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DAVIDOVICH, Petr Yakovlevich; ZINOVKINA, Miloslava Mikhaylovna; KRIKUN, Viktor Yakovlevich; LUCHSHEV, Anatoliy Mikhaylovich; PEREVERZEV, V.V., red.; RASTOVA, G.G., vedushchiy red.; MUKHINA, E.A., tekhn. red.

[Rotary trench excavators for laying pipes; manual for excavator operators] Transheinye rotornye ekskavatory dlia truboprovodnogo stroitel'stva; v pomoshch' mashinistu ekskavatora. Moskva, Gos. nauchno-tekhn. izd-vo neft. i gorno-toplivnoi lit-ry, 1961. 223 p. (MIRA 14:10)

(Excavating machinery)

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1

ZINOVKINA, M.M.

The TR-1 rotary trench filling machine. Biul.tekh.-ekon.inform. no.5:38-40 '60. (MIRA 14:3)
(Earthmoving machinery)

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1

ZINOVKINA, M.M., inzh.

Rotary excavators, their use and the method for calculating dynamic loads. Mekh. i avtom. proizv. 18 no.10:34-37 O '64.

(MIRA 17:12)

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1

ZINOVKINA, M.M., inzh; KRIKUN, V.Ya., inzh.

Building and road machinery with a new speed reducer for S-80 tractors without changing the gear box. Stroi. truboprov 4 no.2: 21-23 F '59. (MIRA 12:5)
(Building machinery) (Road machinery)

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1. ZINOV'YER, S. I. Docent

2. USSR 600

4. School Reports

7. Work experience should be reported scientifically: on annual reports of schools of higher education, Vest. vys. shkoly, 10, No. 6, 1952.

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

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1

ZINOVYEV and ANANIAN

"The Problem of the Active Immunization Against Mosquito Fever (Pappataci Fever)
A. Adaptation of the virus of Mosquito Fever to Laboratory Animals.
B. Specific Prevention of Mosquito Fever with Live Vaccine"

Zhur. Mikrobiol. Epidemiol i Immunobiol No. 1, January 1953
Translation 2029302

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1

ZINOV'YEV, A.; SAYENKO, I.; BOBROV, O.

Drilling underwater blastholes in rock. Rech. transp. 20 no.12:41-42 D '61. (MIRA 14:12)

(Dredging)
(Rock drills)

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1

ZINOV'YEV, A., starshina 1 stat'i, starshina komandy trymmnykh mashinistov

A lost screw. Starsh. serzh. no.1:26 Ja '62. (MIRA 15:4)
(Submarine boats)

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CA

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The question of a more rational siccative. A. Zinovyev. *Maslobojno-Zhirovoe Delo* **1929**, No. 2, 39-43; No. 3, 51-6.—Sediments especially in Pb driers are due to the formation of insol. soaps of satd. acids on the one hand and of the hydroxy acids (through gradual oxidation of linoleic and linolenic acids) on the other. The presence of small amounts of acids whose Pb salts are sol. prevents this sedimentation. A rational siccative has little effect on the color of the oil, should not form a sediment, should dry in 8-12 hrs., should have low acidity and high metal content, should be durable on aging and should possess the properties of a substitute for varnish. The most universal and rational drier is Pb Mn linoleate. This was prepd. from the fatty acids of a semi-drying oil (sunflower oil) after the removal by freezing of the satd. acids. The fatty acids were dissolved in turpentine or benzine and PbO was added with stirring for 15-20 hrs. at 20-30°. K. Bielovsky

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BC

B-II-8

Preparation of varnish oil by dehydration. A. Zhovtay (Maslobno-Zhir. Delo, 1932, No. 1, 11—14). —The colloidal substances remain in solution at all temperatures if the oil is previously dehydrated, preferably by passing a current of dry carbon dioxide through it at 140—150°. CHEMICAL ABSTRACTS.

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BC

B-II-8

[Paint] [illegible]. A. Zinoviev (Masloboino-Zhir. Delo, 1929, No. 2, [illegible]; No. [illegible]).—Lead manganese linoleate is preferred; its preparation is described.

CHEMICAL ABSTRACTS.

COMMON ELEMENTS

MATERIALS INDEX

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26

The preparation of varnish oil by dehydration. A. Zinovyev. *Maslobojno-Zhirovoe Delo* 1929, No. 1, 12-6.—The colloidal substances contained in the vegetable oils are usually removed by one of the following methods: (1) filtration with fuller's earth, (2) treatment with H_2SO_4, (3) by heating to high temps. (280-300°) whereby the colloids coagulate. All of these methods are costly and require special apparatus. The coagulation of the colloids does not take place at high temps. if the oil is previously dehydrated. There is thus no necessity to remove the colloids, as the latter remain perfectly soluble in the oil at any temps. This dehydration is best carried out by blowing a stream of dry CO_2 through the oil at 140-150°. The used CO_2 is recovered by washing with H_2O and heating to 140-150° to remove the moisture. R. B.

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1ST AND 2ND ORDERS

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27

Growth and progress of chemistry in the fat industry. A. Zinov'ev. Uspekhi Khim (U. S. S. R.) 1, 501-29(1932).

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CA

The use of oxidized oils in the production of oil varnishes. A. A. Zinov'ev. *Malyarnoe Delo* 1932, No. 4, 15-18; *Chem. Zentr.* 1933, II, 2740.—A discussion of the role of China wood oil and the possibility of its replacement by oxidized linseed oil in the manuf. of the more expensive oil varnishes.

M. G. Moore

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1

ZINOV'IEV, A. A. , ed

GOLDOVSKII, A. M.
Theoretical problems in the manufacture of vegetable oils. Nauchnyi redaktor A. A. Zinov'ev. Moskva, Snabtekhizdat, 1933. 63 p. (Vsesoiuznyi nauchno-issledova-tel'skii institut rastitel'nykh masel i margarina, Moscow. Trudy, vyp. 1)

1. Oils and fats. I. Zinov'iev, A. A. ed.

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BELINOVYEV, A.

B-II-7

Nature of sediments formed on cooling sunflower-seed oil. A. Zhukov and I. Gurevitsch (Masloh. Shir. Delo, 1951, 16, No. 7, 25—28).—The sediment usually consists of phosphates of a protein-gum complex. The amount of sediment is not increased by repeated freezing, and its vol. is decreased by heating to 50°. Ch. Abs. (g)

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1

Regenerating simple nickel compounds directly in oil. A. Zimov'ev, M. Vinogradova and O. Popova. *Trudui VNIIZh* 1934, No. 3, 24-9.—Reduced Ni catalysts were made from $Ni(OH)_2$, $Ni(OH)_3$ after oxidation with Br_2, and $NiCO_3$, in suspension in oil. Hydrogenation tests showed that $NiCO_3$ yields even more potent catalysts than does Ni formate. The results have an important bearing on the regeneration of spent catalysts in oil hardening.

