PANOV, N.I., prof.; TRET'YAKOV, A.P., dotsent; MILAY, N.I., insh.

Investigating the heat transfer of the single pipes of diesel locomotive coolers. Trudy MIIT no.151:4-28 '62. (MIRA 16:2)

(Heat--Transmission) (Diesel locomotives--Cooling)

ALEKSEYEV, G. (Moskva); MILAY, P.I., izobretatel' (Moskva); CHARKIN, P. (Yaroslavl'); TABUN, A.M., inzhener-elektrik (g. Andrushovka); KULIK, I., stroitel' (Khar'kov); IVANOV, (Zakarpat'ye); SHTUTS D., radioelektrik (Tomsk)

Drivers, how do you like it? Izobr. i rats. no. 4:22-25 Ap '61.
(MIRA 14:4)

1. Direktor Mukachevskoy radiotelegrafnoy stantsii (for Ivanov).
(Transportation, Automotive — Technological innovations)

MILAY, T.A.

Alkaline granitoid intrusives at the middle reaches of the Amur River and the structures controoling them. Dokl. AN SSSR 147 no.3: 671-674 N '62. (MIRA 15:12)

1. Predstavleno akademikom D.S. Korzhinskim.
(Amur Valley--Rocks, Igneous)

S/081/62/000/004/026/087
B149/B101

AUTHORS: Milayev, S. M., Vygonyaylo, A. N.

TITLE: A rapid determination of selenium in selenium-arsenic residues and in the products of their working-up

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 4, 1962, 147, abstract 4D131 (Metallurg. i khim. prom-st' Kazakhstana. Nauchno-tekhn. sb., no. 2, (12), 1961, 87 - 89)

TEXT: A method for the determination of Se in selenium-arsenic residues and in the products of their working-up has been developed. It includes the separation of Se from concentrated HCl solutions by the reduction of Se with hydrazine and subsequent titration with $Na_2S_2O_3$ solution. For the determination of Se, 0.1 - 1.0 g of the sample are fused with 1 - 5 g of Na_2O_2 in a nickel or corundum crucible at 650 - 700°C for 3 - 5 min. until the mixture becomes transparent. It is leached out with water, then 50 - 60% (of the total volume of the solution) of concentrated HCl are added, followed by the addition of 1 - 1.5 g of hydrazine hydrochloride.

A rapid determination of selenium ... S/081/62/000/004/026/087
B149/B101

The mixture is heated to boiling. It is kept 3 - 4 hours in a warm place (or overnight in the case of small amounts of Se). The precipitate is filtered through a paper filter thickened with paper pulp, then rinsed 5 - 6 times with hot 5% HCl. The filter with the precipitate is transferred into the flask in which the Se was precipitated, 10 ml of concentrated HCl and a few drops of bromine are added, and the mixture is stirred until the precipitate is dissolved. After this, 15 - 20 ml of water, and 5% phenol solution are added until the solution turns colorless; the paper pulp is diluted with water to 150 ml, 10 - 15 ml of 0.05 N $Na_2S_2O_3$ are added and the excess of the latter is titrated with a solution of iodine. The method described is recommended also for the determination of Se in alkaline solutions containing sulfides and polysulfides, in soda solutions and for the determination of water soluble Se in soda cakes. [Abstracter's note: Complete translation.]

MILAYEV, S.M.; VOROSHNINA, I.K.P.

Photometric determination of arsenic after extraction of AsI_3 with carbon tetrachloride. Zav.lab. 29 no.4:410-412 '63. (MIRA 16:5)

1. Vsesoyuznyy nauchno-issledovatel'skiy gornometallurgicheskiy institut tsvetnykh metallov.

(Arsenic—Analysis) (Photometry)

MILAYEV, S.M.; LYASHENKO, T.V.

Colorimetric determination of arsenic in high-purity metallic bismuth. Sbor.trud. VNIITSVETMET no.9:34-36 '65.

Determination of lead in metallic bismuth. Ibid.:78-81

(MIRA 18:11)

MILAYEV, S.M.; LYSENKO, V.I.; MESHCHERYAKOVA, L.A.

Rapid polarographic determination of indium. Sbor.trud. VNIITSVETMET no.9:59-65 '65. (MIRA 18:11)

L 36079-66 EWT(m)/EWP(t)/ETI IJP(c) JD/JG

ACC NR: AP6016298 (A) SOURCE CODE: UR/0075/66/021/001/0034/0039

AUTHOR: Kreshkov, A. P.; Yarovenko, A. N.; Milayev, S. M.; Aldarova, N. Sh.

31
B

ORG: Moscow Chemico-technological Institute im. D. I. Mendeleyev (Moscovskiy khimiko-tekhnologicheskiy institut); Eastern Siberian Technological Institute, Ulan-Ude (Vostochno-Sibirskiy tekhnologicheskiy institut)

TITLE: Analysis for salts of rare earth elements in nonaqueous solutions

27

SOURCE: Zhurnal analiticheskoy khimii, v. 21, no. 1, 1966, 34-39

TOPIC TAGS: quantitative analysis, rare earth element, nonaqueous solution

ABSTRACT: The article describes the results of a study of the behavior of the rare earth elements in alcohols, ketones, and in a mixture of methanol and acetone. Nitrates of the rare earth elements in a methanol-acetone medium (1:4) act as acids and can therefore be determined by direct potentiometric titration with a standard benzene-methanol solution of tetraethylammonium hydroxide or with a methanol solution of tetramethylammonium hydroxide. The following rare earths

L 36079-66

ACC NR: AP6016298

were determined: Y, La, Ce(III), Pr, Nd, Sm, Eu, Gd, Tb, Dy, Ho, Er, Yb, Lu, and Th. A figure gives the titration curves for individual rare earth nitrates, and a second figure gives the titration curves for mixtures of rare earth nitrates and for mixtures of nitrates with nitric acid. Further figures give analogous curves for the the nitrates of various elements and for mixtures of rare earth nitrates with the nitrates of other elements. The actual analytical results of the determinations are shown in tabular form. Orig. art. has: 4 figures and 3 tables.

SUB CODE: 07/ SUBM DATE: 06May65/ ORIG REF: 004/ OTH REF: 013

L 40963-66 EWT(m)/EWP(t)/ETI IJP(c) JD/JG

ACC NR: AP6024289 SOURCE CODE: UR/0075/66/021/007/0813/0816

32

B

AUTHOR: Kreshkov, A. P.; Yarovenko, A. N.; Milayev, S. M.

ORG: Moscow Chemical Engineering Institute im. D. I. Mendeleyev (Moskovskiy khimiko-tekhnologicheskiy institut)

TITLE: Analysis of magnesium-rare earth element alloys in nonaqueous solutions

17 17

SOURCE: Zhurnal analiticheskoy khimii, v. 21, no. 7, 1966, 813-816

TOPIC TAGS: magnesium alloy, rare earth ELEMENT, nonaqueous solution, titrimetry, BROMIDE

ABSTRACT: The behavior of chlorides, bromides, and nitrates of Sc, Y, La, Ce, Pr, Nd, Sm, Eu, Gd, Yb, Dy, Ho, Er, Tm, and Lu in nonaqueous solvents was studied, and it was found that bromides in mixed methanol-acetone solvent can be determined separately by direct potentiometric titration with a standard benzene-methanol solution of tetraethylammonium hydroxide. On the basis of earlier determined properties of mineral acids and their salts in nonaqueous solutions, new and rapid methods have been developed for analyzing binary and ternary Mg, Mn, Cd, Co, Ni, Zn, Al, Pb, and other metal base alloys with rare earths. A procedure for analyzing magnesium alloys with the rare earths enumerated above is described. It consists of a consecutive potentiometric titration of rare earth and magnesium bromides in a 1:4 methanol-acetone solvent. It is rapid and reasonably accurate and can be applied to the analysis of certain ternary magnesium alloys. Orig. art. has: 2 figures and 2 tables. [27]

L 36925-66 EWT(m)/EWP(t)/ETI IJP(c) JD/JG

ACC NR: AP6012212 SOURCE CODE: UR/0032/66/032/004/0396/0397

30

AUTHOR: Kreshkov, A. P.; Yarovenko, A. N.; Milayev, S. M.

2

ORG: Moscow Chemico-technological Institute im. D. I. Mendeleyev (Moskovskiy khimiko-tekhnologicheskiy institut)

TITLE: Analysis of alloys of the rare earth elements in nonaqueous solutions

21

SOURCE: Zavodskaya laboratoriya, v. 32, no. 4, 1966, 396-397

TOPIC TAGS: quantitative analysis, rare earth element, nonaqueous solution

ABSTRACT: The article reports a fast approximate method of analysis of alloys of the rare earth elements, based on dissolving them in hydrobromic acid and subsequent titration of the compounds obtained in a methanol-acetone medium, with a standard benzene-methanol solution of tetraethylammonium hydroxide. The method has been applied to the analysis of binary and ternary alloys of the rare earth metals based on magnesium, manganese, cadmium, cobalt, nickel, zinc, aluminum, lead, and other metals. The titration was carried out by the potentiometric method. Measurement of the potentials was done with a type LP-58

L 36925-66

ACC NR: AP6012212

potentionmeter. Experimental results are given in two tables. Orig. art. has: 2 figures and 2 tables.

SUB CODE: 07/ SUBM DATE: none.

MILAYEV, YU. I.

Blood - Diseases

Pathomorphological changes in the endocrine glands in alimentary-toxic aleukia and in other hemopoietic diseases. Arkhiv pat. 14, No. 4, 1952.

BIBIKOVA, T.I., kand.med.nauk; SIGIDIN, Ya.A.; KULESHOVA, Z.S.;
MILAYEVA, L.V.

Use of prednisolone in the combined treatment of rheumatic
fever. Terap.arkh. 33 no.2:11-18 F '61. (MIRA 14:3)

1. Iz klinicheskogo otdela Gosudarstvennogo nauchno-issledovatel'skogo instituta revmatizma (dir. - deystvitel'nyy chlen AMN SSSR prof. A.I. Nesterov) Ministerstva zdravookhraneniya RSFSR.

(PREGNADIENEDIONE) (RHEUMATIC FEVER)

\ KOTEL'NIKOVA, G.P.; SHANINA, V.A.; MILAYEVA, L.V.

Importance of electrokymography in rheumocarditis. Vop. revm. 3 no.4:79-86 O-D '63. (MIRA 17:2)

1. Iz otdeleniya funktsional'noy diagnostiki (zav. - kand. med. nauk V.F. Sysoyev), otdeleniya rentgenologii (zav. - prof. V.V. Zodiyev) i revmatologicheskogo otdeleniya kliniki (zav. - Deystvitel'nyy chlen AMN SSSR prof. A.I. Nesterov) Nauchno-issledovatel'skogo instituta revmatizma AMN SSSR.

BIBIKOVA, T.I.; SIGIDIN, Ya.A.; MIKHAYLOVA, I.N.; KULESHOVA, Z.S.;
MILAYEVA, L.V.

Hormone and drug therapy in rheumatic carditis. Vop.revm. 1
no.2:33-39 Ap-Je '61. (MIRA 16:4)

1. Iz Gosudarstvennogo nauchno-issledovatel'skogo instituta revmatizma (dir. - deystvitel'nyy chlen AMN SSSR prof. A.I. Nesterov) Ministerstva zdravookhraneniya RSFSR.
(RHEUMATIC HEART DISEASE) (HORMONE THERAPY)
(CHEMOTHERAPY)

KNYAZEVA, G.D.; MILAYEVA, M.A.; KHARIN, V.Yu.

Intravital fluorochroming as a method of detection of air embolism of the brain during experimental heart surgery with artificial circulation. Eksper. khir. i anest. 9 no.3:20-23 My-Je '64. (MIRA 18:3)

1. Laboratoriya patomorfologii (zav. - prof. Ya.L. Rappoport) i otdeleniya priobretennykh porokov serdtsa (zav. - prof. S.A. Kolesnikov) Instituta serdechno-sosudistoy khirurgii AMN SSSR, Moskva.

GLADKOVA, M.A.; BYKOVA, N.A.; MILAYEVA, M.A.; KARYAKIN, A.V.

Luminescence study of transplanted Brown-Pearce tumors in rabbits. Vop.onk. 7 no.5:41-46 '61. (MIRA 15:1)

1. Iz legochnogo otdeleniya (zav. - prof. N.I. Gerasimenko) i patomorfologicheskoy laboratorii (zav. - prof. Ya.L. Rapoport) Instituta grudnoy khirurgii AMN SSSR (dir. - prof. S.A. Kolesnikov, nauchnyy rukovoditel' - akad. A.N. Bakulev).
(SKIN--CANCER)

KNYAZEVA, G.D.; MILAYEVA, M.A.; VELIKORETSKIY, D.A.; DERZHAVETS, L.Kh.

Fluorescence method of determining the limits of ischemic zones in an experimental infarct. Grudn. khir. 5 no.4:43-44 Jl-Ag'63 (MIRA 17:1)

1. Iz laboratorii patomorfologii (zav. - prof. Ya.L.Rapoport) i sosudistogo otdeleniya (zav. - prof. Yu.Ye.Berezov) Instituta serdechno-sosudistoy khirurgii (dir. - prof. S.A. Kolesnikov) AMN SSSR. Adres avtora: Moskva V-49, Leninskiy prosp., d.8, Institut serdechno-sosudistoy khirurgii AMN SSSR.

AID P - 4872

Subject : USSR/Engineering

Card 1/1 Pub. 107-a - 6/14

Authors : Siunov, N. S., V. N. Bryev and I. F. Milaykin

Title : Single phase self-excited generator of high frequency

Periodical : Svar. proizv., 4, 16-17, Ap 1956

Abstract : The authors describe certain improvements in an a-c generator of high frequency (200 to 400 hertz) made of the ChS-7 generator, adjusted for use as single-phase self-excited welding generator. The remodeled generator was tested and found satisfactory in every respect. Two drawings and 1 graph.

Institution : Ural Polytechnic Institute im. Kirov

Submitted : No date

MILAYKIN, I.F., kand. tekhn. nauk

Enlarging the limits of current regulation in welding generators with stepped-up frequency. Trudy Ural. politekh. inst. no.90:28-34 '58. (MIRA 13:2)

(Electric generators)
(Electric welding--Equipment and supplies)

ANTIPOV, M.F.; GAVRILOV, B.K.; MILAYKIN, I.F.; PAVLININ, V.M.; REZIN, M.G.

"DC machinery design" by IA.S. Gurin and M.N. Kurochkin. Reviewed by M.F. Antipov and others. Elektrichestvo no.3:95-96 Mr '62. (MIRA 15:2)

(Electricity machinery--Direct current)
(Gurin, IA.S.) (Kurochkin, M.N.)

MILAYKIN, I.F.; KUDINOV, N.M.

Study of the external characteristics of a synchronous welding generator with transistor rectifier excitation. Trudy Ural. politekh. inst. no.124:25-29 '62. (MIRA 16:8)

KHOROBRYKH, G.V.; SARAPULOV, F.N.; MILAYKIN, I.F.

Special features in the design of medium-sized transformers with aluminum windings. Trudy Ural. politekh. inst. no.124: 93-98 '62. (MIRA 16:8)

MILAYKIN, I.F.; KUDINOV, N.M.; KOVALIK, V.G.

Excitation of a single-phase synchronous welding generator with an additional winding. Trudy Ural. politekh. inst. no. 138:50-54 '64 (MIRA 19:1)

BREYEV, V.N., kand.tekhn.nauk, dotsent; MILAYKINA, R.N., inzh.;
STUNOV, N.S., doktor tekhn.nauk, prof.

Locus diagrams for the controlling devices of synchronous generators with phase compounding. Elektrichestvo no.10: 29-34 O '61. (MIRA 14:10)

1. Ural'skiy politekhnicheskiy institut im. Kirova.
(Electric generators)

SIUNOV, N.S.; MILAYKINA, R.N.

Approximate method for determining the principal parameters of the excitation circuit of a phase compounded synchronous generator. Trudy Ural. politekh. inst. no.124:5-15 '62.
(MIRA 16:8)

MILAYKINA, Rimma Nikiforovna, aspirantka; SIUNOV, Nikolay Sergeyevich, doktor tekhn.nauk, prof.

