it is least active when the order of addition is II, Mn^{2+}, Al^{3+}. Differences in CA of a C having the same composition, which is considered to be a complex compound, are attributed to structural differences.

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POLAND/Inorganic Chemistry - Complex Compounds. C.

Abs Jour : Ref Zhur - Khimiya, No 9, 1958, 28179

Author : Krause, A. and Wolski, W.
Inst :
Title : A New Simplified Method for the Preparation of Ferromagnetic Ferrites.

Orig Pub : Roczniki Chem, 31, No 1, 319-321 (1957) (in Polish with a summary in German)

Abstract : Ferromagnetic ferrites have been prepared by the wetting of dry γ-FeOOH [sic] with an aqueous solution of the salt of the corresponding metal. The mixture is dried and calcined at 350-1200°. The method was used in the preparation of stable ferrites of Mg, Ba, Zn, Cd, Cu, Mn, Ni, and Co.

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POLAND/Inorganic Chemistry - Complex Compounds. C.

Abs Jour : Ref Zhur - Khimiya, No 9, 1958, 28178

Author : Krause, A. and Wolski, W.
Inst : -
Title : Ferric Hydroxides and Oxides Suitable for the Preparation of Ferromagnetic Ferrites.

Orig Pub : Roczniki Chem, 31, No 1, 323-325 (1957) (in Polish with a summary in German)

Abstract : The possibility of obtaining ferromagnetic ferrites from a number of ferric oxides and hydroxides has been investigated. The ferrites are prepared by grinding the oxide with the salt of the corresponding metal followed by calcining. Best results were obtained when γ -FeOOH [sic] and goethite are used as starting materials; α -Fe_2O_3 is unsuitable. The mechanism of the formation of ferrites is discussed.

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Krause, A.

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The preparation of ferromagnetic ferrites by thermal treatment of suitable salts. Alfons Krause and Włodzimierz Wolski (Univ. Poznań, Poland). *Roczniki Chem.* 31, 327-8 (1957) (German summary); cf. preceding abstr.—The ferromagnetic ferrites previously described (*loc. cit.*) may be prepd. by heating to 1000° a mixt. of Fe^{+++} salt (chloride, nitrate, or sulfate) and a 2nd salt of Mg, Cu, Mn, Ni, Co, or Sm. The ratio of the oxides $MO:Fe_2O_3$ may vary from 1:30 to 30:1.

A. Kręglewski.

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KRAUSE, A.

Catalytic activity of minute amounts.

p. 355 (Roczniki Chemii) Vol. 31, no. 1, 1957, Warszawa, Poland

SO: MONTHLY INDEX OF EAST EUROPEAN ACCESSIONS (EEAI) LC, VOL. 7, NO. 1, JAN. 1958

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KRAUSE, A.

POLAND / Physical Chemistry. Kinetics, Combustion, Explosions, Topochemistry, Catalysis. B

Abs Jour: Ref Zhur-Khimiya, No 16, 1958, 53017.

Author : Krause, Feret.
Inst : Not given.
Title : The Relationship Between Catalytic Properties of Mixed Catalyst and the Age of Some of Their Components.

Orig Pub: Rodzn. Chem., 1957, 31, No 2, 385-393.

Abstract: The activity of a mixed catalyst consisting of a hexacyanoferriate and a hexacyanoferroate Fe (3+) and Cu(2+) was studied in regard to the oxidation of a mixture of $HCOOH-H_2O_2$. The necessity of ...

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POLAND / Physical Chemistry. Kinetics, Combustion, Explosions, Topochemistry, Catalysis. B

Abs Jour: Ref Zhur-Khimiya, No 16, 1958, 53017.

Abstract: accounting for ionic components introduced into a catalyst was demonstrated.

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