Julian F. Smith

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Ca

Nickel formate as a catalyst in hydrogenating fats

A. Zinov'ev, M. Vinogradova and V. Ivanova. *Tendus VNIIZA* 1934, No. 3, 16-23.—High potency in Ni catalysts prepd. from Ni formate is attained only when decompn. of the formate is effected in the liquid phase, e. g., in an oil medium; decompn. in an atm. of H_2 is not effective. Catalysts prepd. from NiC_2O_4 were also studied.

Julian F. Smith

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ZINOV'YEV, A.

21

Nature of the sediments formed on cooling sunflowerseed oil. A. Zinov'ev and I. Gurevich. *Maslobolno Zhirovoe Delo* 10, No. 7, 25-8(1934); *Chimie & Industrie* 33, 935.—Freshly pressed sunflowerseed or linseed oil, when subjected to a low temp., forms a sediment of a nature resembling that of the sediment produced on keeping the oils for a long time at ordinary temp. Exposure of the oil for 2-3 hrs. at −12° to −15° results in the formation of sediment in 24-48 hrs.; subsequent repeated freezing of the filtered oil does not cause production of further amts. of sediment. If the oil contg. the sediment is heated, to 50°, the vol. of the sediment decreases. Generally, the sediment consists of phosphates and of an albuminoid-gum complex; but with linseed oil, subjecting to low temp. probably also pots. satd. glycerides.

A. Papineau-Couture

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CA

21

Refining vegetable oils. A. A. Zinov'ev and O. B. Khalatova. Russ. 38,721, Sept. 30, 1934. Excess of alkali, together with an electrolyte soln. such as NaCl, is added and the mixt. heated with live steam for 1-2 hrs.

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B-II-7

Catalytic hydrogenation of fats. A. Kuzovlev (Trud. VNIIZh, 1951, No. 1, 3—15).—As hydrogenation of fatty acids of linseed oil [$(HCO_3)_2Hi$ catalyst] proceeds, the content of isomerides of oleic acid increases to a max. and subsequently declines to zero. These acids are formed, not by shifting of double linkings, but by gradual and perhaps selective saturation of the double linkings. In the initial stages of hydrogenation acids with <2 such linkings react first. Ch. Abs. (y)

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B-I-7

Nickel formate as a catalyst in hydrogenating fats. A. [illegible], M. Vinogradova, and V. Ivanova (Trud. VNIIZh, 1954, No. 5, 16—[illegible]).—High activity is obtained only when the formate is decomposed in a liquid phase, e.g., in an oil medium. Decomp. in an atm. of H_2 is ineffective. Catalysts containing $NiCO_3$ are examined. Cu. Abs. (p)

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B-4-7

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ZINOV'YEV, A

Catalytic hydrogenation of fats. A. Zinov'ev. *Trudai VNIIZh* 1934, No. 3, 3-15.—In expts. with linseed oil fatty acids, with Ni formate catalysts, it was found that as hydrogenation proceeds the content of oleic acid isomers, having reached a max., gradually drops practically to 0. Apparently these acids are formed, not by double bond shifts, but by gradual and perhaps selective satn. of double bonds. In the initial stages hydrogenation is selective, acids with 2 or more double bonds reacting first.

Julian F. Smith

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ZINOV'YEV, A.

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Formation of linoleic acid in the process of hydrogenation [of oils]. A. Zinov'yev and N. Kurochkina. *Maslo-boino Zhirovoi Delo* 11, 308-12(1935).—Refined sunflower oil was hydrogenated with 0.4% Ni catalyst at 140°, 180° and 230° for 2 hrs. Analysis of the samples taken at intervals of 10 min. disclosed a gradual accumulation of linoleic acid up to 25-30% under all conditions of hydrogenation. In all the samples the max. contents of linoleic acid formed were approx. equal to 0.5 of the original oleic acid contained in the fresh oil. If linoleic acid can be formed only by a partial satn. of the linoleic acid (at the double bond 9:10), it follows that 1 part of the latter is converted into normal oleic acid and the other part into the linoleic acid (12:13). Chas. Blanc

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B-II-7

Formation of isoleic acid during hydrogenation [of oils]. A. Zinoviev and N. Kuroshkina (Maslob. Shir. Dela, 1936, 12, 308—312).—During hydrogenation of sunflower-seed oil with 0·4% Ni catalyst at 140—220° for 2 hr., there is a gradual accumulation of isoleic acid (I) up to 25—30%. If (I) is formed only by partial saturation of linoleic acid (II) (at the 9:10-double linking) part of (II) must be converted into oleic acid and part into (I).

Ch. Abs. (p)

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ZINOV'YEV, A.

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Centrifugal method of separation of soap from fats after neutralization. A. Zinov'ev and A. Villmer. *Maslobolno Zhirovoe Delo* 11, 476-7(1935).—Good results are reported with the use of the Sharples centrifugal separator.

Chas. Blanc

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ZINOV'YEV, A

26

The continuous thermal treatment of drying oils. V. Zinov'ev and A. Zinov'ev. *Za Lakokrasochnyu Inf.* 1935, No. 2, 32-5. App. is described. H. M. I.

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Seperation of oil from soapstock. A. A. Zimov'ev and E. I. D'yakonova. *Maslobeino Zhirovoe Delo* 12, 485-8 (1936).—Dissolving soapstock in 3 vols. of water at 90-5° and adding 2% NaCl, based on the wt. of soapstock, resulted in the sepn. of 90-2% oil. The addn. of $Al_2(SO_4)_3 \cdot 13 H_2O$ with 0.02% H_2SO_4 gave a sepn. of 87% oil, and that of Na_2SO_4, H_2SO_4 and $NaHSO_4$ gave inferior results. Chas. Blanc

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Refining of oils. I. A. A. Zinov'ev. *Mashlobnaya Zhirovoe Delo* 13, 543-5(1936).—In the process of refining of oils with excess alkali and NaCl by heating the mixt. with live steam for 1-2 hrs., according to Russ. pat. 38,721 (*C. A.* 30, 3674[1]), 98-9% of the 20-5% oil retained in the soapstock emulsion can be recovered by adding 2.5-3 parts of 1-1.2% NaCl and heating the emulsion at 90-5° (live steam can be used) with stirring. The last traces of soap in the oil can be removed by repeated washings with 1% NaCl. II. A. A. Zinov'ev and T. Plyushcheva. *Ibid.* 583-5.—The method applied to refining of hog-bone oil gave a satisfactory pale oil, requiring no bleaching with activated clays or C. III. A. A. Zinov'ev and A. Dodonova. *Ibid.* 13, 28-9(1937).—The method is used in refining of cottonseed oil. C. B.