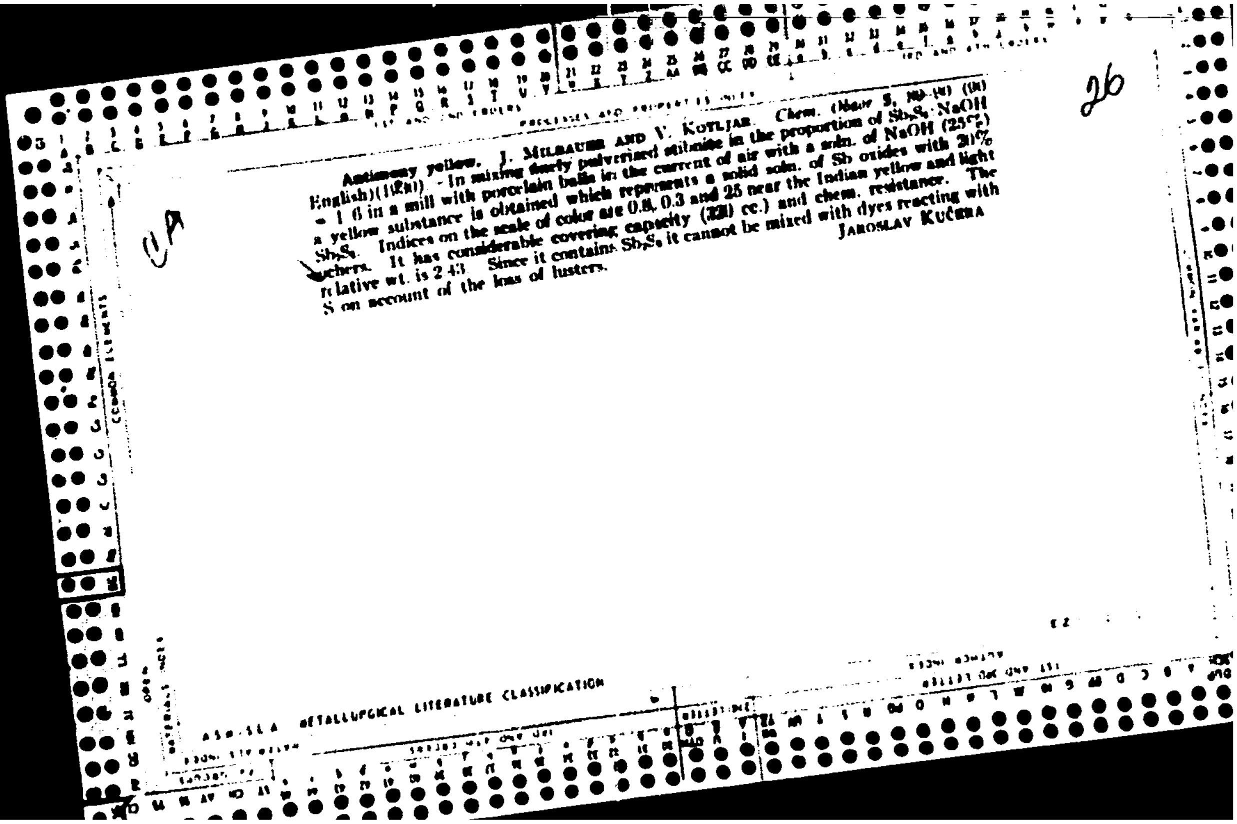
Effect of forced excitation on the selection of the parameters of the control units of self-excited synchronous generators. Izv.vys. ucheb.zav.; elektromekhanika 8 no.6:666-673 '65. (MIRA 18:8)

1. Kafedra elektricheskikh mashin Ural'skogo politekhnicheskogo instituta (for Milaykina). 2. Zaveduyushchiy kafedroy elektricheskikh mashin, rektor Ural'skogo politekhnicheskogo instituta (for Siunov).

MILBACH, V.

HD 31 double-stand planing machine, p. 221, STROJIRENSKA VYROBA (Ministerstvo strojirenstvi) Praha, Vol. 3, No. 5, May 1955

SOURCE: East European Accessions List (EEAL) Library of Congress, Vol. 4, No. 12, December 1955



PROCESSES AND PROPERTIES INDEX

26

CA

Antimony yellow. J. Milbauer and V. Kotljar. *Chem. Obzor* 5, [illegible] (in English)(1930). — In mixing finely pulverized stibnite in the proportion of Sb_2S_3:NaOH = 1:6 in a mill with porcelain balls in the current of air with a soln. of NaOH (25%) a yellow substance is obtained which represents a solid soln. of Sb oxides with 20% Sb_2S_3. Indices on the scale of color are 0.8, 0.3 and 25 near the Indian yellow and light ochers. It has considerable covering capacity (320 cc.) and chem. resistance. The relative wt. is 2.43. Since it contains Sb_2S_3 it cannot be mixed with dyes reacting with S on account of the loss of lusters.

Jaroslav Kučera

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

Ca

18

Vegetable charcoal. Jaroslav Milbauer. *Chem. Obzor* 5, 185 8 (English 188) (1930).—The best conditions for prepg. activated charcoal were investigated by the Ostrejkó method (Brit. pat. 14,224), $CaCl_2$ being used as activator. Carbonaceous substances, as saw dust, pulverized peat, lignite, nut shells, potato starch, cacao shells and molasses, mixed with a soln. of activator (40° Bé.) in the proportions 1:2, 1:3, 1:4, 1:6 and 1:8, dried and exposed to the reducing temp. 500° for 3 hrs., yielded products of nearly identical quality. The most favorable proportion of the activator for manuf. is 1:4. The mixts. were further subjected to carbonization for varying intervals of time from 1.5-6 hrs. Three hrs. was found to be sufficient for carbonization, except for cacao shells, which required only 0.5 hr. Further carbonization led to a progressive graphitization. With the same conditions as before, but changing the temp. from 300° to 700°, a temp. of 500° was found to be the best for the production of activated charcoal.

J. Kučera

MATERIALS INDEX

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

19

Ca

[illegible] 1930-1(1930).

Artificial kaolin. JAROSLAV MILBAUER. *Chem. Obzor* 5, 236(1930).—From chem. analysis, checked by x-ray spectrographic [illegible], the so-called "artificial kaolin" was found to be a waste from the chem. treatment of bauxites by alk. process. It contains only 20% SiO_2 and is apparently an amorphous mixt. of $Al(OH)_3$ and SiO_2. F. K.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

Co

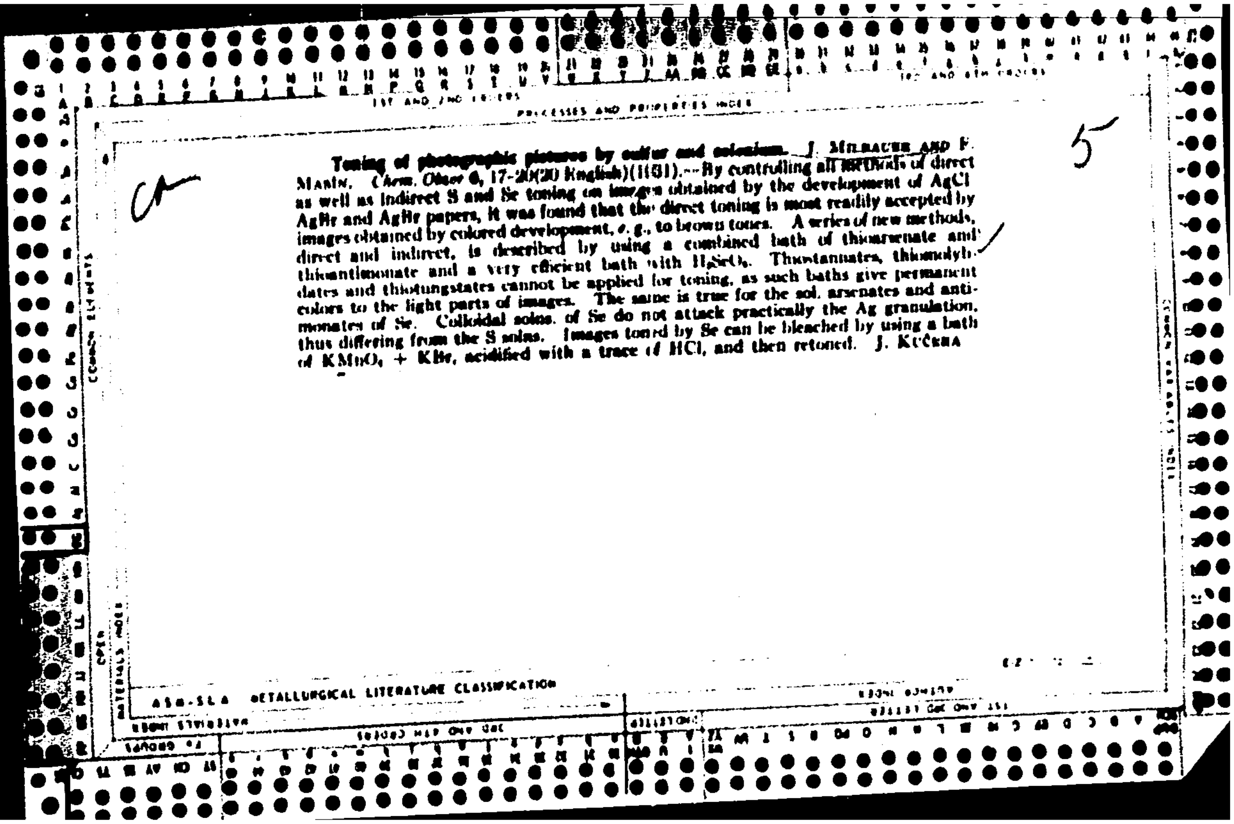
9

Corrosion of iron by carbon tetrachloride. J. Milbauer. *Collection Czechoslov. Chem. Commun.* 3, 73-75(1931). Iron is corroded by CCl_4 in presence of EtOH and water. A test made consisted in boiling iron for 1 hr. in a mixt. of CCl_4, EtOH and water. The results obtained were:

% CCl_4	% C_2H_5OH	% H_2O	g. Fe dissolved
80	11	9	0.24
50	41	9	0.03
30	60	10	0.9
80	18	2	1.04
45	5	50	0.13
90	9.1	0.9	0.63
70	27.3	2.7	1.81
70	20	10	0.74
70	10	20	0.10
100	0	0	0
0	100	0	0

Max. corrosion is obtained with a mixt. of 70% CCl_4, 27.3% EtOH and 2.7% water. The presence of EtOH favors the corrosion of Fe by CCl_4. G. T. Motok

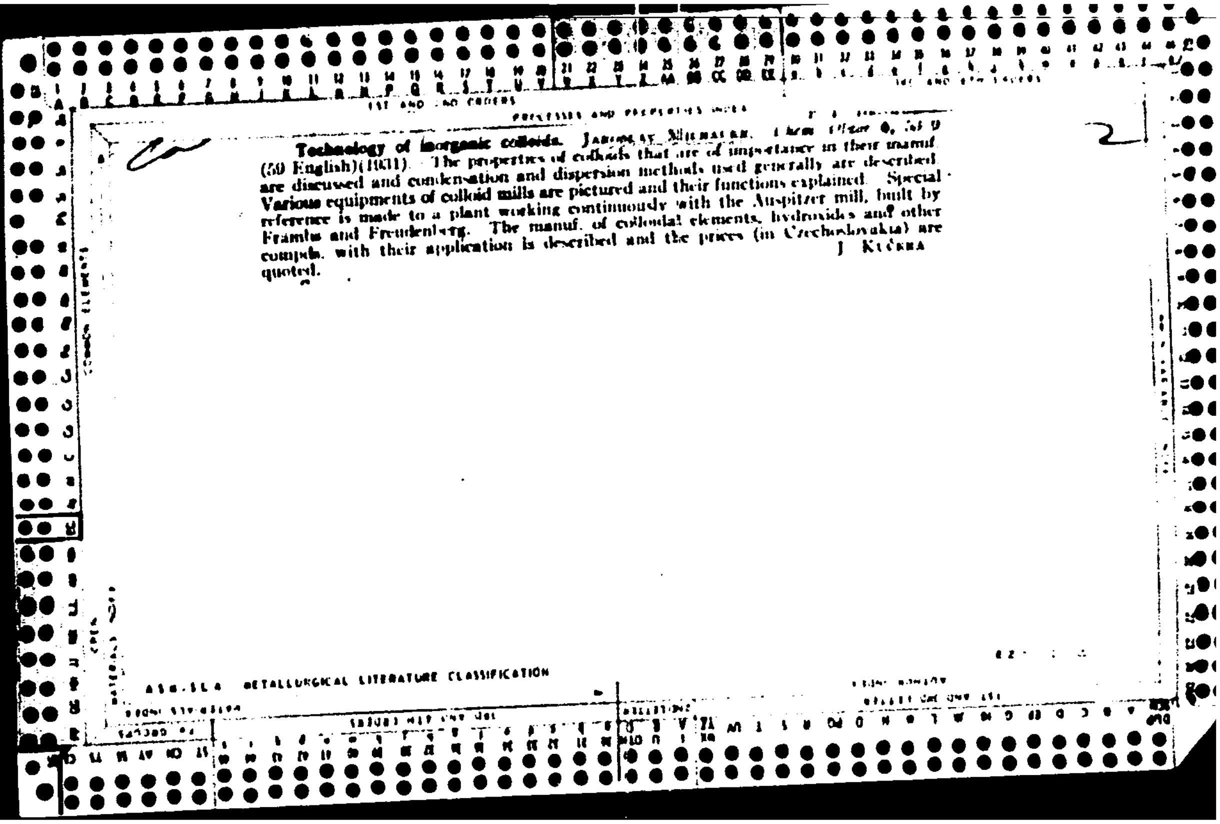
ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



Cr

5

Toning of photographic pictures by sulfur and selenium. J. Milbauer and F. Marik. *Chem. Obzor* 6, 17-20(20 English)(1931).—By controlling all methods of direct as well as indirect S and Se toning on images obtained by the development of AgCl AgBr and AgBr papers, it was found that the direct toning is most readily accepted by images obtained by colored development, *e. g.*, to brown tones. A series of new methods, direct and indirect, is described by using a combined bath of thioarsenate and thioantimonate and a very efficient bath with H_2SeO_3. Thiostannates, thiomolybdates and thiotungstates cannot be applied for toning, as such baths give permanent colors to the light parts of images. The same is true for the sol. arsenates and antimonates of Se. Colloidal solns. of Se do not attack practically the Ag granulation, thus differing from the S solns. Images toned by Se can be bleached by using a bath of $KMnO_4$ + KBr, acidified with a trace of HCl, and then retoned. J. Kučera



1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

Technology of inorganic colloids. Jaroslav Michalek. Chem. Obzor 6, 5? 9 (50 English)(1931). The properties of colloids that are of importance in their manuf. are discussed and condensation and dispersion methods used generally are described. Various equipments of colloid mills are pictured and their functions explained. Special reference is made to a plant working continuously with the Auspitzer mill, built by Framlus and Freudenberg. The manuf. of colloidal elements, hydroxides and other compds. with their application is described and the prices (in Czechoslovakia) are quoted. J. Kučera

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ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

CA

18

The preparation of impregnated carbon. J. Milbauer. Z. Zuckerind. čechoslovak. Rep. 55, 435-6(1931).—Cocoa shells, nut shells, horn meal, sawdust, starch, peat, brown coal, pure cellulose and molasses were converted into activated C by heating with $CaCl_2$. Time, temp. and quantity of $CaCl_2$ were varied. Decolorizing power was detd. against a standard dild. molasses. Best results were obtained with materials rich in cellulose (e. g., sawdust) heated for 4 hrs. at 700° with 4 parts $CaCl_2$. J. F. Lewis

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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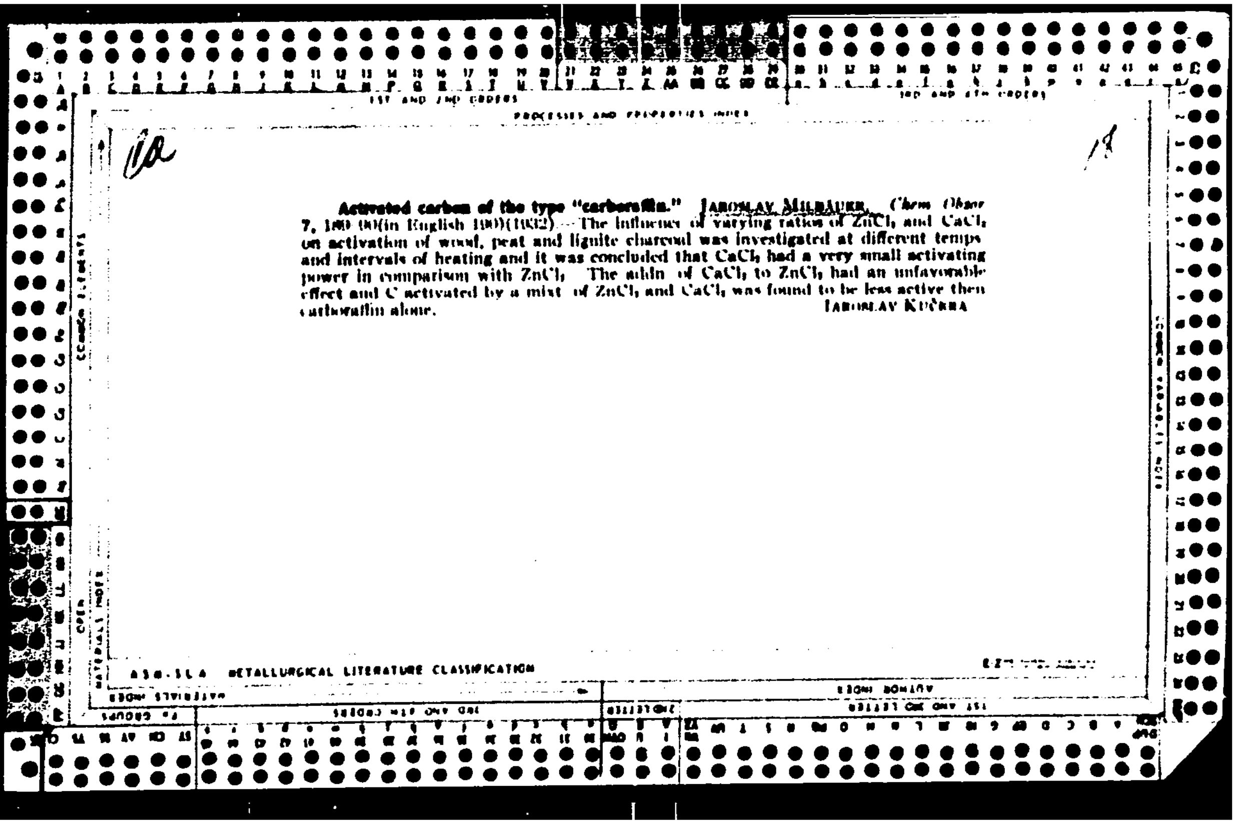
10

Milbauer, J.: Technologie anorganickych Lucebnin. Prague: Ceskoslovenské Spolecnosti Chemické. 980 pp. Reviewed in *Chem. News* 145, 15(1932).