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ZINOV'YEV A

27

Causes of rancidity of fats. A. Zinov'ev and Z. Kolodezhnaya. *Maslobolno Zhirovoe Delo* No. 4, 22-3(1937). —Rancidity is due to both hydrolytic and oxidative processes. B. C. P. A.

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27

Ketonic rancidity in oils. A. A. Zinovev and S. V. Drukker. *Maslobolno Zhirovoe Delo* 13, No. 2, 6-8 (1937). It is shown that the rate of development of ketonic rancidity and the peroxide formation in lard and other unsatd. fats (Schmalfuss) is greatly increased by the action of daylight and elevated temps. (38°). The peroxides are formed before the ketones, the 2 processes develop at first very slowly and then on reaching a definite stage proceed at a highly accelerated rate.

Chas. Blanc

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Refining of oils. A. A. Zinov'ev and E. Mal'tsova. *Maslobolno Zhirovoe Delo* 13, No. 3, 12-13(1937).—The previous method (cf. *C. A.* 31 5189[illegible]) was applied to the alk. refining of sunflower oil. Chas. Blanc

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B-II-7

Drying oils from castor oil. A. [illegible] (Manich. Chir. Dolo, 1938, No. 4, 32—34).—Castor oil is heated with 1—8% of ascanite at 220—230° for 1 hr., to yield an oil which dries more rapidly than does linseed oil; it yields, however, a slightly sticky film owing to traces of ricinoleic acid. R. T.

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ZINOV'YEV, A.

CN

Obtaining stand oil from castor oil. A. Zinov'ev. Maslobo'no Zhirovoe Delo 14, No. 4, 32-4(1938).—A discussion. Chas. Blanc

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ZINOV'YEV, A.

CA

27

Determining the activity of nickel catalysts. A. Zinov'yev. *Maslobolno Zhirovoe Delo* **1939**, No. 3, 10-13.—An equation is developed for detg. the activity of Ni catalysts in hydrogenating oils: $K = 1/(t_{end} - t_0) \cdot \ln(I_0/I_{end} - I)$, where K is the velocity const., the t terms are the starting and final times, and I is the I no. of the oil. If other variables are strictly controlled tests made according to the equation reliably indicate catalyst activity. Tabulated data show how the test was employed with linseed and sunflower-seed oils.

Julian F. Smith

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Determination of activity of nickel catalysts. A. Zinovyev (Maslob. Shir. Delo, 1939, No. 3, 10—13). —The velocity coeff. k of the reaction of hydrogenation of unsaturated acids is calc. from the formula $k = [2{\cdot}303/(t_2 - t_1)] \log I_{t_1}/I_{t_2}$, where $t_2 - t_1$ is a time interval (t_1 <1 hr., t_2 2—2·5 hr.), and I_{t_1} and I_{t_2} are the I vals. at the beginning and end of this interval. The activity of Ni catalysts is expressed as k_2/k_1, where k_1 and k_2 are the vals. found for a reference catalyst and for the catalyst under examination, respectively. R. T.

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Deterioration of fat. A. A. Zinov'ev. *Proyekhanie Zhirov i Masel, Pishchepromizdat* 1940, 5-71; *Khim. Referat. Zhur.* 1940, No. 5, 125-6.—The accelerating effect of light on the development of rancidity of fats was verified, and the effects of the intensity of light and wave length were detd. The peroxidase nos. increased in lard samples kept at 38° and remained unchanged in samples kept at −10°. The peroxidase nos. increased in samples of beef fat by the action of NaCl contg. 0.01% of Fe. Salting of butter with NaCl contg. Fe facilitated the oxidation process. The best antioxidation agents are phenols, amines and alcs.

W. R. Henn

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B

27

Study of the Kinetics of Reactions Accompanied by Absorption or Liberation of Gases. I. Kinetics of Hydrogenation of Fats. (In Russian) A. A. Zinov'ev. Zhurnal Prikladnoi Khimii (Journal of Applied Chemistry), v. 22, Dec. 1949, p. 1253-1262.
10 references.

Chem Gen Chemistry Chem-Technol Prod of Oil Ind.

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CA

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The need of an objective index for oxidative deterioration of fat. A. A. Zimov'ev. *Myasnaya Ind. S.S.S.R.* 21, No. 6, 70-1(1950). M. M. Piskur

1951

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1

C.A

2

Kinetics of the hydrogenation of fats. A. A. Zinov'ev (Chem.-Technol. Inst. Meat Ind., Moscow). Zhur. Prikkl. Khim. (J. Applied Chem.) 23, 99-111(1950); cf. C.A. 44, 3778d.—Integrated kinetic equations are derived for the evaluation of detns. by both the analytical and the hydrogen-volumetric method in the Ni-catalysed hydrogenation of mixts. of oleic (I), linoleic (II), and linolenic acid triglycerides (III), on the assumption that each is hydrogenated by a 1st-order reaction with its own rate const. k. By the analytical method, an individual k involves the soln. of only one equation, whereas in the gas-volumetric method one equation contains 2 consts. On the other hand, the 1st method necessitates taking of samples in the course of the reaction, whereas by the 2nd method, the 2 consts. are obtained from data of one single run. The procedure is illustrated by an expt. with 150 g. of sunflower oil with the iodine no. 120, compn. I 41.4, II 48.7%, total hydrogenation requiring 15,800 cc. H_2; at 160, 175, 182, 190, 200, and 210°, 10^4k_I = 1.75, 2.44, 3.64, 4.70, 6.50, and 7.96, and 10^4k_{II} = 6.04, 6.61, 8.26, 8.61, 8.83, and 9.55 min.$^{-1}$. The ratio k_I/k_{II} = 34.5, 27.1, 22.7, 18.2, 13.6, and 12.0 falls with rising temp.; i.e., with rising temp. the rate of hydrogenation of I increases faster than that of II. The activation energy E_{II} is of the order of 17 kcal. At const. temp., k_I increases linearly with the amt. of catalyst; thus, at 160°, with 10, 15, 20, 25, and 34.8% (of the wt. of the oil) of a catalyst contg. 16.5% Ni, 10^4k_I = 1.6, 3.1, 5.1, 7.0, and 9.8 min.$^{-1}$. With II, k_{II} increases more slowly than linearly; in the same run, 10^4k_{II} = 5.0, 7.1, 8.5, 10, and 12 min.$^{-1}$. This might be due to effects of diffusion, which play no role in the hydrogenation of I but are not negligible with II owing to the much greater rate of hydrogenation. The detn. of k_{III} is less accurate; 2 expts. gave 10^4k_{III} = 6.27 and 6.21, av. 6.20 min.$^{-1}$. Hydrogenation of III is 3.3 times as fast as that of II, and 59.3 times as fast as that of I. The activation energy E_{III}, between 170 and 210°, is roughly of the order of 9 kcal.

N. Thon

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1

CA ZINOV'YEV, A.

Methods for determination of the moisture in meat. K. Ol'shanova and Zinov'ev. *Myasnaya Ind. S.S.S.R.* 22, No. 2, 5-8(1951).—Methods based on oven drying, reaction with CaC_2, and measurement of C_2H_2 released, and the a method of Bespalov (*ibid.* 1930, No. 4) were compared. The latter comprised warming the sample with glycerol and detn. of *n* of the ext.; but no further procedure details were given. The first and last of the above listed methods gave results which agreed closely, while those based on measurement of C_2H_2 released with CaC_2 were considerably lower.

M. M. Piskur

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1

1. ZINOV'YEV, A. A.

2. USSR (600)

4. Cottonseed Oil

7. Problem of refining black cottonseed oil, Masl. zhir. prom., 17, No. 7, 1952.

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

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1

ZINOV'YEV, A.A.

Characteristics of the selectivity of the process of hydrogenation of fats. Masl.-zhir.prom. 18 no.10:14-19 '53. (MLRA 6:11)

1. Khimiko-tekhnologicheskiy institut myasnoy promyshlennosti.
(Hydrogenation)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1"

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1

LIBERMAN, Simon Grigor'yevich, kandidat tekhnicheskikh nauk; PETROVSKIY, Vasiliy Petrovich; starshiy nauchnyy sotrudnik; ZIMOV'YEV, A.A., doktor tekhnicheskikh nauk, professor; retsenzent; MIRKIN, Ye.Yu., kandidat tekhnicheskikh nauk, retsenzent; SEMENOVA, N.L., redaktor; CHEBUSHEVA, Ye.A., tekhnicheskiy redaktor

[Manual for the rendering of animal fats] Spravochnik po proizvodstvu zhivotnykh zhirov. Izd. 2-oe, perer. i dop. Moskva, Pishchepromizdat, 1956. 427 p. (MLRA 9:11)
(Oils and fats) (Rendering works)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1

ZINOV'YEV, A.A.

USSR/Inorganic Chemistry - Complex Compounds. C.

Abs Jour : Ref Zhur - Khimiya, No 9, 1957, 30325

Author : Zinov'yev, A.A., Chudinova, L.I.
Inst :
Title : Thernal Decomposition of the Perchlorates of Magnesium, Calcium, Barium and Aluminum.

Orig Pub : Zh. beorgan. khimii, 1956, 1, No 8, 1722-1730

Abst : Differential thermograms were recorded, and also polythermal curves, of O_2 evolution on thermal decomposition of perchlorates of Mg, Ca, Ba and Al. The emitted gases and decomposition residues were analyzed. The decomposition of perchlorates of Mg, Ca and Ba takes place exothermically. $Mg(ClO_4)_2 \cdot 6H_2O$ loses $4H_2O$ at 185°, at 141° it is dehydrated [sic]. Thermal decomposition of $Mg(ClO_4)_2$ occurs in three stages (at 410, 499 and 547°) and can be represented by two summative equations: $Mg(ClO_4)_2 = MgCl_2 + 4O_2$ and $Mg(ClO_4)_2 = MgO + Cl_2 + 3.5O_2$.

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USSR/Inorganic Chemistry - Complex Compounds. C.

Abs Jour : Ref Zhur - Khimiya, No 9, 1957, 30325

The $Ca(ClO_4)_2 \cdot 4H_2O$ melts at 57°, loses water at 256° and endothermal effect is observed at 340°, which is apparently associated with polymorphous transformation of $Ca(ClO_4)_2$. Thermal decomposition begins at 468° and occurs mostly in accordance with the equation $Ca(ClO_4)_2 = CaCl_2 + 4O_2$, and only to a negligible extent with evolution of Cl_2. The $Ba(ClO_4)_2 \cdot 3H_2O$ loses water at 174° and undergoes polymorphous transformations at 284° and 360°; at and above 520° decomposition occurs in accordance with the equation $Ba(ClO_4)_2 = BaCl_2 + 4O_2$, at still higher temperatures BaO appears in the residue, and traces of Cl_2 in the gases. Decomposition of $Al(ClO_4)_3 \cdot 6H_2O$ is a complex endothermic process which includes evaporation of the water of crystallization, partial hydrolysis of the perchlorate and thermal decomposition of the liberated perchloric acid. The process occurs at a lower temperature than in the case of the other perchlorates that have

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USSR/Inorganic Chemistry - Complex Compounds. C.

Abs Jour : Ref Zhur - Khimiya, No 9, 1957, 30325

been investigated, and can be represented by the summative equation $2Al(ClO_4)_3 = Al_2O_3 + 3Cl_2 + 10.5\ O_2$.

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1

ZINOV'YEV, A.A.; CHUDINOVA, L.I.; SMOLINA, L.P.

Binary system: sodium perchlorate - barium perchlorate. Zhur. neorg.khim. 1 no.8:1850-1856 Ag '56. (MLRA 9:11)

1. Institut obshchey i neorganicheskoy khimii imeni N.S.Kurnakova, Akademii nauk SSSR.
(Perchlorates)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1

AUTHOR: [illegible]

TITLE: The Stability of Hydroxylamine Sulphate at High Temperatures. (K Voprosu ob Ustoychivosti Sernokislovo Gidroksilamina pri Povyshennykh Temperaturakh).

PERIODICAL: "Zhurnal Neorganicheskoy Khimii" (Journal of Inorganic Chemistry) Vol.II, No.2, pp.253-258. (U.S.S.R.) 1957

ABSTRACT: There is considerable uncertainty in the literature not only on melting point and the decomposition temperature of hydroxylamine sulphate but also on the chemistry of its decomposition. In the present work decomposition was shown to start at 130 - 140°C in the solid state and to proceed with evolution of heat. And thus it is NH_4HSO_4 and not the hydroxylamine sulphate which melts at 146.9°. The thermal decomposition of hydroxylamine sulphate is an extremely complex oxidation-reduction process consisting of intramolecular oxidation-reduction of the hydroxylamine and also of the oxidation of hydroxylamine by sulphuric acid. The probable overall reactions of these oxidation-reduction processes are given. 99.4% pure hydroxylamine sulphate was found to have a density of 1.91.

There are 4 references of which 2 are Russian, and 2 figs. and 2 tables.

The work was carried out at the Institute of General and Inorganic Chemistry imeni Kurnakova of the Academy of Sciences of the U.S.S.R.
Received 28th April, 1956.