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

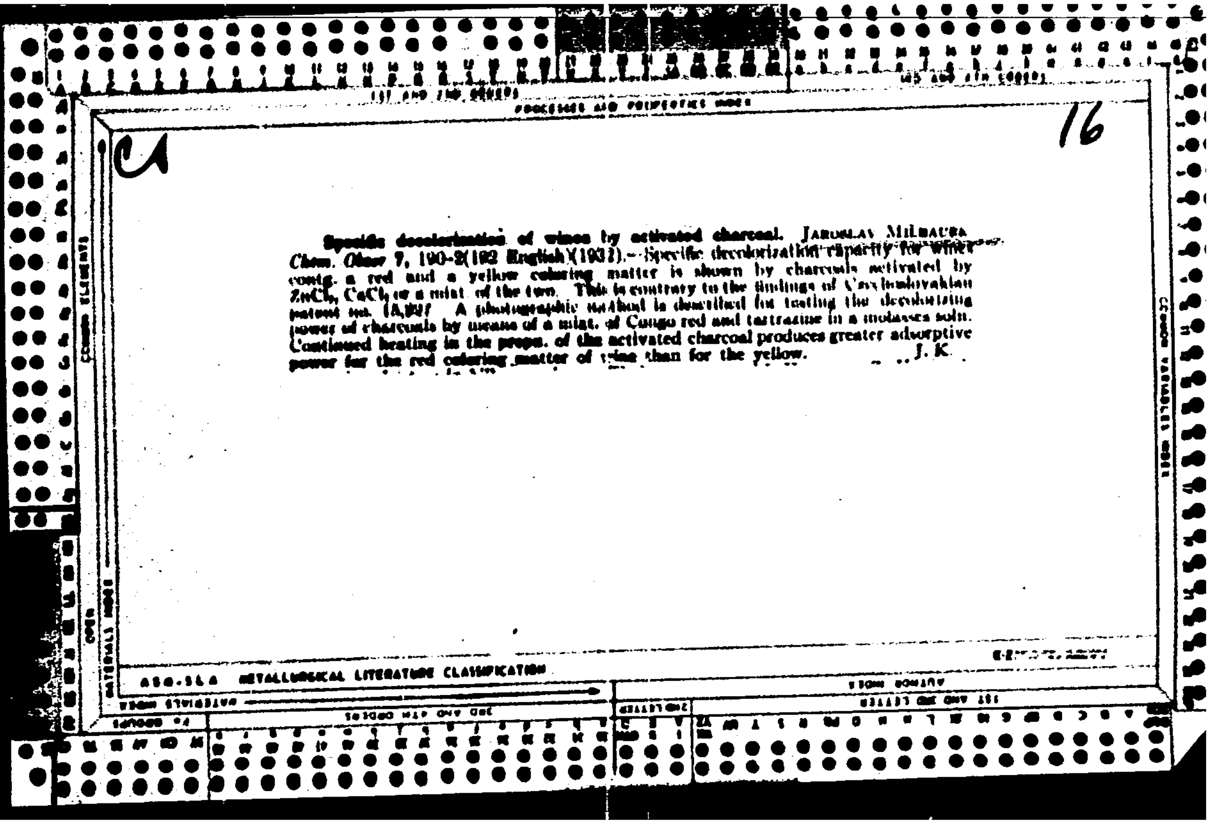
11a

18

Activated carbon of the type "carboraffin." JAROSLAV MILBAUER. *Chem. Obzor* 7, 180-90(in English 190)(1932).—The influence of varying ratios of $ZnCl_2$ and $CaCl_2$ on activation of wood, peat and lignite charcoal was investigated at different temps. and intervals of heating and it was concluded that $CaCl_2$ had a very small activating power in comparison with $ZnCl_2$. The addn. of $CaCl_2$ to $ZnCl_2$ had an unfavorable effect and C activated by a mixt. of $ZnCl_2$ and $CaCl_2$ was found to be less active than carboraffin alone.

JAROSLAV KUČERA

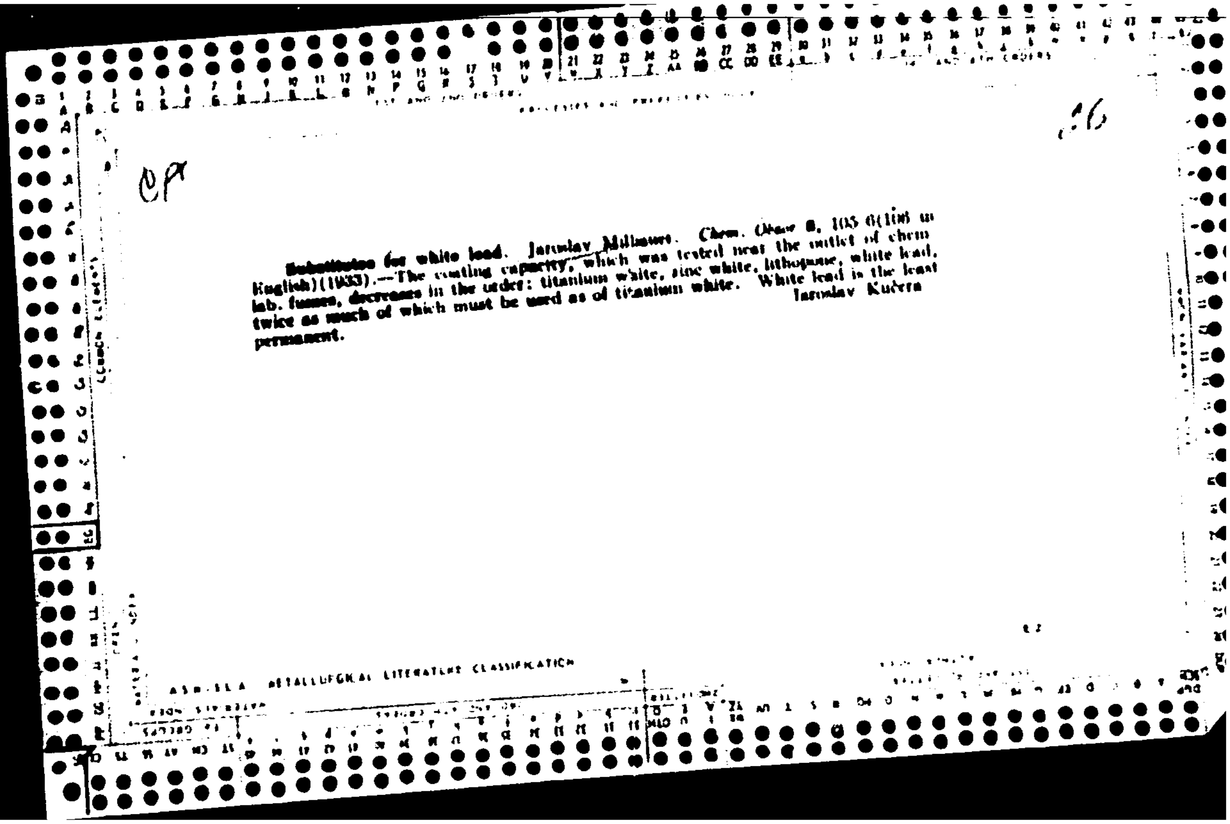
ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



16

Ca

Specific decolorization of wines by activated charcoal. Jaroslav Milbauer. *Chem. Obzor* 7, 190-2(192 English)(1932).—Specific decolorization capacity for wines contg. a red and a yellow coloring matter is shown by charcoals activated by $ZnCl_2$, $CaCl_2$ or a mixt. of the two. This is contrary to the findings of Czechoslovakian patent no. [illegible]. A photographic method is described for testing the decolorizing power of charcoals by means of a mixt. of Congo red and tartrazine in a molasses soln. Continued heating in the prepn. of the activated charcoal produces greater adsorptive power for the red coloring matter of wine than for the yellow. J. K.



cp

16

Substitutes for white lead. Jaroslav Milbauer. *Chem. Obzor* 8, 105-6(in English)(1933).—The coating capacity, which was tested near the outlet of chem. lab. fumes, decreases in the order: titanium white, zinc white, lithopone, white lead, twice as much of which must be used as of titanium white. White lead is the least permanent. Jaroslav Kučera

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

PROCESSES AND PROPERTIES INDEX

Be

a-1

Preparation of calcium chromate in the wet way.—J. MILBAUER and J. DOLEŽAL (Sborn. Masaryk. Akad. Práce, 1934, 8, 42—50; Chem. Zentr., 1935, i, 3259; cf. B., 1933, 988).—Full details are given.

J. S. A.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

PROCESSES AND PROPERTIES INDEX

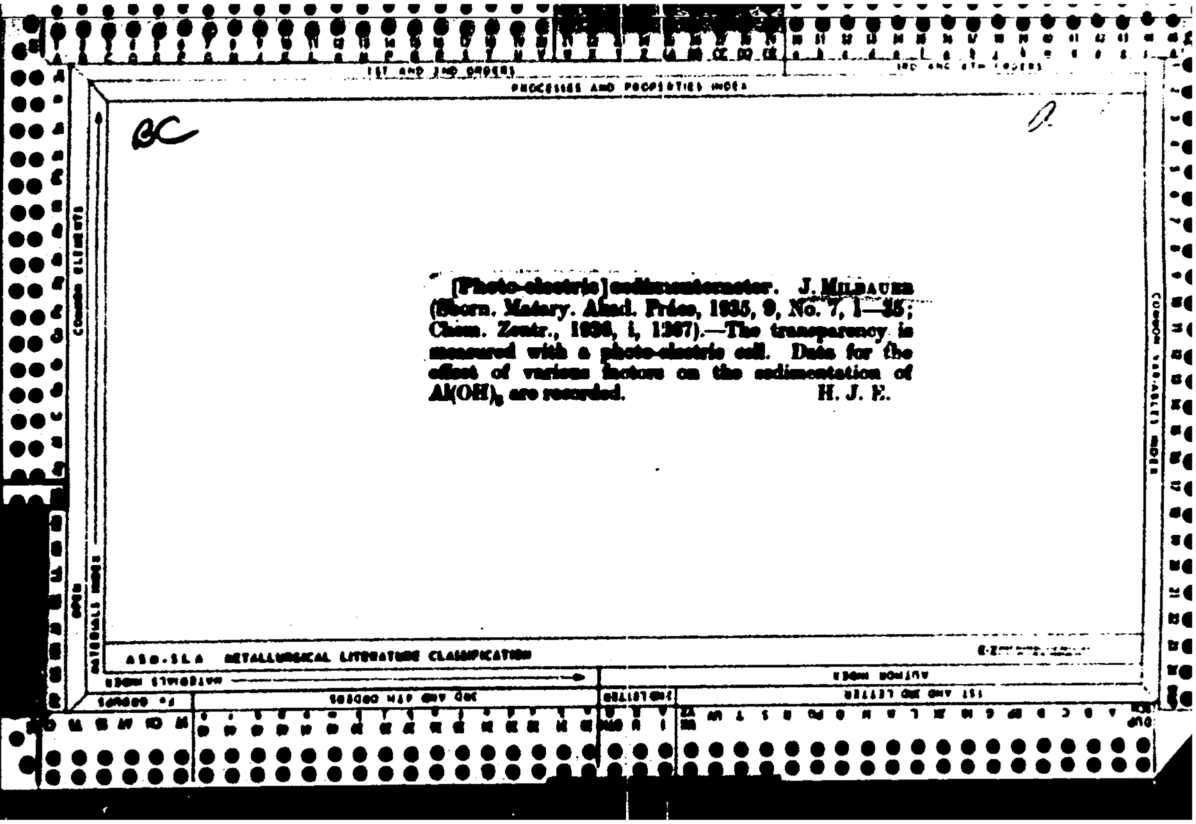
BC

B-II-3

C. M.

Photographic sensitometry. J. [illegible] and [illegible] Kaiser (Chem. Listy, 1934, 28, 120—130).—The [illegible] photoelectric meter serves, with certain minor modifications, as a very accurate sensitometer, being particularly useful for coloured plates. R. T.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



BC

[Photo-electric] sedimentometer. J. MILBAUER (Sborn. Masary. Akad. Práce, 1935, 9, No. 7, 1—35; Chem. Zentr., 1936, i, 1367).—The transparency is measured with a photo-electric cell. Data for the effect of various factors on the sedimentation of $Al(OH)_3$ are recorded. H. J. E.

1ST AND 2ND ORDERS

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Ca

6

Reactions in the medium of concentrated sulfuric acid. I. Carbon disulfide. Jaroslav Milbauer and Josef Dedkat. *Chem. Obzor* 10, 65-9(in English 69)(1935).—It is found that CS_2 reacts at 100°, the reaction being quite complicated, as CO, CO_2, SO_2 and traces of S are formed. The reaction is accelerated by catalysts which range from the most efficient to the least active as follows: Pd, Se, Pt, $CuSO_4$, Te, $MgSO_4$, $Sb_2(SO_4)_3$, MoO_3, As_2O_3, Th_2SO_4, $Bi_2(SO_4)_3$, Ag_2SO_4 and WO_3. No accelerating action was observed in case of $NiSO_4$ and $Ce_2(SO_4)_3$. By using Pd the oxidation of CS_2 occurs at 106°, and among the reaction products COS was found. The mechanism of the reaction is discussed, and it is concluded that the simplest explanation of the 1st stage is: $CS_2 + H_2O = COS + H_2S$. Nascent carbonyl sulfide and H_2S are decompd., being oxidized by H_2SO_4 with the formation of CO, CO_2 and SO_2.

J. Kučera

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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BC

a-1

Reactions in concentrated sulphuric acid. II. Influence of gases. J. MILBAUER (Chem. Obzor, 1935, 10, 201—204; Chem. Zentr., 1936, i, 3400).—The carbonisation of sucrose, citric acid, and phloroglucinol in H_2SO_4 in streams of N_2, CO_2, SO_2, and O_2 has been studied and the concn. of SO_2 in the issuing gases measured; the evolution of SO_2 is fastest with O_2. 100 c.c. of 98·6% H_2SO_4 dissolve 0·446 g. of SO_2 at 100° and 0·04 g. at 237°. H. N. R.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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BC

A-1

Wet preparation of calcium chromate. J. MILBAUER and J. DOLEŽAL (Chem. Listy, 1935, 29, 113—116).—$CaCrO_4$ is pptd. by adding 1·4 times the theoretical amount of $CaCl_2$ (as a solution of 40—45 g. per 100 c.c. of H_2O) to saturated aq. Na_2CrO_4 at 20°. The product obtained using K_2CrO_4 is contaminated with difficultly eliminable K· and Cl'.

R. T.

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

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BC

a-1

Conjugated catalytic phenomena. (Catalysis by binary and ternary mixtures.) J. Milbauer (Coll. Czech. Chem. Comm., 1936, 8, 1—13).—The catalysis of the oxidation of CO by 96·6% H_2SO_4 at 20° has been investigated by a flow method. The final rate of oxidation catalysed by mixtures of As and Se oxides is independent of As oxide and ∝ [SeO_2]. Pd is a very strong catalyst, of which the action is enhanced by $HgSO_4$ and raised to a max. by 10—20% of Ag_2SO_4, but is markedly depressed by Se. The addition of $HgSO_4$ and Ag_2SO_4 separately raises the catalytic activity of SeO_2 to max. vals. Mixtures of $HgSO_4$ and Ag_2SO_4 are better catalysts than the single salts, whilst an approx. 1 : 4 $CuSO_4$–$HgSO_4$ mixture has a max. catalytic activity. The effect on the reaction velocity of varying the composition of ternary catalysts is represented quantitatively by triangular diagrams. Catalysis by the systems Pd+Se+Ag, Hg+Se+Ag, Pd+Hg+Ag, Cu+Hg+Se was < the max. vals. obtained with the binary systems.

J. G. A. G.

ASM-SLA METALLURGICAL

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The purification of the Moldau water. Jaroslav Millauer. *Sbornik Masarykovy Akad. Práce* **10,** 253-67 (1936); *Chem. Zentr.* **1936,** II, 2785-6.—Tech. $Al_2(SO_4)_3$ with a slight content of SiO_2 was found to be more satisfactory for the clarification of this water than pure $Al_2(SO_4)_3$. The optimum amt. required is about 100 mg./l. Tests with a new sedimentometer (cf. *C. A.* **30,** 1996, 6990) indicate that sufficient clarity is not obtained by mere sedimentation without filtration. The turbidity appearing upon long standing as the result of biol. processes can be removed by shaking with granulated Ag metal or by means of the catadyn process, but not by boiling or the addn. of $PhCO_2H$ or thymol. Clarification is most satisfactory at *p*H 4.2, least so at 5.0. The addn. of powd. C in large amts. favors sedimentation. The addn. of kaolin and clay as well as of tech. sedimenting agents has proved to be of value, but this was not true of other materials tried. Colloids, such as gelatin, albumin, saponins and dialyzed SiO_2 slowed up the clarification. No improvement was obtained by the use of O_3, Cl_2 or CO_2.