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1

ZINOV'YEV, A.A.; BABAYEVA, V.P.

Perchloric acid and its derivatives. Part 4: Perchloric acid Hydrates. Zhur.neorg.khim. 2 no.9:2188-2195 S '57. (MIRA 10:12)

1.Institut obshchey i neorganicheskoy khimii im. N.S. Kurnakova AN SSSR.

(Perchloric acid)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1

ZINOV'YEV, A.A.

AUTHOR: Zinov'yev, A. A. 78-3-5-25/39

TITLE: Perchloric Acid and Its Derivatives (Khlornaya kislota i yeye proizvodnyye)
V. The Properties of Perchloric Acid and Its Production (V. Svoystva khlornoy kisloty i sposoby yeye polucheniya)

PERIODICAL: Zhurnal Neorganicheskoy Khimii, 1958, Vol 3, Nr 5, pp 1205-1209 (USSR)

ABSTRACT: Chloric acid is the sole oxygen containing acid of chlorine which can be obtained in anhydrous state. It is a slightly volatile hygroscopic liquid. The water which is absorbed by the perchloric acid is not present in free state, but as hydrate.
Perchloric acid is obtained from hydrated chloric acid by distillation in vacuum.
Tests for the dehydration of perchloric acid with P_2O_5 or with concentrated sulfuric acid are a rather dangerous operation, and it is necessary to work with an accurate dosing of the drying agents.
An apparatus for the distillation of perchloric acid which

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1

Chloric Acid and Its Derivatives. 78-3-5-25/39
V. The Properties of Perchloric Acid and Its Production

allows safe operation is described in the present report. An output of 75% perchloric acid can be obtained by means of this apparatus. The dehydrated perchloric acid must be conserved in dry ice and in an absolutely tight apparatus with ground joints. At the temperature of dry ice (-78.5°C), the perchloric acid remains colorless for some weeks.
There are 1 figure, 1 table and 13 references, 2 of which are Soviet.

ASSOCIATION: Institut obshchey i neorganicheskoy khimii im. N. S. Kurnakova Akademii nauk SSSR (Institute of General and Inorganic Chemistry imeni N. S. Kurnakov AS USSR)

SUBMITTED: May 24, 1957

AVAILABLE: Library of Congress

1. Perchloric acid--Derivatives

Card 2/2

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1

AUTHORS: Zinov'yev, A. A., Babayeva, V. P. 78-3-6-22/30

TITLE: Chloric Acid and Its Derivatives.
VI. The Binary System Monohydrate-Chloric Acid - Acetic Acid (Khlornaya kislota i yeye proizvodnyye
VI. Dvoynaya sistema monogidrat khlornoy kisloty-uksusnaya kislota)

PERIODICAL: Zhurnal Neorganicheskoy Khimii, 1958, Vol. 3, Nr 6, pp. 1428-1432 (USSR)

ABSTRACT: The system monohydrate chloric-acid - acetic-acid was investigated in the present paper with respect to the specific weight, viscosity, and melting point.
Two eutectics were found in the melting-point curves.
The specific weigth and the viscosity of the system were determined at temperatures of 20, 35 and 50°C. The isotherms of the viscosity curves have a marked maximum which indicates the presence of $HClO_4 . H_2O . 2 CH_3COOH$.

At a temperature of -24,5°C the monohydrate of chloric acid passes over into a solid form, the condition of which was not precisely explained. The monohydrate of chloric acid

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1

Chloric Acid and Its Derivatives. 78-3-6-22/30
VI. The Binary System Monohydrate-Chloric Acid - Acetic Acid

does not loose water in mixtures with anhydrous acetic acid.
There are 6 figures, 2 tables, and 4 references, 2 of which are Soviet.

ASSOCIATION: Institut obshchey i neorganicheskoy khimii im. N.S. Kurnakova, AN SSSR
(Institute of General and Inorganic Chemistry imeni N. S. Kurnakov, AS USSR)

SUBMITTED: May 24, 1957

AVAILABLE: Library of Congress

1. Monohydrate chloric acid--Acetic acid systems--Phase studies

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APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1

AUTHORS: Rosolovskiy, V.Ya., ~~Zinov'yev, A.A.~~ SOV/78-3-7-20/44

TITLE: Chloric Acid and its Derivatives (Khlornaya kislota i yeye proizvodnyye) VII. On the Polymorphisms of Oxonium Perchlorate (VII. O polimorfizme perkhlorata oksoniya)

PERIODICAL: Zhurnal neorganicheskoy khimii, 1958, Vol 3, Nr 7, pp 1589-1591 (USSR)

ABSTRACT: In the present paper the results obtained by investigation of phase transformation in oxonium perchlorate are investigated. Experiments were carried out by thermal and dilatometric methods. For the determination of the temperature of phase transformation heating curves were plotted for the interval of from -30 to -10° C. In the case of more rapid cooling down the monohydrate of chloric acid ($HClO_4.H_2O$) is formed, which is stable at -20° C. Beyond this temperature oxonium perchlorate is subjected to reversible phase transition. The transition process is accompanied by a change of volume and an increase of the density of the oxonium perchlorate. There are 1 figure and 10 references.

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1

Chloric Acid and its Derivatives.
VII. On the Polymorphisms of Oxonium Perchlorate

SOV/ 78-3-7-20/44

ASSOCIATION: Institut obshchey i neorganicheskoy khimii im. N.S.Kurnakova, Akademii nauk SSSR (Institute of General and Inorganic Chemistry imeni N.S.Kurnakov, AS USSR)

1. Oxonium perchlorates--Phase studies 2. Oxonium perchlorates --Temperature factors 3. Chloric acid derivatives--Properties

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1

AUTHORS: Zinov'yev, A. A., Rosolovskiy, V. Ya. SOV/78-3-10-25/35

TITLE: X. The System Chlorine - Heptoxide - Water (X. Sistemy khlornyy angidrid-voda)

PERIODICAL: Zhurnal neorganicheskoy khimii, 1958, Vol 3, Nr 10, pp 2382-2389 (USSR)

ABSTRACT: An investigation was carried out of the fusion diagram of the system Cl_2O_7-H_2O in the range of from perchloric monohydrate to dichlorine heptoxide. The freezing-point curve of the mixtures of hydronium perchlorate and anhydrous perchloric acid was determined in a more precise way. The monohydrate of perchloric acid (hydronium perchlorate) was produced according to the following reaction:

$$HClO_4 + HClO_4 \cdot 2\,H_2O = 2\,H_3O\left[ClO_4\right].$$

The melting point of hydronium perchlorate is at +49,9°C. The apparatus shown in figure 1 was used for the production of Cl_2O_7. Cl_2O_7 with a purity of 99,96% was obtained by this analysis. The behavior in the melting process was examined by visual and thermographic methods. The behavior of the melt in the