M. G. Moore

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

Ca

γ

Reactions in concentrated sulfuric acid. III. Couples and triads of catalysts in the combustion of carbon monoxide. Jaroslav Milbauer. *Chem. Obzor* 11, 1-5(in English 5-6)(1936); cf. *C. A.* **30**, 7850^9.—The effect of 2 and 3 prominent catalysts on the rate of combustion of CO by H_2SO_4 at elevated temp. (237°) is studied. Neither As_2O_3 nor As_2O_5 impairs the effect of SeO_2 in the final stage. On starting from any combination of As_2O_3 and As_2O_5 with SeO_2 or SeO_3 the final rate of oxidation of CO is the same as without catalyst and the effect of SeO_2 is proportional to its concn. The effect of Pd is greater in the presence of Ag_2SO_4 and $HgSO_4$ and lower in the presence of SeO_2. Catalytic activity of SeO_2 is increased by Ag_2SO_4 and $HgSO_4$. Ag_2SO_4 increases the effect of $HgSO_4$ considerably, the max. activity being at the ratio Ag:Hg = 4:1. $CuSO_4$ in the concn. of 30% is active in the presence of $HgSO_4$, inactive in the presence of SeO_2. Pd can be replaced by a mixt. of Pd and $HgSO_4$ in the ratio 2:3; under this limit $HgSO_4$ lowers the activity of Pd. The lowering of catalytic activity of Pd by SeO_2 is ascribed to clogging the surface of Pd. The activity of a mixt. of $HgSO_4$ and SeO_2 and (Ag_2SO_4 and $HgSO_4$) increases up to 40% (30% resp.) of that of Pd in the ratio 1:1. For detail the original data and graphs must be consulted. **IV. Carbon oxysulfide.** *Ibid.* 65-8 (in English 68)(1936).—C oxysulfide begins to react with concd. H_2SO_4 at 150°. Pd of all catalysts examd., is the best, the reaction being noticeable at 90°. The catalysts are arranged in a series of decreasing activity: Pd, Se, Pt, Ag, Cu, V, Hg, Pb, Te, Sn, Bi, Cd, Ni, Sb, Zn, Fe, As, Mo and W. The course of reaction is rather complicated. The thermal reaction studied by Stock (*C. A.* **18**, 1957) is characterized by the rate which is practically unmeasurable at the temp. of these expts. (to 200°); it is speeded up in the presence of H_2SO_4 and CO and CS_2 are oxidized rapidly according to: $COS + H_2SO_4 \rightarrow CO_2 + SO_2 + H_2O$ and $CS_2 + 2H_2SO_4 \rightarrow CO_2 + 2SO_2 + 2S + 2H_2O$; the other product of dissocn., S, is oxidized very little according to the reaction: $S + 2H_2SO_4 \rightarrow 2H_2O + 3SO_2$. **V. Influence of temperature on the range of catalysts.** *Ibid.* 132 (in English 132-3)(1936). In oxidation of H by H_2SO_4, $CuSO_4$ and Hg_2SO_4 are active and follow SeO_2 very closely at 237°, whereas at 174° they are much less active. The catalysts are arranged in the series according to their decreasing catalytic activity at 237° and at 174°: Pd, Hg, Pt, Se, Cu, Ce, Sb, Ag, Au, Ni, As and Pd, Hg, Pt, Se, Ce, Sb, Au, Ni, As, Ag and Cu. In oxidation of sucrose by H_2SO_4 at 237° and 310° the series of catalyst is similarly changed. J. K.

METALLURGICAL LITERATURE CLASSIFICATION

BC

17 1

Reactions in concentrated sulphuric acid. V. Influence of temperature on the catalyst. VI. Influence of the material to be oxidised on the catalyst series. J. Milbauer (Chem. Obzor, 1936, 11, 183—185; Chem. Zentr., 1937, i, 840; cf. A., 1936, i, 406, 886).—V. The following catalyst series for the oxidation of (a) H_2, (b) sucrose with conc. H_2SO_4 were observed: (a) 174°, Pd, Hg, Pt, Se, Ce, Sb, Au, Ni, As, Ag, Cu; 237°, Pd, Hg, Pt, Se, Cu, Ce, Sb, Ag, Au, Ni, As (with increasing temp. the activity of Cu and Ag increases relatively rapidly); (b) 237°, Se, Pd, Hg, Pt, Te, V, Ag, Cu, Sb, [Au, As, Ce, Ni]; 310°, Se, Hg, Cu, Te, Au, V, Pt, Sb, Ce, Ag, As, Pd, Ni.

VI. The corresponding series for (c) CO, (d) CS_2, (e) COS, (f) $FeSO_4$, (g) C_6H_6, are: (c) Pd, Hg, Ag, Pt, V, Se, Au, Cu, As; (d) Pd, Se, Pt, Cu, Te, Hg, Sb, As, Ag; (e) Pd, Pt, Se, Ag, Cu, V, Hg, Te, Sb; (f) Se, Ag, Pd, Pt, Te, Hg, Cu, V, Sb; (g) Se, Pd, Hg, Ag, Pt, Au, V, Te, Cu.

A. H. C.

METALLURGICAL LITERATURE CLASSIFICATION

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Ch

2

Reactions in a medium of concentrated sulfuric acid. VIII. Equilibrium states with catalysts. Jaroslav Milbauer. *Chem. Obzor* 11, 233-40 (in English 240) (1936); cf. *C. A.* 31, 2077⁹.—The max. catalytic effect of catalysts sol. in H_2SO_4 was proportional to their max. soly. under the given conditions. Catalysts from the Pt group acted principally through that portion of the metal which dissolved in the H_2SO_4 and through that portion which dispersed itself in the medium of H_2SO_4. The ultimate catalysis depends upon an equil. between these 2 portions. During the oxidation of CO by H_2SO_4 at 250° the mol. yield was related directly to the catalytic activity of the metal; for this reaction Os, Ir and Pt were less catalytic than Ru, Rh and Pd. For the oxidation of sucrose at 300° by concd. H_2SO_4 the catalytic activity increased in the order Pb, Al, Zn, K, Ca, Ba, Ag, Li, As, Na, B, Si, Sn, W, Cu, V, Te, Mo, Hg, Se. The sulfates of Na, K and Ag were equally active; $(NH_4)_2SO_4$ was inert. The activity for Cu salts was $CuSO_4.5H_2O < CuSO_4.H_2O <$ CuO; the hydrates were dehydrated before they dissolved in the H_2SO_4. Since this phase is eliminated by the use of CuO, the latter catalyst reaches an equil. before the hydrated salts. Although Cu is the cheapest catalyst for N detns. according to Kjeldahl, Se remains the most energetic one and can be regenerated. **IX. The Kjeldahl reaction in a current of gases.** *Ibid.* 12, 17-19 (1937).—At 300° M. followed (colorimetrically) the change of sucrose in concd. H_2SO_4 in the presence of the catalysts $HgSO_4$, Ag_2SO_4, CuO, SeO_2 and TeO_2 and in a current of air, O, ozone, N, CO_2, Cl, SO_2, H and HCl. The catalysts and gases used separately hastened the chem. changes occurring in sucrose. The mixt. $SeO_2.TeO_2$ in equal parts was the most effective catalyst; Cl, the most effective gas. Together the combination $SeO_2.TeO_2$ and Cl reduced the reaction time from 1050 min. to 24 min.

Frank Maresh

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

CA

18

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Titanium dioxide. Jaroslav Milbauer. *Chem. Listy* 30, 114-16(1936).—The Norwegian, Rossi and Barton, Casteret and Devaux, and charcoal methods for prepg. TiO_2 are reviewed. In Czechoslovakia the prepn. is limited to 3 brands: gold label contg. 99% TiO_2; silver label contg. 40% $BaSO_4$; white label contg. 54% $BaSO_4$ and 10% ZnO. Frank Maresh

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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B-III-5

[illegible] of the water of the [illegible]. [illegible]—J. [illegible] (Chem. Listy, 1936, 30, [illegible]).—[illegible] of the H_2O is more rapid with the use of commercial $Al_2(SO_4)_3$ than with the pure salt in consequence of the beneficial action of SO. The process is followed by a [illegible] method. The rate is uniform at >10°, but diminishes below this temp. It is a max. at pH 6-8. Of a no. of substances tested as additions to commercial $Al_2(SO_4)_3$, only wood charcoal, kaolin, and clay had any good effect. After heating for some time, the H_2O becomes cloudy through colloidal action. It may be stabilised by shaking with small pieces of Ag. C. I.

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3RD AND 4TH ORDERS

BC

1-1

Rates of combustion in concentrated sulphuric acid. J. Milbauer (Coll. Czech. Chem. Comm., 1937, 9, [illegible]).—The oxidation of a no. of gases and vapours, and of certain elements, by H_2SO_4 at 227° has been studied. CH_4, C_2H_6, and CCl_4 are not oxidised even in presence of catalysts. Under comparable conditions, the following substances are oxidised without a catalyst at rates decreasing in the order given: C_2H_2, C_2H_4, CS_2, COS, H_2, CO. Pd-black accelerates the oxidation of these, and of PH_3, HCN, $(CN)_2$ and MeSH. SeO_2 and $HgSO_4$ accelerate the oxidation of S, P, C, Ag, and Sn, and $HgSO_4$ also that of Fe, whilst both substances retard the oxidation of As, Sb, and Bi, and SeO_2 retards also that of Hg, Fe, Ni, Co, and Cu. In the absence of a catalyst the metals are oxidised at rates decreasing in the order Sn, Hg, Co, Fe, Ni, Cu, Al, Ag, Zn, Cd.

F. J. G.

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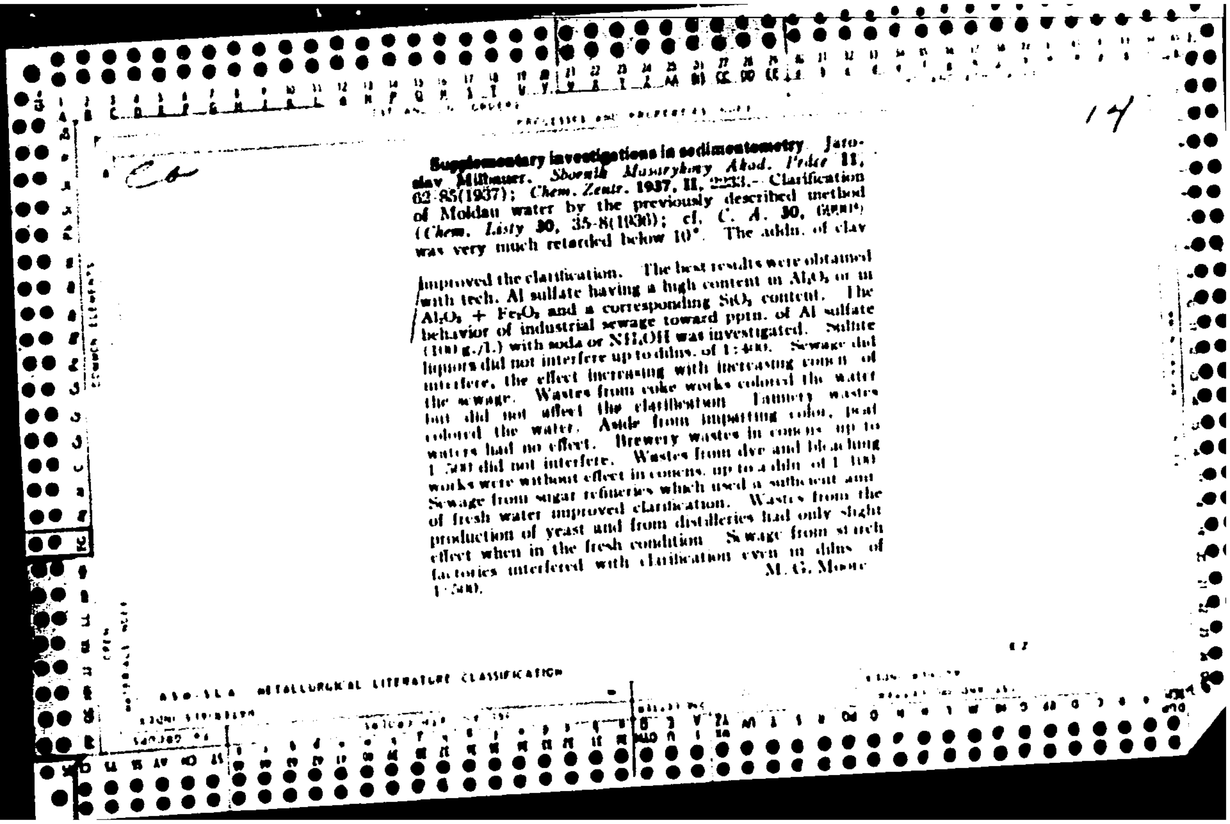


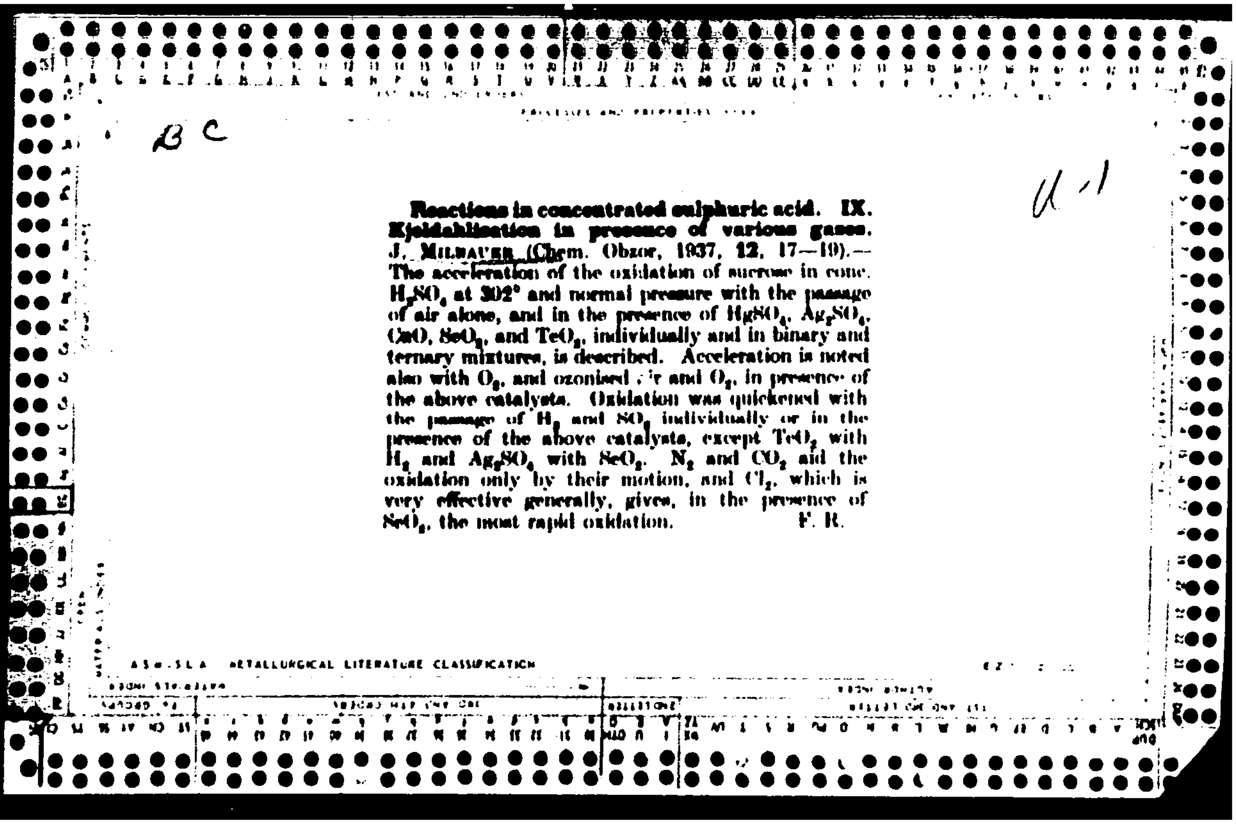
14

Ca

Supplementary investigations in sedimentometry. Jaroslav Millbauer. *Sbornik Masarykovy Akad. Práce* 11,
62-85(1937); *Chem. Zentr.* 1937, II, 2233.—Clarification
of Moldau water by the previously described method
(*Chem. Listy* 30, 35-8(1936); cf. *C. A.* 30, 6881⁹)
was very much retarded below 10°. The addn. of clay

improved the clarification. The best results were obtained
with tech. Al sulfate having a high content in Al_2O_3 or in
Al_2O_3 + Fe_2O_3 and a corresponding SO_3 content. The
behavior of industrial sewage toward pptn. of Al sulfate
(100 g./l.) with soda or NH_4OH was investigated. Sulfite
liquors did not interfere up to dilns. of 1:400. Sewage did
interfere, the effect increasing with increasing concn. of
the sewage. Wastes from coke works colored the water
but did not affect the clarification. Tannery wastes
colored the water. Aside from imparting color, peat
waters had no effect. Brewery wastes in concns. up to
1:500 did not interfere. Wastes from dye and bleaching
works were without effect in concns. up to a diln. of 1:100.
Sewage from sugar refineries which used a sufficient amt.
of fresh water improved clarification. Wastes from the
production of yeast and from distilleries had only slight
effect when in the fresh condition. Sewage from starch
factories interfered with clarification even in dilns. of
1:500.
M. G. Moore

ASD-SLA METALLURGICAL LITERATURE CLASSIFICATION



PROCESSES AND PROPERTIES INDEX

BC

U-1

Reactions in concentrated sulphuric acid. IX. Kjeldahlisation in presence of various gases. J. MILBAUER (Chem. Obzor, 1937, 12, 17—19).—The acceleration of the oxidation of sucrose in conc. H_2SO_4 at 302° and normal pressure with the passage of air alone, and in the presence of $HgSO_4$, Ag_2SO_4, CuO, SeO_2, and TeO_2, individually and in binary and ternary mixtures, is described. Acceleration is noted also with O_2, and ozonised air and O_3, in presence of the above catalysts. Oxidation was quickened with the passage of H_2 and SO_2 individually or in the presence of the above catalysts, except TeO_2 with H_2 and Ag_2SO_4 with SeO_2. N_2 and CO_2 aid the oxidation only by their motion, and Cl_2, which is very effective generally, gives, in the presence of SeO_2, the most rapid oxidation. F. R.

A S M - S L A METALLURGICAL LITERATURE CLASSIFICATION

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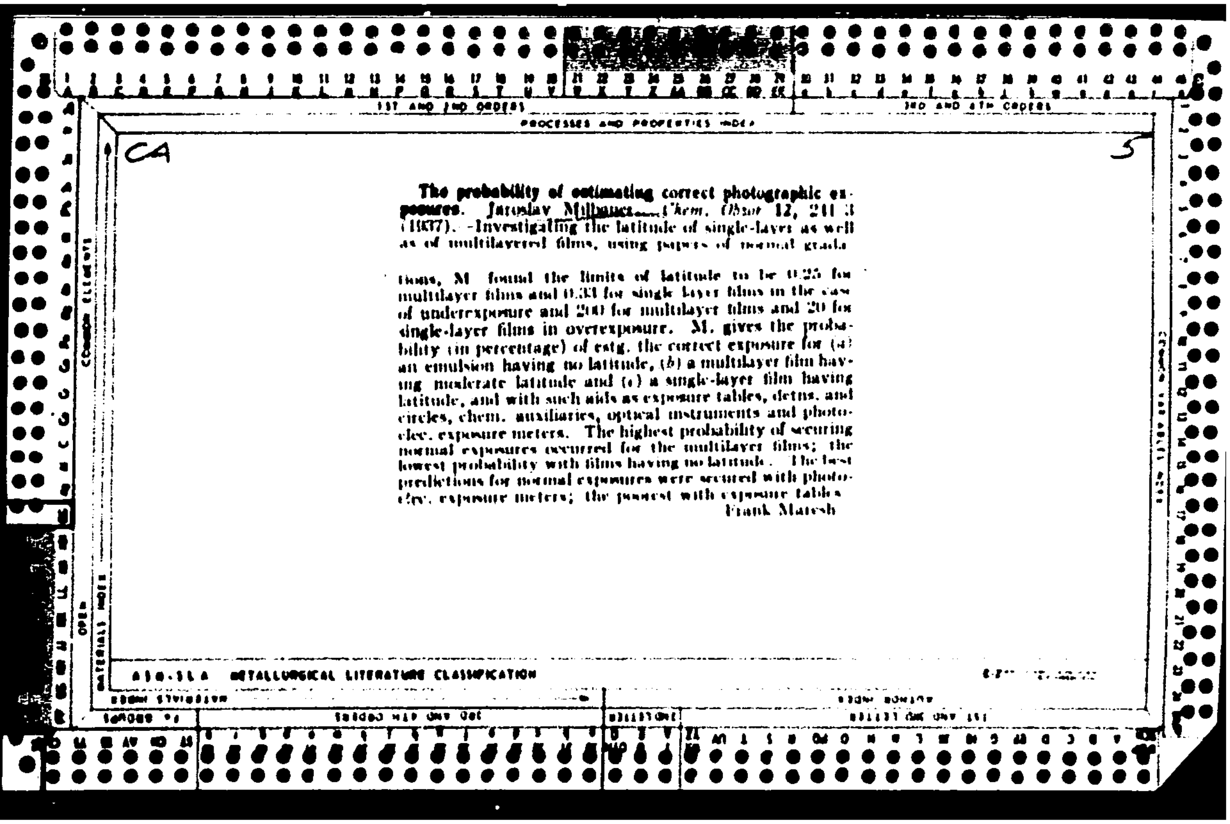
3RD AND 4TH ORDERS

Reactions in a medium of sulfuric acid. X. Equimolecular combustion rates. Jaroslav Milbauer. *Chem. Obzor* 12, 57-62 (1937) (English summary); cf. *C. A.* 31, 4194⁸.—Equimol. quantities of H_2SO_4 and gases at 237° without and with catalysts yielded the following mg. of SO_2 per mg. of gas [the effect of Pd is given by values in ( )]: C_2H_2 3.1 (10.2), C_2H_4 1.5 (4.7), H 0.6 (9.8), H_2S 0.08 (0.7), CS_2 0.06 (0.4) and CO 0.03 (0.7). With CCl_4 or CH_4 the H_2SO_4 did not react at 237° even in the presence of Pd. With $CHCl_3$ the following reactions occurred simultaneously $H_2SO_4 \rightarrow SO_2 + H_2O + O$, $CHCl_3 + O \rightarrow COCl_2 + HCl$, $COCl_2 + H_2O \rightarrow CO_2 + 2HCl$. During the oxidation of PH_3, HCN, $(CN)_2$ and CH_3SH by H_2SO_4 the Pd functioned as a true catalyst forming H_3PO_4, NH_3 and S. During the oxidation of elements by H_2SO_4 at 237°, the oxidation of S, C, P, Ag, Sn and Fe was accelerated by SeO_2 and by $HgSO_4$, the oxidation of Se and Te was not accelerated by $HgSO_4$, but any of the formed TeO_2 or SeO_2 served as a catalyst, the oxidation of As, Bi, Sb, Hg, Ni, Co and Cu was retarded by the SeO_2. Mg with SeO_2 evolved H violently without the formation of S or H_2S and covered the remaining Mg with an unidentified product. Zn and Cd with the catalyst SeO_2 yielded H_2S and S and covered the remaining metal with a film. Without any catalyst the combustion velocities of metals with H_2SO_4 formed the series Sn < Hg < Co < Fe < Ni < Cu < Al < Ag < Zn < Cd < Sn.

Frank Maresh

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

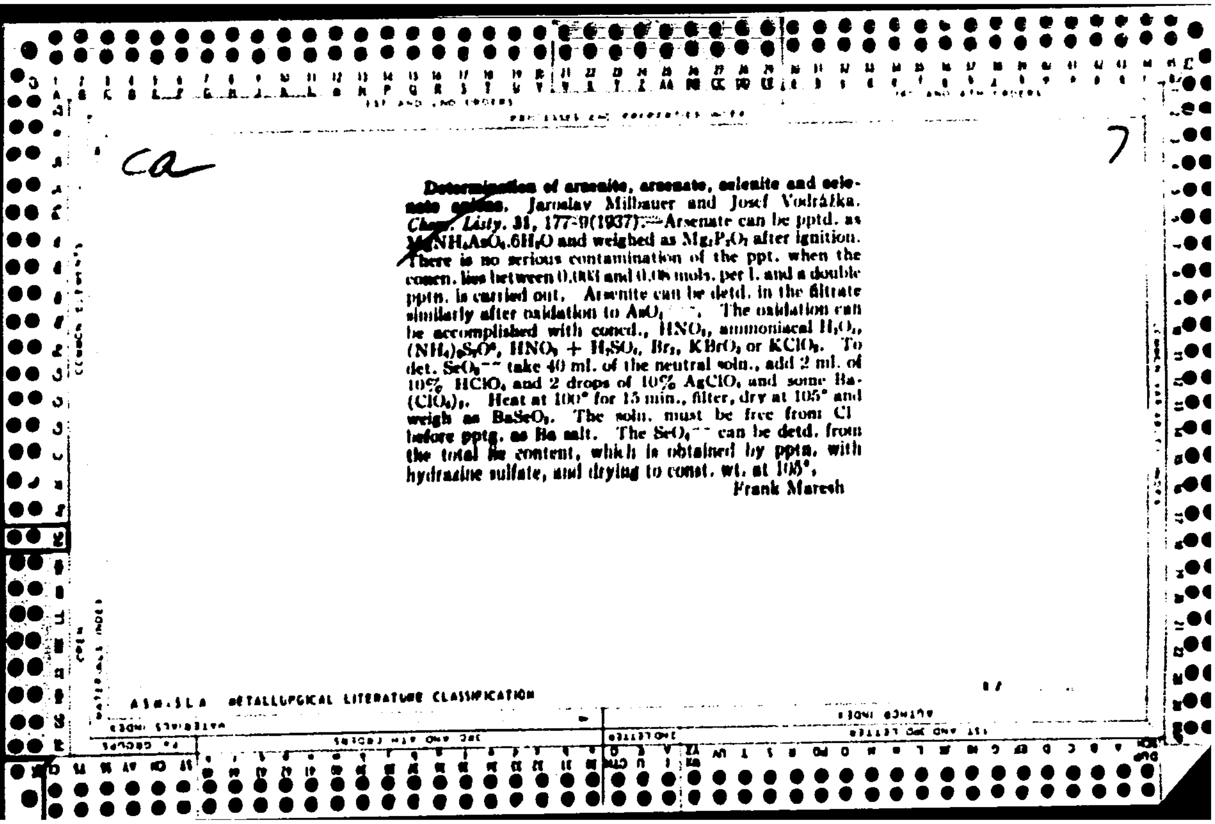


CA

5

The probability of estimating correct photographic exposures. Jaroslav Milbauer. *Chem. Obzor* 12, 211-3 (1937).—Investigating the latitude of single-layer as well as of multilayered films, using papers of normal gradations, M. found the limits of latitude to be 0.25 for multilayer films and 0.33 for single layer films in the case of underexposure and 200 for multilayer films and 20 for single-layer films in overexposure. M. gives the probability (in percentage) of estg. the correct exposure for (a) an emulsion having no latitude, (b) a multilayer film having moderate latitude and (c) a single-layer film having latitude, and with such aids as exposure tables, detns. and circles, chem. auxiliaries, optical instruments and photoelec. exposure meters. The highest probability of securing normal exposures occurred for the multilayer films; the lowest probability with films having no latitude. The best predictions for normal exposures were secured with photoelec. exposure meters; the poorest with exposure tables.

Frank Maresh



Ca

7

Determination of arsenite, arsenate, selenite and selenate anions. Jaroslav Milbauer and Josef Vodrážka. *Chem. Listy.* **31**, 177-9(1937).—Arsenate can be pptd. as $MgNH_4AsO_4.6H_2O$ and weighed as $Mg_2P_2O_7$ after ignition. There is no serious contamination of the ppt. when the concn. lies between 0.001 and 0.05 mols. per l. and a double pptn. is carried out. Arsenite can be detd. in the filtrate similarly after oxidation to AsO_4^{---}. The oxidation can be accomplished with concd. HNO_3, ammoniacal H_2O_2, $(NH_4)_2S_2O_8$, $HNO_3 + H_2SO_4$, Br_2, $KBrO_3$ or $KClO_3$. To det. SeO_3^{--} take 40 ml. of the neutral soln., add 2 ml. of 10% $HClO_4$ and 2 drops of 10% $AgClO_4$ and some $Ba(ClO_4)_2$. Heat at 100° for 15 min., filter, dry at 105° and weigh as $BaSeO_3$. The soln. must be free from Cl before pptg. as Ba salt. The SeO_4^{--} can be detd. from the total Se content, which is obtained by pptn. with hydrazine sulfate, and drying to const. wt. at 105°.

Frank Maresh

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BC

A-3

A Acetylene and sulphuric acid. J. Milbauer (Arh. Hemiju, 1938, 12, 73—80).—Pure C_2H_2 reacts with conc. H_2SO_4, which is thereby coloured brown. The reaction is catalysed by $HgSO_4$, SeO_2, V_2O_5, Ag_2SO_4, and MnO_2, but not $CuSO_4$, and is retarded by $(NH_4)_2SO_4$. R. T.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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2-1

Reactions in concentrated sulphuric acid. XI. Modifications of the Kjeldahl method. J. MILBAUER (Chem. Obzor, 1938, 13, 25—28).—All known modifications of the Kjeldahl method are compared at a const. temp. by the times required for complete oxidation without mixing and with mixing by a stream of air. A method (previously described (ibid., 1936, 210) using the combination Hg : Se = 4 : 1, in the form $HgSO_4$ and SeO_2, is the most efficient. The H_2SO_4 is saturated with respect to the $HgSO_4$ and also contains 20 g. of P_2O_5 for each 50 ml. of H_2SO_4. This reagent reduces the time to 6·8% that required by the Kjeldahl method. Mixing by air in general reduces the time. F. R.

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

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CA

Reactions in a medium of concentrated sulfuric acid. XII. The destruction of acetylene in the acid. Jaroslav M[illegible]. *Chem. Obzor* 13, 89-91, 118-20, 147-9, 163-6 ([illegible]); cf. *C. A.* 33, 500⁹.—Satd. solns. of purified C_2H_2 in concd. H_2SO_4 became yellow at room temps. When C_2H_2 was passed through the acid, H_2SO_4, the acid became dark; finally it became black. The velocity of the reaction, when followed with a photoelec. cell under standardized conditions, was accelerated by catalysts in the order $HgSO_4 > SeO_2 > CuSO_4 > V_2O_5$ after a reduction $> Ag_2SO_4 > MoO_3$. The velocity was not affected by As_2O_3 or SiO_2, and was retarded by Sb_2O_3, $PbSO_4$, HCl, $ZnSO_4$, SO_3, K_2SO_4 and especially by $(NH_4)_2SO_4$. The C_2H_2 passing through a 80-cc. vol. of H_2SO_4 3.5 cm. deep at a const. rate of 800 cc. per hr. remained clear and colorless for 6 hrs. in the presence of $(NH_4)_2SO_4$, for 2 hrs. in H_2SO_4 without any catalyst, but colored instantly in the presence of $HgSO_4$. Traces of SO_3 or of H_2O did not affect the reaction velocity. In solns. contg. less than 96% H_2SO_4 the velocity of the reaction was diminished. An increase in the concn. of the catalysts (up to satn.) increased the velocity of the reaction. The $(NH_4)_2SO_4$, besides acting as a neg. catalyst, paralyzed the catalytic action of the $HgSO_4$. The paralytic action was due to a diminished absorption of the C_2H_2 in the H_2SO_4. The absorbing power of H_2SO_4 for C_2H_2 is given for free H_2SO_4 and for H_2SO_4 contg. $HgSO_4$, $(NH_4)_2SO_4$, etc. A mixt. of the most effective catalysts $HgSO_4 + SeO_2$ had no effect on the rate of destruction of the C_2H_2; in this detail the action of the mixt. differs from its action during Kjeldahl digestion, when the mixt. is more effective than the separate components. Besides influencing the degree of absorption, the catalysts affected the start of the reaction, decreasing it from 120 min. to a few sec. Frank Maresh

COMMON ELEMENTS

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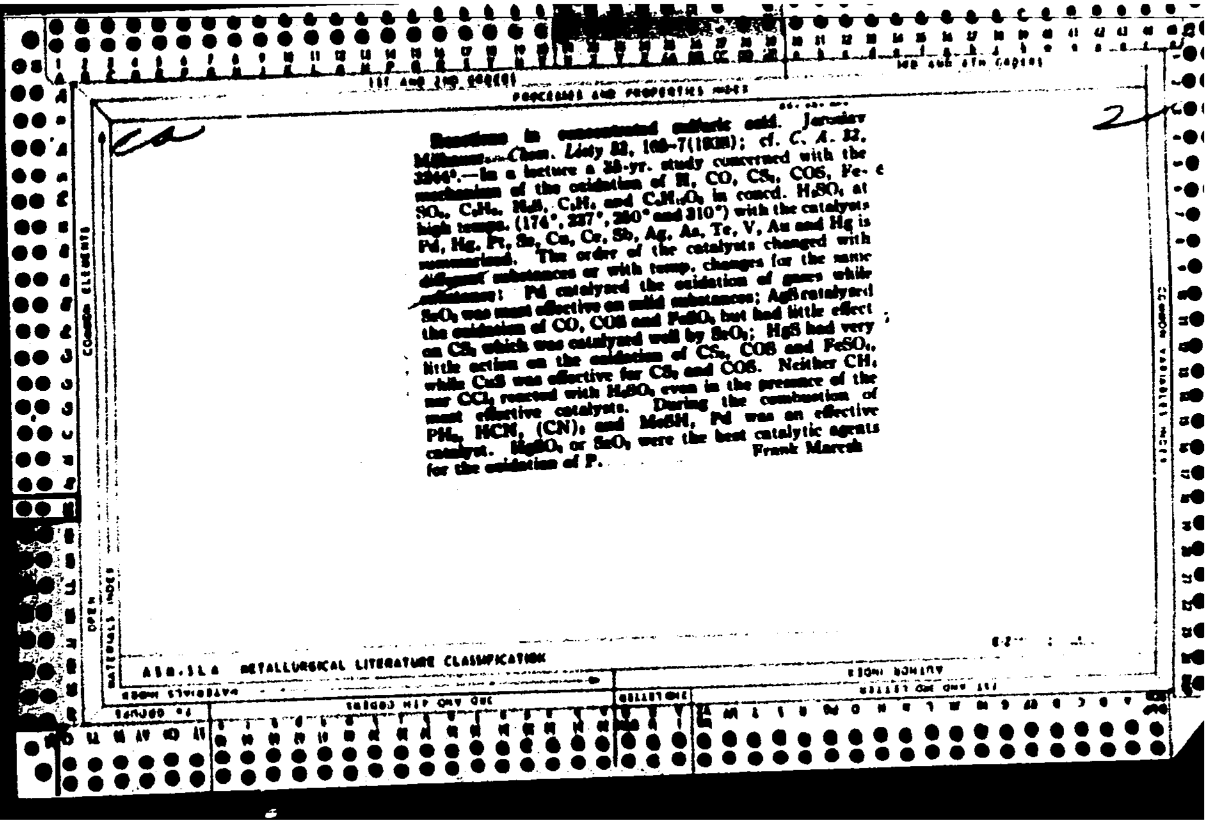
3RD AND 4TH ORDERS

BC

A-1

Reactions in concentrated sulphuric acid. XIII. Mannitol, a negative catalyst of reactions in concentrated sulphuric acid. J. MILBAUER (Chem. Obzor, 1938, 13, 225—228).—Mannitol, even in concn. as low as 1 : 10,000, retards the rate of oxidation of H_2, $FeSO_4$, KCNS, and $CS(NH_2)_2$ in conc. H_2SO_4, in so far as it is not oxidised itself, but has no action with CO, which nullifies its effect. Sorbitol does not show these reactions. F. R.