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X. The System Chlorine - Heptoxide - Water SOV/78-3-10-25/35

system Cl_2O_7-H_2O shows in the concentration range 100-25 mol-% Cl_2O_7 that the crystallization curve of perchloric acid falls in the fusion diagram. The melting point of anhydrous chloric acid mentioned in the references was refuted. Chloric acid does not have its melting point at -112°C, but at -100°C. It was found out by the dilatometric method that the polymorphous transformation of hydronium perchlorate takes place at -24,9°C. The density of the modification of hydronium perchlorate which is stable below the transformation point, is d_4^{-25} = 2,040, and the density of the modification which is stable above the transformation point, is d_4^{-25}= 2,025. When pure perchloric acid is cooled, crystallization begins at -47°C and ends at -100°C. The solid phase thus crystallizing out consists of hydronium perchlorate, as confirmed by analysis. According to visual observations, a mixture of Cl_2O_7 + $HClO_4$ becomes turbid at -50°C when it is cooled. The absence of pure perchloric acid in the fusion diagram was discussed. A new improved method of producing Cl_2O_7 was suggested.

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1

SOV/78-3-10-25/35

X. The System Chlorine Heptoxide - Water

There are 6 figures, 2 tables, and 23 references, 6 of which are Soviet.

ASSOCIATION: Institut obshchey i neorganicheskoy khimii im. N. S. Kurnakova Akademii nauk SSSR (Institute of General and Inorganic Chemistry imeni N. S. Kurnakov of the Academy of Sciences USSR)

SUBMITTED: January 3, 1958

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1

AUTHORS: Zinov'yev, A. A., Zakharova, I. A. Kondratskaya, G.P. SOV/78-3-10-26/35

TITLE: Esters Produced by Combination of Perchloric Acid and Some Polyatomic Alcohols (Slozhnyye efiry khlornoy kisloty i nekotorykh mnogoatomnykh alkogoley)

PERIODICAL: Zhurnal neorganicheskoy khimii, 1958, Vol 3, Nr 10, pp 2390-2394 (USSR)

ABSTRACT: Complex esters of the perchloric acid with multivalent alcohols (ethylene glycol, glycerin and pentaerythrite) were obtained by interaction of these alcohols with anhydrous perchloric acid. The esters were produced by a slow addition of alcohols to the anhydrous perchloric acid at temperatures of from -75 to -78°C. The mixture was exposed to the above-mentioned temperatures for 20-40 minutes in order to get the esters completely developed. The removal of excess perchloric acid from the reaction mixture was carried out by means of a special apparatus (Fig 1). The analysis of the reaction products was carried out by saponifying the complex esters with alkali. It was found that ethylene glycol can never be completely esterified under such conditions. Complex esters

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1

Esters Produced by Combination of Perchloric Acid and Some Polyatomic Alcohols SOV/78-3-10-26/35

were produced from glycerine and pentaerythrite. The specific weight of all complex esters produced exceeds 1,7 g/cm³. The complex esters formed by the combination of ethylene glycol, glycerine and pentaerythrite with perchloric acid are unstable substances which explode when heated, struck or rubbed. There are 1 figure , 3 tables, and 4 references , 0 of which is Soviet.

ASSOCIATION: Institut obshchey i neorganicheskoy khimii im.N.S.Kurnakova Akademii nauk SSSR (Institute of General and Inorganic Chemistry imeni N.S.Kurnakov of the Academy of Sciences, USSR)

SUBMITTED: December 3o, 1957

Card 2/2

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1

5(2)

AUTHORS: Zinov'yev, A. A., Tsentsiper, A. B. SOV/78-4-4-4/44

TITLE: VIII. Concerning the Thermal Decomposition of Anhydrous Perchloric Acid (VIII. O termicheskom razlozhenii bezvodnoy khlornoy kisloty)

PERIODICAL: Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 4, pp 724-729 (USSR)

ABSTRACT: The thermal decomposition of anhydrous perchloric acid and the decomposition products produced were investigated. It was found that the decomposition is characterized by the appearance of an induction period and a self-acceleration at the beginning of the process. The kinetic curves are S-shaped. The mechanism is that of a chain reaction. The decomposition of the perchloric acid was investigated in the temperature interval of 40 - 96°. The kinetic curves for the oxygen formation and the corresponding curves of the velocity of the gas formation were the same in all experimental cases. During the induction period there is no noticeable evolution of oxygen, but a slow change in the color of the acid from colorless to dark red occurs, apparently according to the

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following reactions:

$2\ HClO_4 \rightleftarrows Cl_2O_7 + H_2O$ (1) and $Cl_2O_7 \rightleftarrows Cl_2O_6 + \frac{1}{2} O_2$ (2)

After the induction period there occurs a rapid increase in the reaction rate with the evolution of oxygen. The reaction rate increases with an increase in temperature. ClO_2 and Cl_2 are also formed during the decomposition. The formation of chlorodioxide and Cl_2 probably occurs according to the following equations:

$Cl_2O_6 = 2ClO_2 + O_2$ (3) and $2ClO_2 = Cl_2 + 2O_2$ (4)

Elemental chlorine is found in the gases produced. The decomposition process of the perchloric acid occurs through many intermediate stages. It follows from the experimental results that the temperature changes do not influence the character of the kinetic curves, but only change the rate of reaction. The energy of activation in the decomposition of perchloric acid was found to be E = 22200 cal/Mol. A table gives the kinetic characteristics of the thermal decomposition of perchloric acid. There are 4 figures, 1 table, and 5 references, 1 of which is Soviet.

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1

5(2)

AUTHORS: Zinov'yev, A. A., Naumova, V. I. SOV/78-4-9-13/44

TITLE: The Perchlorates of Nickel and Cobalt

PERIODICAL: Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 9, pp 2009-2013 (USSR)

ABSTRACT: The above compounds were obtained by dissolving nickel carbonate, or cobalt carbonate, respectively, in dilute chloric acid. The solutions were evaporated to beginning crystallisation in an air bath, and then left to crystallize at room temperature. The composition of the crystal hydrates was determined analytically. The loss of water from the hexahydrates with rising temperature, and transition to tetra- (110°) and dihydrate (130°) are shown in the diagrams given in figures 1 and 2. At a pressure of only 1 torr this transition was observed already at 70° and 90°, respectively. The preparation of anhydrous perchlorates was not possible, not even in vacuum, owing to decomposition. The crystal hydrates of Ni- and Co-perchlorates underwent a phase transformation in the solid state between 50° and 70°. This was proved thermographically

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1

The Perchlorates of Nickel and Cobalt SOV/78-4-9-13/44

(Figs 3-8) and by means of the polythermal lines of solubility (Tables 1, 2, Figs 9, 10). Table 3 gives the density of the different crystal hydrates. There are 10 figures, 3 tables, and 5 references.