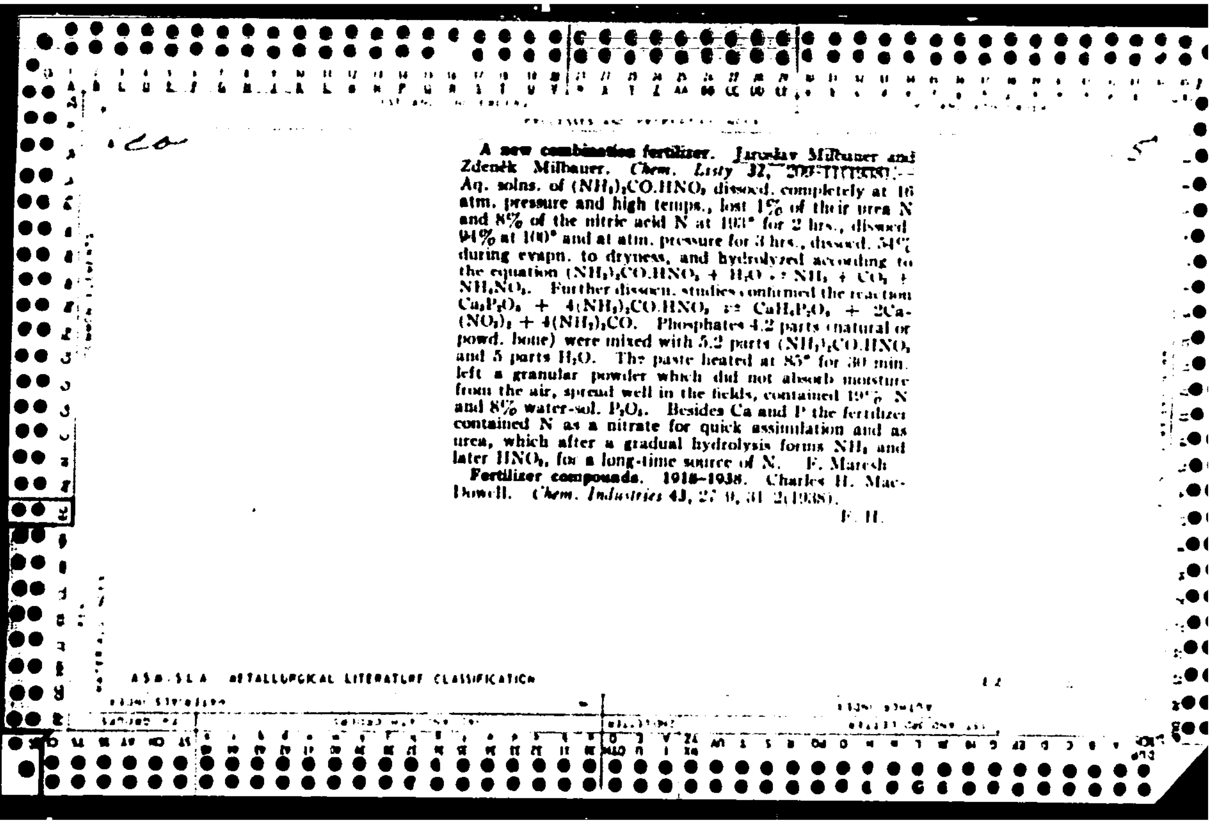
ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



ca

2

Reactions in concentrated sulfuric acid. Jaroslav
Milbauer.—Chem. Listy 32, 160-7(1938); cf. C. A. 32,
3244⁹.—In a lecture a 35-yr. study concerned with the Fe- c
mechanism of the oxidation of H, CO, CS_2, COS, at
SO_2, C_2H_4, H_2S, C_2H_2 and $C_6H_{12}O_6$ in concd. H_2SO_4 at
high temps. (174°, 237°, 280° and 310°) with the catalysts
Pd, Hg, Pt, Se, Cu, Ce, Sb, Ag, As, Te, V, Au and Hg is
summarized. The order of the catalysts changed with
different substances or with temp. changes for the same
substance: Pd catalyzed the oxidation of gases while
SeO_2 was most effective on solid substances; AgS catalyzed
the oxidation of CO, COS and $FeSO_4$ but had little effect
on CS_2 which was catalyzed well by SeO_2; HgS had very
little action on the oxidation of CS_2, COS and $FeSO_4$
while CuS was effective for CS_2 and COS. Neither CH_4
nor CCl_4 reacted with H_2SO_4 even in the presence of the
most effective catalysts. During the combustion of
PH_3, HCN, $(CN)_2$ and MeSH, Pd was an effective
catalyst. $HgSO_4$ or SeO_2 were the best catalytic agents
for the oxidation of P. Frank Maresh

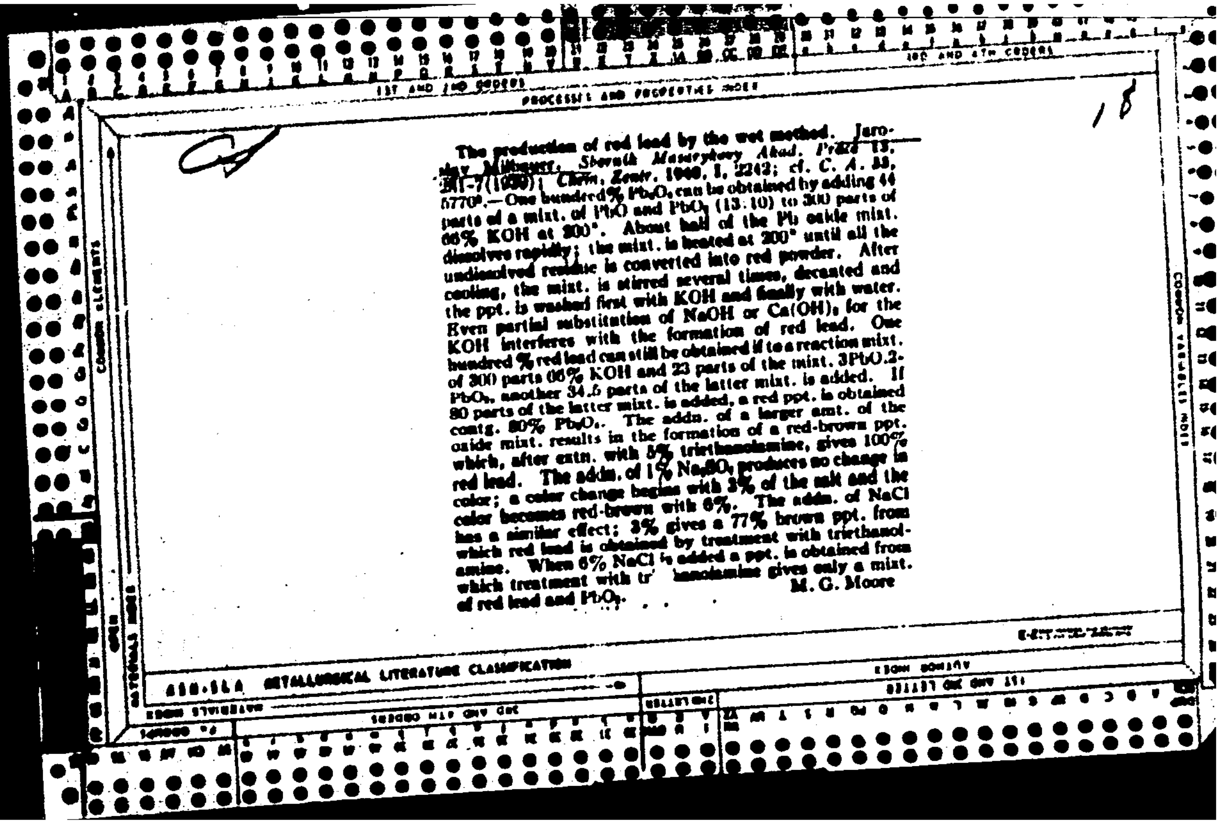


A new combination fertilizer. Jaroslav Milbauer and Zdeněk Milbauer. *Chem. Listy* **32,** 209-11(1938).—Aq. solns. of $(NH_2)_2CO.HNO_3$ dissocd. completely at 16 atm. pressure and high temps., lost 1% of their urea N and 8% of the nitric acid N at 103° for 2 hrs., dissocd. 94% at 100° and at atm. pressure for 3 hrs., dissocd. 54% during evapn. to dryness, and hydrolyzed according to the equation $(NH_2)_2CO.HNO_3 + H_2O \rightleftarrows NH_3 + CO_2 + NH_4NO_3$. Further dissocn. studies confirmed the reaction $Ca_3P_2O_8 + 4(NH_2)_2CO.HNO_3 \rightleftarrows CaH_4P_2O_8 + 2Ca(NO_3)_2 + 4(NH_2)_2CO$. Phosphates 4.2 parts (natural or powd. bone) were mixed with 5.2 parts $(NH_2)_2CO.HNO_3$ and 5 parts H_2O. The paste heated at 85° for 30 min. left a granular powder which did not absorb moisture from the air, spread well in the fields, contained 19% N and 8% water-sol. P_2O_5. Besides Ca and P the fertilizer contained N as a nitrate for quick assimilation and as urea, which after a gradual hydrolysis forms NH_3 and later HNO_3, for a long-time source of N. F. Maresh

Fertilizer compounds. 1918–1938. Charles H. MacDowell. *Chem. Industries* **43,** 27 9, 31 2(1938).

F. H.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



18

The production of red lead by the wet method. Jaroslav Milbauer. *Sborník Masarykovy Akad. Práce* 13, 281-7(1939); *Chem. Zentr.* 1940, I, 2242; cf. *C. A.* 33, 5770⁹.—One hundred% Pb_3O_4 can be obtained by adding 44 parts of a mixt. of PbO and PbO_2 (13:10) to 300 parts of 66% KOH at 300°. About half of the Pb oxide mixt. dissolves rapidly; the mixt. is heated at 200° until all the undissolved residue is converted into red powder. After cooling, the mixt. is stirred several times, decanted and the ppt. is washed first with KOH and finally with water. Even partial substitution of NaOH or $Ca(OH)_2$ for the KOH interferes with the formation of red lead. One hundred % red lead can still be obtained if to a reaction mixt. of 300 parts 66% KOH and 23 parts of the mixt. $3PbO.2PbO_2$, another 34.6 parts of the latter mixt. is added. If 80 parts of the latter mixt. is added, a red ppt. is obtained contg. 80% Pb_3O_4. The addn. of a larger amt. of the oxide mixt. results in the formation of a red-brown ppt. which, after extn. with 5% triethanolamine, gives 100% red lead. The addn. of 1% Na_2SO_4 produces no change in color; a color change begins with 3% of the salt and the color becomes red-brown with 6%. The addn. of NaCl has a similar effect; 3% gives a 77% brown ppt. from which red lead is obtained by treatment with triethanolamine. When 6% NaCl is added a ppt. is obtained from which treatment with triethanolamine gives only a mixt. of red lead and PbO_2.

M. G. Moore

PROCESSES AND PROPERTIES INDEX

A·1

Reactions in concentrated sulphuric acid. XIV. Decomposition of acetylene, especially at higher temperatures. J. MILBAUER and L. FRITSCH (Chem. Obzor, 1939, 14, 1—5, 25—30).—Decomp. of C_2H_2 in conc. H_2SO_4 at 100—300° has been studied photocolorimetrically and by measuring the SO_2 liberated. The following reactions take place at room temp.: $nC_2H_2 \rightarrow C_{2n}H_{2n}$; $C_{2n}H_{2n} \rightarrow CH⋮C\cdot C⋮C\cdot\,.\,.\,\cdot C⋮CH + H_{2n-2}$; $2C_{2n}H_2 \rightarrow nC_4 + 2H_2$; $2C_2H_2 \rightarrow C_4 + 2H_2$. At higher temp. the reactions are: $C_4 + 4H_2SO_4 \rightarrow 4CO + 4SO_2 + 4H_2O$; $CO + H_2SO_4 \rightarrow CO_2 + H_2O + SO_2$; $H_2 + H_2SO_4 \rightarrow 2H_2O + SO_2$. The relative effects on the absorption and velocity of decomp. at higher temp. of C_2H_2 in H_2SO_4, for which $HgSO_4$ is the most effective and $(NH_4)_2SO_4$ is a definite negative catalyst, of the reagents $HgSO_4$, SeO_2, Ag_2SO_4, TeO_2, V_2O_5, MoO_3, $CuSO_4$, $Sn(SO_4)_2$, $(NH_4)_2SO_4$, and alkali sulphates are discussed in detail.

F. R.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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BC

a-3

Reactions in concentrated sulphuric acid. XV. Sulphonation in the case of [illegible]. J. Ma[illegible] and [illegible] (Chem. [illegible], [illegible]) [illegible]—Mathematical relationships and graphs correlating various factors which affect the reaction of C_6H_6 with H_2SO_4 under various conditions. F. R.

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

[redacted]

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3RD AND 4TH ORDERS

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4-1

Reactions in concentrated sulphuric acid. XVI. Selenium and tellurium as catalysts. J. Milbauer (Chem. Obzor, 1939, 14, 105—111).—The behaviour of equiv. amounts of Se, SeO_2, and mixtures of the two on the reaction between C_2H_2 and conc. H_2SO_4 is traced. The oxide is in excess at the equilibrium point owing to the more rapid oxidation of Se by H_2SO_4 than reduction of SeO_2 by C_2H_2. This is especially evident at 100°. Te is oxidised much more slowly than Se at lower temp. but both are very rapidly oxidised at 200° in a stream of N_2. That an equilibrium is attained between the Se and the SeO_2 was proved by a colorimetric study of the action at 228° showing the presence of 1·5% Se at equilibrium with H_2 gas and 7·4% Se with CO_2. When using Se or SeO_2 alone as catalyst the reaction velocity increases to a max. corresponding with the equilibrium xSe + $y$$SeO_2$, when the results remain const. It is necessary to pass a mixture even of H_2 and air through the acid for a long time to obtain const. and max. results, but with CO_2 and air const. results are obtained immediately the temp. is const. The phenomenon is not caused by traces of H_2O or SO_2 formed in reaction or by the effect of light. F. R.

COMMON ELEMENTS

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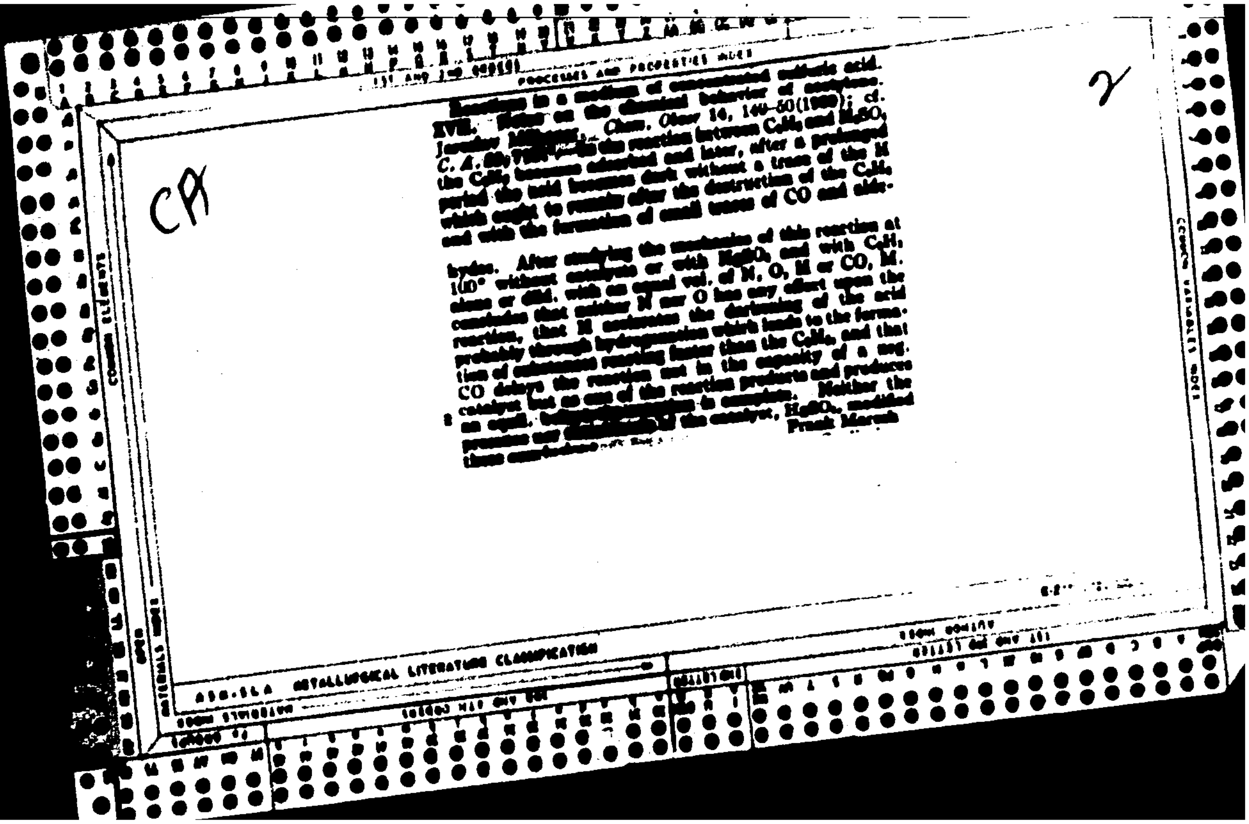
ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



Reactions in a medium of concentrated sulfuric acid. XVII. Notes on the chemical behavior of acetylene. Jaroslav Milbauer. Chem. Obzor 14, 140-50(1939); cf. C. A. [illegible]—In the reaction between C_2H_2 and H_2SO_4 the C_2H_2 becomes adsorbed and later, after a prolonged period the acid becomes dark without a trace of the H which ought to remain after the destruction of the C_2H_2 and with the formation of small traces of CO and aldehydes. After studying the mechanism of this reaction at 100° without catalysts or with $HgSO_4$ and with C_2H_2 alone or dild. with an equal vol. of N, O, H or CO, M. concludes that neither N nor O has any effect upon the reaction, that H accelerates the darkening of the acid probably through hydrogenation which leads to the formation of substances reacting faster than the C_2H_2, and that CO delays the reaction not in the capacity of a neg. catalyst but as one of the reaction products and produces an equil. [illegible] is complete. Neither the presence nor [illegible] of the catalyst, $HgSO_4$, modified these conclusions. [illegible]

Frank Maresh

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

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Ca

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Reactions in a medium of concentrated sulfuric acid. XVIII. The oxidation of artificial sulfides. Jaroslav Milbauer, J. Kurka and J. Mikulášek. Chem. Obzor 14, 193-6(1939).—In the oxidation of H_2SO_4 by catalysts contg. S the reaction $S + 2H_2SO_4 \rightleftharpoons 3SO_2 + 2H_2O$ proceeded irregularly because the S liberated from the catalysts formed in drops of an unequal size and in irregular dispersions. When the quantity of the catalyst remained at a 0.0001 *M* equiv. of the acid the oxidation of S began in the amorphous state and proceeded almost linearly to a max. value. The time in mins. required to reach this max. was for the following sources of S: Ag_2S 30, As_2S_3 30, ZnS 25, Sb_2S_3 25, FeS 35 and HgS 75. In the presence of $HgSO_4$ this time of oxidation was Ag_2S 25, FeS 25, Sb_2S_3 45, ZnS 80, As_2S_3 65 and HgS 90. In the presence of SeO_2 the time of oxidation was Ag_2S 20, ZnS 20, HgS 20, FeS 30, Sb_2S_3 45 and As_2S_3 55. Both $HgSO_4$ and SeO_2 increased the completeness of the reaction from 1 to 17%. XIX. Notes on ethylene. *Ibid.* 209-15.—Ethylene passed through H_2SO_4 becomes dark. This darkening, dependent upon partial pressure, was slow at room temp. but became faster at 200°; the small increase in the reaction velocity was due to the decrease in the absorption of C_2H_4 at elevated temps. $HgSO_4$ catalyzed the reaction producing the darkening; $(NH_4)_2SO_4$ retarded the reaction. During the reaction SeO_2 was reduced to free Se, the reaction being influenced by the equil. mass of SeO_2 and Se. The catalyst V_2O_5 was reduced, leaving a green soln. which retarded the darkening. At room temp. traces of SO_2 appeared when the C_2H_4 passed through H_2SO_4 contg. $HgSO_4$; at 200° the quantities of SO_2 appearing were large. The decompn. of C_2H_4 in H_2SO_4 contg. the catalyst $HgSO_4$ was slower than the decompn. of C_2H_4 by H_2SO_4 without any catalyst; the presence of N retarded the decompn. of both C_2H_4 and C_2H_6. XX. The [illegible] of some sulfide minerals. *Ibid.* 218-19.—The rate of the evolution of SO_2 from 50 cc. of 98.7% H_2SO_4 ventilated by 0.5 l. of N per hr. in the presence of 0.05-0.15 mol. of the mineral ore with or without the addn. of $HgSO_4$ or SeO_2 was detd. at 200°. Sphalerite was oxidized faster than artificially prepd. ZnS; the oxidation was 78.2% complete, was not influenced by $HgSO_4$, and was hastened by SeO_2. The oxidation of orpiment occurred at the same rate as the oxidation of pptd. As_2S_3; it was 72% complete, hastened by SeO_2 and not influenced by $HgSO_4$. The oxidation of antimonite was faster and more complete than the oxidation of pptd. Sb_2S_3; it was 48% complete, not influenced by $HgSO_4$ and hastened by SeO_2. The oxidation of cinnabarite was slower than the oxidation of pptd. HgS; it was 60.1% complete, hastened by SeO_2 and not influenced by $HgSO_4$. The oxidation of marcasite was faster and more complete (80.9%) than that of pyrites. The oxidation of these minerals in H_2SO_4 was identical to their behavior in concd. HNO_3.

Frank Maresh

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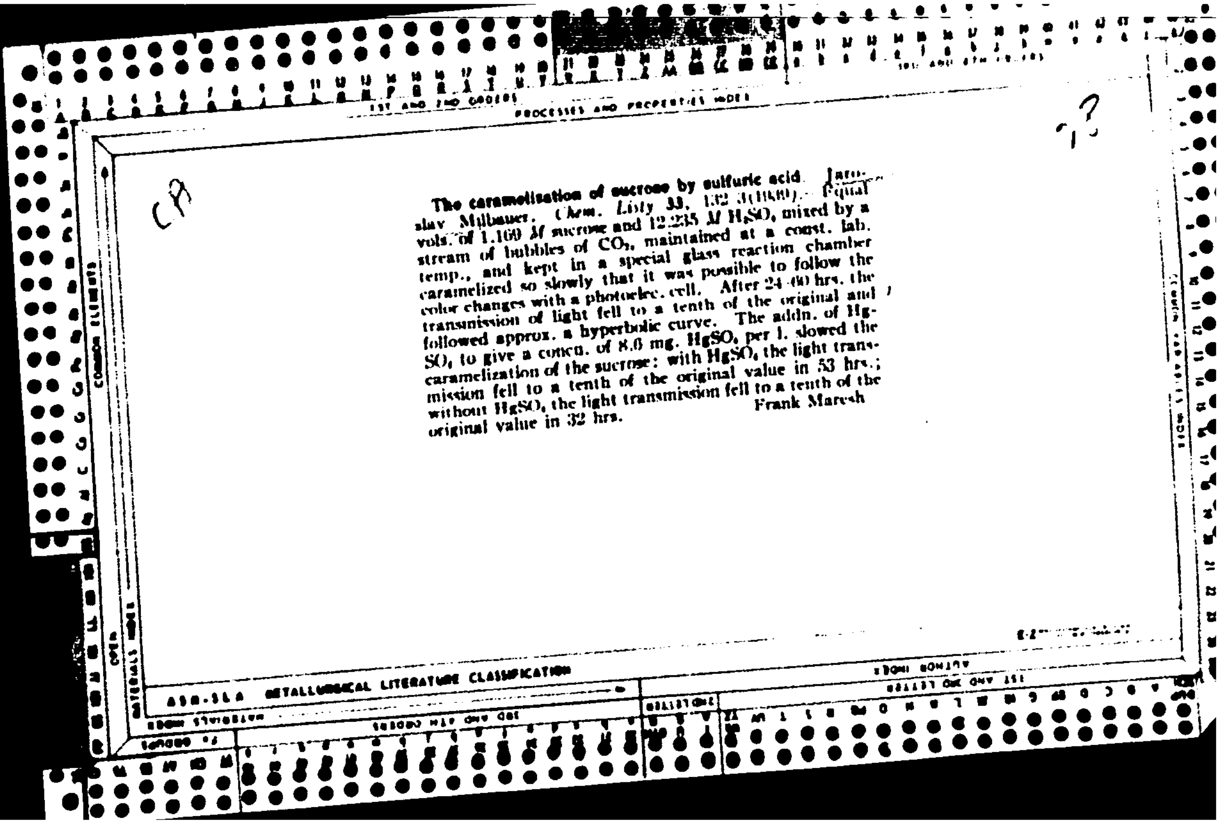
cR

Sketches from the history of a disappearing chemical generation. Jaroslav Milbauer. Chem. Listy 50, 111-13, 168-70, 217-19, 250-6, 281-4, 304-7(1956).—Sketches from the lecture hall and classroom of 70 yrs. ago in Prague; the chief figures are O. Quadrat, Karel Preis and F. Štolba. Frank Maresh

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



CA

13

The caramelization of sucrose by sulfuric acid. Jaroslav Milbauer. *Chem. Listy* 33, 132-3(1939).—Equal vols. of 1.160 *M* sucrose and 12.235 *M* H_2SO_4 mixed by a stream of bubbles of CO_2, maintained at a const. lab. temp., and kept in a special glass reaction chamber caramelized so slowly that it was possible to follow the color changes with a photoelec. cell. After 24-40 hrs. the transmission of light fell to a tenth of the original and followed approx. a hyperbolic curve. The addn. of $HgSO_4$ to give a concn. of 8.0 mg. $HgSO_4$ per l. slowed the caramelization of the sucrose: with $HgSO_4$ the light transmission fell to a tenth of the original value in 53 hrs.; without $HgSO_4$ the light transmission fell to a tenth of the original value in 32 hrs.

Frank Maresh

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

CA

18

Reactions in a sulfuric acid medium. XXIII. The Okers method for producing copper sulfate. Jaroslav Milbauer. *Chem. Obzor* 15, 22-8(1940).—The prepn. of $CuSO_4$ according to the reaction $2Cu + 2H_2SO_4 + O_2 \rightleftarrows 2CuSO_4 + 2H_2O$ used by Okers in 1858 was studied in a tower which enabled analysis of the chem. mechanics involved in the reaction. With an excess of air the optimum results occurred at 25°, when the concn. of H_2SO_4 was 25%. When O replaced the air, the yield of $CuSO_4$ rose 20% above the previous optimum, but crystn. began in the tower, and the temp. of the soln. rose to 30°. With an excess of air and under optimum conditions the presence of 0.01 *M* $CuSO_4$, Na_2SO_4, $(NH_4)_2SO_4$, $MnSO_4$, $FeSO_4 \cdot 7H_2O$, $Fe_2(SO_4)_3$, $NiCl_2$, $CuCl_2$, $HgSO_4$, As_2O_3, TeO_2, SeO_2, B_2O_3, Cr_2O_3, V_2O_5, NaCl, $NaNO_3$, H_3PO_4, HCO_2H, AcOH, citric and tartaric acids, $K_2Cr_2O_7$, $KClO_3$, and $KMnO_4$ had very little effect upon the yield of $CuSO_4$ and upon the course of the reaction; HCl, $NiCl_2$ and $CuCl_2$, which according to patents are supposed to increase the yield of $CuSO_4$, diminished it. In the presence of HCl, $NiCl_2$ or $CuCl_2$ the metallic Cu became covered with a film of $CuCl_2$, which gave the Cu a violet color. Amalgamation of the metallic Cu gave results identical with those obtained with untreated Cu. At 100° the presence of HCl, HNO_3, AcOH, As_2O_3, V_2O_5, Na_2SO_4, $FeSO_4$, $HgSO_4$, $K_2Cr_2O_7$, $KClO_3$, $NiCl_2$ and $CuCl_2$ accelerated the reaction in the oxidation of the metallic Cu to an oxide. When this effect was deducted from the velocity of reaction, only $K_2Cr_2O_7$, $NiCl_2$, $KCrSO_4$ and V_2O_5 were actual, pos. catalysts. At 100° and with O the yield of $CuSO_4$ increased with an increase in the concn. of H_2SO_4; favorable increases in the yield occurred up to a concn. of 30% H_2SO_4; for higher concns., a heavy crystn. of $CuSO_4$ interfered with the measurements, although they indicate a further rise in the reaction velocity. Addns. of H, CO_2 or SO_2 to the O at 100° did not affect the course of the reaction. When brass shavings were used with 25% H_2SO_4 and air at 100° $CuSO_4$ did not form; the product was $ZnSO_4$. Treatment of the brass surface with NaOH or with SO_2 did not alter these results.

Frank Maresh

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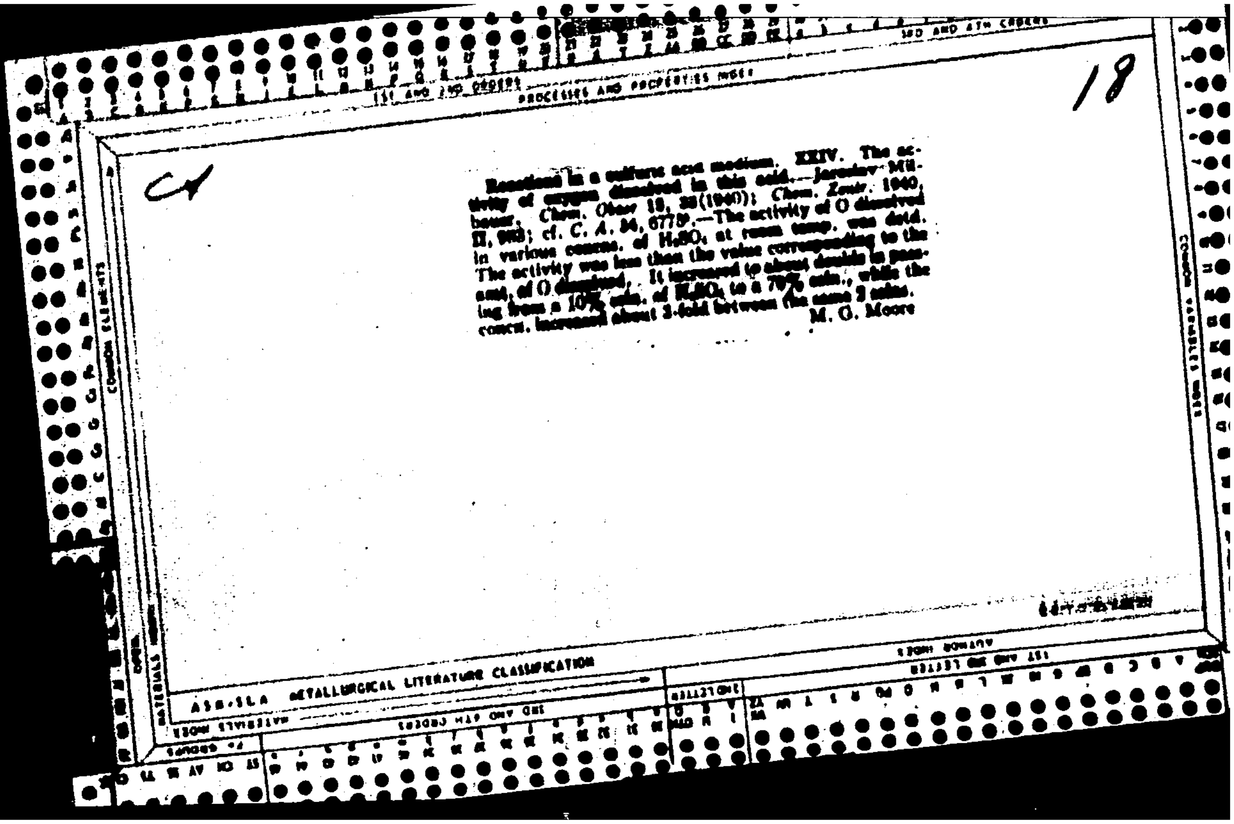

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CA

Reactions in a sulfuric acid medium. XXIV. The activity of oxygen dissolved in this acid.—Jaroslav Milbauer. *Chem. Obzor* 15, 33(1940); *Chem. Zentr.* 1940, II, 903; cf. *C. A.* 34, 6775.—The activity of O dissolved in various concns. of H_2SO_4 at room temp. was detd. The activity was less than the value corresponding to the amt. of O dissolved. It increased to about double in passing from a 10% soln. of H_2SO_4 to a 70% soln., while the concn. increased about 3-fold between the same 2 solns.

M. G. Moore

CA

7

Colorimetry of cations. J. Millbauer. *Chem. Listy* 38, 81-5, 106-12(1944).—A review. Milos Hudlicky

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Milbauer, Jaroslav. Laboratorní příprava anorganických preparátů. Prague: Chemické společnosti. 1947. 311 pp. Kč. 90. Reviewed in *Chem. Obzor* 22, 222 (1947).

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

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COMMON ELEMENTS

Milbauer, Jaroslav: Rozbory v anorganickém průmyslu. Prague: Cs. společnost chemická. 1948. 110 pp. Kčs. 110. Reviewed in *Chem. Obzor* 23, 96(1948).

OPEN

MATERIALS INDEX

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

MILBAUER, J.

Origin of the chemical section at the Czech Technical University in Prague.

P. 227. (Chemicky Prumysl.) (Praha, Czechoslavakia) Vol. 7, No. 5, May 1957

SO: Monthly Index of East European Accession (EEAI) LC. Vol. 7, No. 5, May 1958

MILBAUER, J.

The beginning of Czech chemistry at the chemical school.

P. 260. (Chemicky Prumysl.) (Praha, Czechoslavakia) Vol. 7, No. 5, May 1957

SO: Monthly Index of East European Accession (EEAI) LC. Vol. 7, No. 5, May 1958

MILBAUER, M.; KLIMES, F.; JAVORNICKY, J.

Examining the causes of indentation of wooden railroad ties by tie plates.
p. 270

ZELEZNICNI DOPRAVA A TECHNIKA. (Ministerstvo dopravy) Praha, Czechoslovakia.
Vol. 7, no. 9, 1959

Monthly List of East European Accessions (EEAI) LC, Vol. 8, No. 12, Dec. 1959
Uncl.

MILBAUER, Milos, inz., CSc.; JAVORNICKY, Jan, inz., CSc.;
KUCHAR, Gustav, inz.

Experimental solution of asymmetric arches with cantilevers.
Inz stavby 11 no.7:274-277 Jl '63.

MILBAUER, M.

"Laboratory of Experimental Elasticity at the Czechoslovak Academy of Sciences." p. 25
(<u>Strojirenstvi</u>, Vol. 3, no. 1., Jan. 1953, Praha)

SO: Monthly List of East European Accessions, Vol. 3, no. 2, Library of Congress,

MILBAUER, M.

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0 met

Journal of the Iron and Steel Institute
Vol. 176 Part 3
Mar. 1954
Properties and Tests

New Photoelastic Equipment in the Laboratories of the Czechoslovak [illegible]. M. Milbauer. (*Strojírenství*, 1953, 3, (8), 612–615). [In Czech]. A description is given of new equipment for photoelastic stress determinations. Its design is discussed, and compared with similar equipment of foreign make.—P. F.

ONDROUCH, A.; MILBAUER, M.