ASSOCIATION: Institut obshchey i neorganicheskoy khimii im. N. S. Kurnakova Akademii nauk SSSR (Institute of General and Inorganic Chemistry imeni N. S. Kurnakov of the Academy of Sciences, USSR)

SUBMITTED: June 12, 1958

Card 2/2

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1

5.2300

69045

AUTHORS: Zinov'yev, A. A., Shchirova, N. A.

S/078/60/005/03/007/048
B004/B002

TITLE: Production and Properties of Perchlorate of Tetravalent Cerium

PERIODICAL: Zhurnal neorganicheskoy khimii, 1960, Vol 5, Nr 3, pp 540 - 546 (USSR)

ABSTRACT: The authors report on the synthesis of $Ce(ClO_4)_4$ from newly precipitated $Ce(OH)_4$ and nonaqueous $HClO_4$ or its hydrates produced according to reference 14. The reaction was carried out by means of a water bath at 130°, during heating to 200°- 210°, and in the vacuum at room temperature. The analysis of the preparations obtained are given by a table, and their thermograms are shown by figures 1-5. The process is complicated by hydrolysis and partial reduction of Ce^{4+}. Besides considerable amount of crystal water, the preparations also contained Ce^{3+} compounds. Hydrolysis and reduction not only set in by using the dihydrate of perchloric acid (72.6% acid) but also by using the monohydrate (84.4% acid). Very slowly crystallizing perchloric-cerium acids of complicated compositions develop from $Ce(OH)_4$ with nonaqueous perchloric acid. Their compositions depend on the conditions of the synthesis and on the excess of

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1

69045

Production and Properties of Perchlorate of Tetravalent Cerium S/078/60/005/03/007/048
B004/B002

nonaqueous perchloric acid. The thermal decomposition of both basic and of acid perchlorates takes place gradually and under the separation and decomposition of perchloric acid. During the thermal decomposition of basic salts containing crystal water, part of the perchloric acid enters the distillate in the form of a dihydrate. There are 5 figures, 1 table, and 15 references, 2 of which are Soviet.

SUBMITTED: November 3, 1958

Card 2/2

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1

ROSOLOVSKIY, V. Ya.; ZINOV'YEV, A.A.; PROKHOROV, V.A.

Density in the system chloric anhydride - water. Zhur. neorg. khim. 5 no.3:692-694 Mr '60. (MIRA 14:6)

1. Institut obshchey i neorganicheskoy khimii im. N. S. Kurnakova AN SSSR.

(Chlorine oxide)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1

KRIVTSOV, N.V., ROSOLOVSKIY, V.Ya., ZINOV'YEV, A.A.

Integral heats of solution of perchloric acid. Zhur. neorg. khim. 5 no.4:772-774 Ap '60. (MIRA 13:7)

1. Institut obshchey i neorganicheskoy khimii im. N.S. Kurnakova Akademii nauk SSSR.

(Perchloric acid) (Heat of solution)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1

ZINOV'YEV, A.A., ZHAKHAROVA, I.A.

Hydroxylamine perchlorate. Zhur. neorg. khim. 5:no.4:775-777:Ap '60. (MIRA 13:7)

(Hydroxylamine)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1

ROSOLOVSKIY, V. Ya.; KRIVTSOV, N.V., ZINOV'YEV, A.A.

Integral heats of solution of perchloric anhydride and of its mixtures with perchloric acid in water at 25°. Zhur. neorg. khim. 5 no.4:778-781 Ap '60. (MIRA 13:7)

1. Institut obshchey i neorganicheskoy khimii im. N.S. Kurnakova Akademii nauk SSSR.

(Chlorine oxide) (Perchloric acid)
(Heat of solution)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1

5.4110

69027

AUTHORS: Zakharova, I. A., Markova, V. G., Zinov'yev, A. A.

S/078/60/005/04/024/040
B004/B016

TITLE: Melting-point Diagram of the Binary System $NaClO_4$ - $LiClO_4$

PERIODICAL: Zhurnal neorganicheskoy khimii, 1960, Vol 5, Nr 4, pp 914 - 916 (USSR)

ABSTRACT: The authors describe the production of the preparations from the carbonates of sodium and lithium and $HClO_4$. Determination of the melting point was carried out in the device illustrated in figure 1. Figures 2, 3 show heating and cooling curves of mixtures of $NaClO_4$ and $LiClO_4$, figures 4, 5 the thermograms of $LiClO_4$ and $NaClO_4$. A table presents the melting temperatures for mixtures of the two perchlorates with a $NaClO_4$ content of 4.26 up to 100 mole%. By means of these data the melting-point diagram figure 6 was constructed. It is characterized by a simple eutectic at 71.5 mole% $LiClO_4$ with the melting point 204.5°. Solid solutions occur in the system. The temperature of the polymorphous transformation $\alpha \rightarrow \beta$-$NaClO_4$ is reduced in the system from

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1

5.2640
5.2300

S/078/60/005/06/16/030
B004/B014

AUTHORS: Zinov'yev, A.A., Shchirova, N.A.

TITLE: Study of the Solubility in the Ternary System $Ce(ClO_4)_3$ - $HClO_4$ - H_2O at Temperatures of 20 and 0°C

PERIODICAL: Zhurnal neorganicheskoy khimii, 1960, Vol.5, No.6, pp. 1299 - 1303

TEXT: Investigations were carried out by Schreinemakers' method of residues. The authors offer a brief description of the preparation of reagents: Anhydrous $HClO_4$ was prepared anew for each experiment in accordance with Ref.6. $Ce(ClO_4)_3 \cdot 8H_2O$ was obtained from $CeCl_3 \cdot 6H_2O$ by reaction with perchloric acid. The investigation at 0°C was made in a Dewar, and at 20°C in a thermostat. Experimental data for 0°C are given in Table 1, Fig.1, those for 20°C in Table 2, Fig.2. There are four stable solid phases at 20°C. The existence of the already known hydrates $Ce(ClO_4)_3 \cdot 9H_2O$ and $Ce(ClO_4)_3 \cdot 8H_2O$ was confirmed, and the octahydrate was found to be more stable. Furthermore, the hitherto unknown tetrahydrate

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1

Study of the Solubility in the Ternary System $Ce(ClO_4)_3 - HClO_4 - H_2O$ at Temperatures of 20 and 0°C

S/078/60/005/06/16/030
B004/B014

$Ce(ClO_4)_3 \cdot 4H_2O$ was detected, and anhydrous cerium perchlorate in a narrow concentration range. Also the existence of metastable pentahydrate was confirmed. $Ce(ClO_4)_3$ does not form any stable compounds with perchloric acid, and is not hydrolyzed in dilute solutions of the latter. There are 2 figures, 2 tables, and 6 references: 1 Soviet, 3 American, 1 British, and 1 French.