Damages and wear of acrylic endoprostheses in the organism. Acta chir. orthop. traum. cech. 25 no.4:284-295 July 58.

1. Ortopedicka klinika, Praha--CSAV--Utam.
(ACRYLIC RESINS,
internal prostheses, damage & wear (Cz))

23(5); 28(5); 18(7) PHASE I BOOK EXPLOITATION CZECH/3526

Milbauer, Miloš, Engineer, and Miroslav Perla, Engineer, Candidate of Technical Sciences

Fotoelasticimetrické přístroje a měřicí metody (Photoelastic Apparatus and Methods of Measurement) Prague, Naklad. CAV, 1959. 471 p. (Series: Česka matice technicka, roč. 64, cislo 336). 2,000 copies printed.

Reviewer: Rudolf Plechata, Doctor of Natural Sciences; Scientific Ed.: Václav Tesař, Engineer, Professor, Corresponding Member, Czech Academy of Sciences; Ed.: Ladislav Hrdina; Tech. Ed.: František Končický.

PURPOSE: The book is intended for scientific research workers and students of engineering schools.

COVERAGE: The book contains the fundamentals of the theory of elasticity necessary for the solution of problems of the state of plane stress. The basic optical principles of photoelastic

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analysis are also presented in a chapter written by Rudolf Plechata, Engineer, Doctor of Natural Sciences. The photoelastic analysis of the state of plane stress is discussed in detail. The methods of calculating the principal stresses from measured values (from the sum and difference of principal stresses) and their direct measurement are examined. Currently used methods are evaluated and reviewed, and the possibility of their use for solving problems of plane state of stress is set out. Ordinary polarization devices and special instruments for photoelastic work are described. The second volume of this work containing information on photoelastic materials and the methods of three-dimensional photoelasticity is in preparation. The authors thank Doctor Bedřich Hacar, Professor, Engineer, Corresponding Member of the Czechoslovak Academy of Sciences and winner of the state award, and Doctor Václav Tesař, Professor, Engineer, Corresponding Member of the Czechoslovak Academy of Sciences, and R. Plechata. There are 938 references: 561 English, 143 German, 95 French, 81 Russian (listed separately), 21 Czech, 16 Italian, 14 Spanish, 5 Polish, 1 Dutch and 1 Swedish.

ONDROUCH, A.; MILBAUER, M.

Photo-elastometric studies on the proximal portion of the femur. Sborn lek. 61 no.9:267-285 Sept 59.

1. I. klinika pro ortopedickou a detskou chirurgii fakulty vseobecneho lekarstvi University Karlovy v Praze. CSAV - Ustav teoreticke a aplikovane mechaniky.
(FEMUR, physiol.)

PHASE I BOOK EXPLOITATION SOV/4042

Leningrad. Universitet

Polyarizatsionno-opticheskiy metod issledovaniya napryazheniy; trudy konferentsii 13-21 fevralya 1958 goda (Optical Polarization Method for Stress Analysis; Transactions of the Conference of February 13-21, 1958). [Leningrad] Izd-vo Leningradskogo univ., 1960. 451 p. Errata slip inserted. 2,400 copies printed.

Resp. Ed.: S.P. Shikhobalov; Ed.: Ye.V. Shchemeleva; Tech. Ed.: S.D. Vodolagina; Editorial Board: S.G. Gutman, L.M. Kachanov, V.M. Krasnov, T.D. Maksutova, N.I. Prigorovskiy, V.M. Prokhe, B.B. Rozanov, and Ye.I. Edel'shteyn.

PURPOSE: This collection of 58 articles is intended for scientists and engineers concerned with experimental stress analysis of machine parts and structural components.

COVERAGE: The collection contains reports presented at the conference on optical polarization methods in stress analysis held February 13 - 21, 1958, in Leningrad and attended by 324 delegates including representatives of the People's Republic of China, the Polish People's Republic, the German Democratic Republic, and the Republic of Czechoslovakia. The reports discuss general theoretical problems and new methods of investigation and describe apparatus and materials used in the optical method. Solutions of specific two-dimensional and three-dimensional problems occurring in shipbuilding, aircraft design, engine construction, in various branches of heavy and precision machine design, in mining, metallurgy, hydraulic structures, railroad transport, in structural mechanics, geodynamics, in the control of stresses in products of the glass and electronic industry, etc., are given. Solution of the three-dimensional problem by means of the method of photoelasticity is introduced and the use of this method for the solution of problems associated with plasticity, creep, dynamics, hydrodynamics, etc., is demonstrated. Reports previously published elsewhere are printed here in abbreviated form. No personalities are mentioned. References are found at the end of 47 of the reports.

II. PROBLEMS IN SETTING UP INVESTIGATION TECHNIQUES FOR THREE-DIMENSIONAL AND TWO-DIMENSIONAL PROBLEMS

III. OPTICALLY ACTIVE MATERIALS

IV. INSTRUMENTS FOR OPTICAL-POLARIZATION INVESTIGATIONS

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7

PHASE I BOOK EXPLOITATION CZECH/5662

Milbauer, Miloš, Engineer, and Miroslav Perla, Engineer.

Fotoelasticimetrie a příklady jejího použití (Photoelasticity and Examples of Its Application) Prague, Nakl. ČSAV, 1961. 504 p. 1300 copies printed.

Sponsoring Agency: Československá akademie věd.

Scientific Ed.: Václav Tesař, Professor, Engineer, Doctor, Corresponding Member of the Czechoslovak Academy of Sciences; Reviewer: Rudolf Plechata, Doctor of Natural Sciences; Ed. of Publishing House: Lidmila Jánská; Tech. Ed.: František Končický.

PURPOSE: This book is intended for scientific research workers, engineers, and technicians interested in the applications of photoelastic methods in the determination of the strength of materials and in the determination of strains and stresses in structural parts and constructions.

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Photoelasticity and Examples of Its Application CZECH/5662

COVERAGE: The book is intended to complement a previous publication, Fotoelasticimetrické přístroje a měřici metody (Photoelastic Structures and Measurement Methods). The authors discuss the various photoelastic methods, the grid and screen methods, the freezing technique, the method using models composed of materials having different optical sensitivity but the same modulus of elasticity, the method of freezing stresses in models, and the scattered light method based on the Tyndall effect. In this section of the book, the authors drew on experience acquired at the Conference on Photoelasticity organized by Leningradskiy Universitet imeni A. A. Zhdanova (Leningrad University imeni A. A. Zhdanov) and the Leningradskiy otdel Nauchno-tekhnicheskogo obshchestva stroitel'noy promyshlennosti (Leningrad Section of the Scientific Technical Society of the Construction Industry) at Leningrad in June 1958. Experimental procedure in the case where it is not possible to observe the model directly from light passing through it is discussed, as well as photoelasticity measurements, including measurement of forces with dynamometers, measurement of dynamic effects on structures and on photoelasticity measurements

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on models. The authors thank Graduate Chemist E. Kučera, for his help in preparing Chapter A, Part IV; and Professor Doctor V. Tesar, Engineer. There are approximately 580 references: about 180 Soviet and the rest Czech, English, German, French, Italian, and Spanish.

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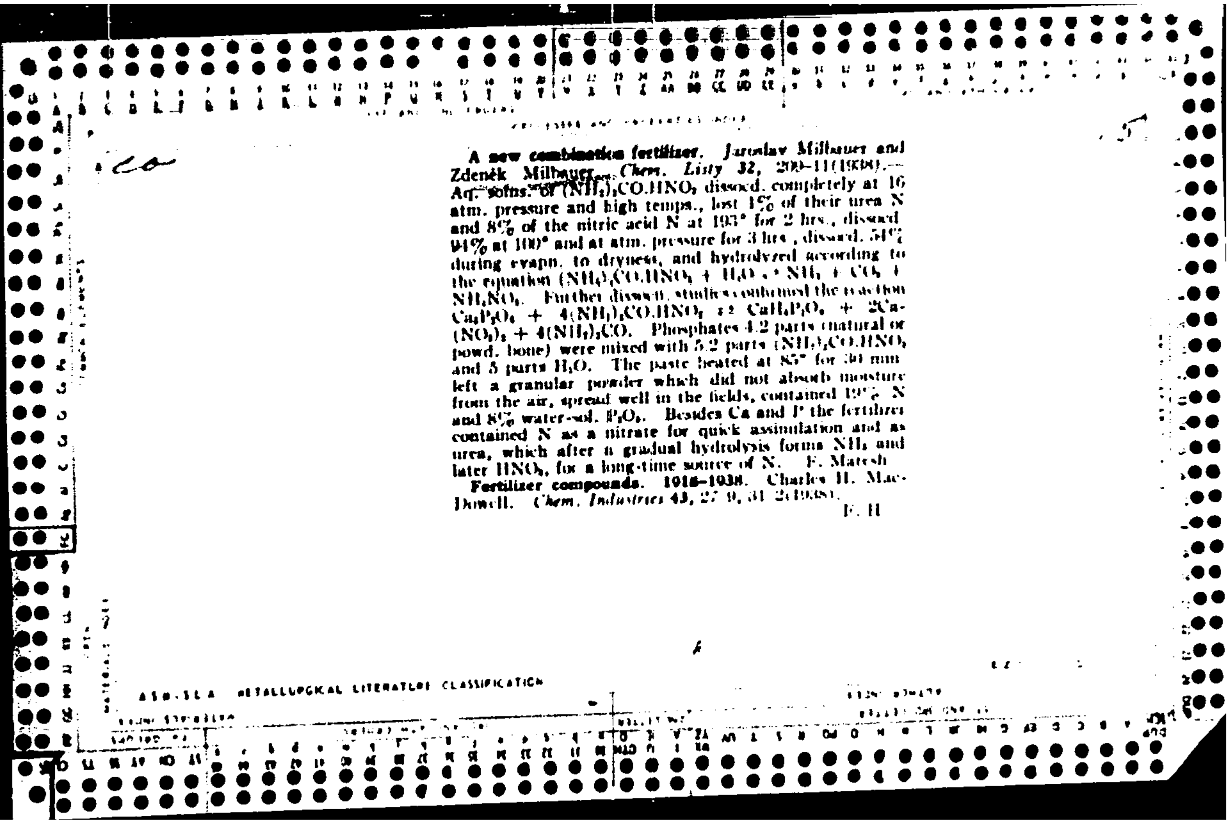
ONDROUCH, A.; MILBAUER, M.

Arthrotic bone cysts. Acta chir. orthop. traum. cech. 29 no.2:177-183 '62.

1. I orthopedicka klinika Karlovy university, prednosta prof. MUDr. M.Jaros CSAV — Ustav teorticke a aplikovane mechanicky.
(OSTEOARTHTISIS compl) (CYSTS etiol)
(BONE DISEASES case reports)



PROCESSES AND PROPERTIES INDEX

A new combination fertilizer. Jaroslav Milbauer and Zdeněk Milbauer. *Chem. Listy* **32**, 209-11(1938).—Aq. solns. of $(NH_2)_2CO.HNO_3$ dissocd. completely at 16 atm. pressure and high temps., lost 1% of their urea N and 8% of the nitric acid N at 193° for 2 hrs., dissocd. 94% at 100° and at atm. pressure for 3 hrs., dissocd. 54% during evapn. to dryness, and hydrolyzed according to the equation $(NH_2)_2CO.HNO_3 + H_2O \rightarrow NH_3 + CO_2 + NH_4NO_3$. Further dissocn. studies confirmed the reaction $Ca_3P_2O_8 + 4(NH_2)_2CO.HNO_3 \rightleftarrows CaH_4P_2O_8 + 2Ca(NO_3)_2 + 4(NH_2)_2CO$. Phosphates 4.2 parts (natural or powd. bone) were mixed with 5.2 parts $(NH_2)_2CO.HNO_3$ and 5 parts H_2O. The paste heated at 85° for 30 min. left a granular powder which did not absorb moisture from the air, spread well in the fields, contained 19% N and 8% water-sol. P_2O_5. Besides Ca and P the fertilizer contained N as a nitrate for quick assimilation and as urea, which after a gradual hydrolysis forms NH_3 and later HNO_3, for a long-time source of N. F. Matesh

Fertilizer compounds. 1918-1938. Charles H. MacDowell. *Chem. Industries* **43**, 27-9, 31-2(1938). F. H.

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

CP

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The effect of ingredients and of the surfaces on the
rate of evaporation. I. The effect of agents on the
rate of evaporation of purified water. Zdeněk Milbauer.
Listy Cukrovar. **56,** 421-6(1938).—~~Fifty cc. of distd.~~
water was placed in a Cu vessel whose walls were cleaned
electrolytically before a detn., the vessel was immersed in
a toluene bath heated electrically and the time neces-
sary to evap. 25 cc. of water measured. The most re-
producible values (13.2 min.) occurred for the 25-cc.
fraction evapg. between the 5 and 30 cc. Small addns.
of Ogepone *T*, tin dust, Al bronze or turpentine oil has-
tened the evapn., reducing the time to 10.5-11.8 min.
addns. of natural graphite, standard norite and tin
leaves were without much effect, the time of evapn.
ranging 12.5-13.4 min. Alk. waters or distd. water contg.
$NaHCO_3$ required a longer time for evapn. Distd.
water from which the gases were removed by redistn.
required 14-17 min. for the distn. Addn. of Na_2S to
distd. water left a film of CuS on the vessel surface which
diminished the heat transfer and increased the evapn.
time to 19 min. Similar results were obtained when the
evapn. was performed at a const. vol. In alk. waters the
behavior of the agents was changed: norite and tin dust
prolonged the time of evapn., the alkalies interrupted
the continuity of the CuS film and improved the heat
transfer and the Al bronze went into soln., losing its
previous effectiveness. **II. The influence of surfaces**
Ibid. 451-4.—The evapn. of 25 cc. H_2O from a me-
tallic vessel (cleaned electrolytically) contg. 50 cc. of
H_2O and immersed in a toluene bath required 11-15
min. and 1100-1300 kg.-cal./sq. m. hr. °C. Etching with
HNO_3, polishing, amalgamating or filming the surface
of the vessel with petrolatum, turpentine or Igepon pro-
longed the time of evapn. to 16-55 min., while tinning the
surface or polishing a tinned surface did not produce
any change. **III. The influence of incrustations** *Ibid.*
454-9.—Samples of water made slightly alk. with Na_3PO_4
and contg. Na_2S or Sn dust required 14-17 min. for the
evapn.; those contg. Al bronze or norite required 10-1
min. Hard natural waters to which $CaSO_4$, Al bronze,
Al salts, $Ca(HCO_3)_2$, $[CaCl_2 + NaHCO_3]$ or $[CaSO_4 +$
$Ca(HCO_3)_2]$ were added required only 10-13 min. for
the evapn.; the formation of coarse-grained incrustations
having a low heat-transfer coeff. hastened the evapn.
owing to the creation of many foci from which steam was
evolved and left a heat transfer of 1130-1580 kg.-cal./sq.
m. hr. °C. An addn. of 0.02-0.2% Igepon T or molasses
to hard water or to hard waters treated with Ca, Na or Al
salts led to the formation of fine incrustations, which

see other side

prolonged the time of evapn. to 19 min. and decreased the heat transfer to 785-800 kg.-cal./sq. m. hr. °C. IV. **The speed of evaporation of sugar juices.** *Ibid.* 517-23.—Although 12-15 min. was required for the evapn. of 20 cc. of distd. water from a special vessel, the time for the evapn. of 20 cc. of water from refined sugar solns., light liquors, raw sugar solns. and digested sugar juices with or without the addn. of Na_2SO_4, NaCl, MgO, Na_2CO_3, $CaSO_4$, $(NH_4)_2CO_3$, $MgSO_4$ or asparagine required 20-35 min. As before, fine incrustations retarded the rate of evapn.; coarse incrustations functioned actively, but the juice itself exerted the most influence of all factors. The water was evapd. in rates of the following order: refined sugar soln < light liquor < molasses. The heat-transfer coeff. was small for liquors ranging 0-20°Bg., changed rapidly in the range 20-60°Bg. and became very large above 60°Bg. The most rapid evapn. occurred in vessels with tinned surfaces. F. Maresh

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

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CA

Studies of the influence of addition agents and of the condition of the walls upon the rate of evaporation. I. Influence of agents upon the rate of evaporation of pure water. Zdeněk Milbauer. Z. Zuckerind. čechoslovak. Rep. 63, 41-7(1938).—See C. A. 32, 8810^1. II. The influence of the surface. Ibid. 57-8.—See C. A. 32, 8810^1. III. The influence of incrustations. Ibid. 58-64.—See C. A. 32, 8810^2.

Frank Maresh

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

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B-I-1

Bc

Effect of nature of heating surface and of incrustations on rate of boiling (in evaporators). II, III. [illegible] (Z. Zuckerind. Czechoslov., 1938, 62, [illegible]; cf. B., 1938, 111).—Using a small metallic evaporator, it was found that HNO_3 etching of the heating surface in contact with the liquid, or filming it with vaseline, turpentine, or Igepon, all lowered the heat transmission. Tinning the heating surface in contact with the liquid, and afterwards polishing it, had no effect. A striking result was that the formation of coarse-grained incrustations of low heat transmission accelerated the rate of boiling, owing presumably to the presence of points favourable for the evolution of steam bubbles. On the other hand, an unfavourable effect was produced by the formation of fine incrustations on the heating surface, as when 0·05—0·10% of Igepon-T or molasses was added to hard water, the heat transmission and thus the rate of evaporation being definitely lowered.

J. P. O.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS

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3RD AND 4TH ORDERS

BC

A-3

Reactions in concentrated sulphuric acid. XV. [illegible] in the case of [illegible]. J. Ma[illegible] and [illegible] (Chem. Obzor, 1939, 14, 69—73).—Mathematical relationships and graphs correlating various factors which affect the reaction of C_6H_6 with H_2SO_4 under various conditions. F. R.

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