SUBMITTED: July 9, 1959

Card 2/2

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1

5.2200 1018 1043 1273

86159
S/078/60/005/007/016/043/XX
B004/B060

AUTHORS: Zinov'yev, A. A., Krivtsov, N. V.

TITLE: Anhydrous Lead Perchlorate

PERIODICAL: Zhurnal neorganicheskoy khimii, 1960, Vol. 5, No. 7, pp. 1418 - 1422

TEXT: The authors proceed from a paper by A. L. Chaney and Ch. Mann (Ref.3). While these researchers succeeded in synthesizing anhydrous lead perchlorate, analyses have shown that their preparation was contaminated by products of thermal decomposition. The authors of the present article succeeded in avoiding thermal decomposition by allowing the perchlorate to re-crystallize in 7% perchloric acid, to be filtered off in dry nitrogen, and to be dehydrated gradually from 100° to 200-220°C at 2-4 mm Hg. The gravimetric analysis yielded 50.98% Pb, 48.89% Cl, the theoretical content being 51.02% Pb, 48.98% Cl. The specific gravity d_4^{25} was 4.84±0.02, solution heat at 25°C, and dilution 1 : 2500 was found to have a value of (1.045±0.010)kcal/mole. The thermographic curve was taken by N.S.Kurnakov's

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APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1

Anhydrous Lead Perchlorate

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B004/B060

pyrometer (Fig.1). Three endothermic effects (228, 280, 290°C) and two exothermic effects (360, 400°C) were observed. The compound melts at 280°C. Fig.2 shows that endothermic effects appear both in the heating and in the cooling curves. PbO and $PbCl_2$ were found in O_2 and Cl_2 gases as residues of thermal decomposition. The effect at 228°C is interpreted as phase transformation, but requires further studies. At 290 - 300°C, an overlapping occurs between the endothermic effect of melting and the exothermic effect of oxygen separation. Decomposition setting in violently at 360°C is sharply decelerated at 380°C. At this stage, half of the separable oxygen is liberated. The authors assume a formation of the compound $Pb\begin{matrix}Cl\\ ClO_4\end{matrix}$ or $PbO(ClO_4)_2$. Intensive O_2 liberation was again observed at 400°C, the residue consisting of 9% PbO and 91% $PbCl_2$. The difference between the isotherms of oxygen separation rate at 380° and 420°C, as shown in Fig.5, points to a complicated process. All of the oxygen is liberated at 420°C. There are 5 figures and 8 references: 1 Soviet, 1 US,

Card 2/3

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1

Anhydrous Lead Perchlorate

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B004/B060

5 German, and 1 French.

ASSOCIATION: Institut obshchey i neorganicheskoy khimii im. N.S.Kurnakova Akademii nauk SSSR, Laboratoriya neorganicheskogo sinteza (Institute of General and Inorganic Chemistry imeni N. S. Kurnakov of the Academy of Sciences USSR, Laboratory of Inorganic Synthesis)

SUBMITTED: April 8, 1959

Card 3/3

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1

5.2400 also 2209

84212
S/078/60/005/010/002/021
B004/B067

AUTHORS: Rosolovskiy, V. Ya., Zinov'yev, A. A., Prokhorov, V. A.

TITLE: Production of Perchloric Anhydride

PERIODICAL: Zhurnal neorganicheskoy khimii, 1960, Vol. 5, No. 10, pp. 2148-2152

TEXT: The authors discuss the hitherto known methods of producing Cl_2O_7 by reacting $HClO_4$ with P_2O_5. Since Cl_2O_7 was distilled off at 40 - 80°C, it always contained Cl_2O_6 and ClO_2 impurities. The methods published earlier by the authors are briefly mentioned: reaction of liquid $HClO_4$ with solid P_2O_5 and distilling off Cl_2O_7 at -30°C and 2 torr (Ref. 7), and reaction of vaporous $HClO_4$ with solid P_2O_5 (Ref. 8). The present paper reports on a new method in which SO_3 is used for dehydration. When adding oleum to $HClO_4$ and cooling with dry ice, the liquid is separated into two layers at a certain concentration ratio

Card 1/2

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84212

Production of Perchloric Anhydride

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B004/B067

(Tables 1,2). The upper one contains almost pure Cl_2O_7 from which the low SO_3 amount (0.5%) is removed by distillation at 2 torr over P_2O_5 in a collecting vessel cooled with dry ice (Fig.). The lower liquid layer contains H_2SO_4, SO_3, $HClO_4$, Cl_2O_7, and crystals of either pyrosulfuric acid or of the compound $(ClO_3)(HS_2O_7)$, which was discovered by A. A. Spryskov (Ref. 9). No pure Cl_2O_7 could be distilled off from this mixture. To avoid explosions one must work cautiously. The upper layer must be poured off since the friction of the tap of a separating funnel may already cause explosion. The following summational reaction equation is given: $2HClO_4 \cdot 2H_2O + 5SO_3 = Cl_2O_7 + 5H_2SO_4$ (4). There are 1 figure, 2 tables, and 9 references: 3 Soviet, 3 US, 1 British, and 2 German.

ASSOCIATION: Institut obshchey i neorganicheskoy khimii im. N. S. Kurnakova Akademii nauk SSSR, Laboratoriya neorganicheskogo sinteza (Institute of General and Inorganic Chemistry imeni N. S. Kurnakov of the Academy of Sciences USSR, Laboratory of Inorganic Synthesis)

Card 2/3

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1

ZINOV'YEV, A.A.; ROSOLOVSKIY, V.Ya.

Viscosity in the system perchloric anhydride - water. Zhur. neorg. khim. 5 no.11:2564-2567 N '60. (MIRA 13:11)
(Chlorine oxide) (Viscosity)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1

88602

S/078/61/006/002/002/017
B004/B059

11.2115

AUTHORS: Zinov'yev, A. A., Babayeva, V. P.

TITLE: On the Thermal Decomposition of Perchloric Acid

PERIODICAL: Zhurnal neorganicheskoy khimii, 1961, Vol. 6, No. 2, pp. 271 - 282

TEXT: In an investigation carried out by A. A. Zinov'yev and A. B. Tsentsiper (Ref. 2) it was found that the thermal disintegration of perchloric acid takes place in three stages: an induction period, a stage of maximum reaction rate, and a final stage in which the reaction rate drops again. In the present paper the induction period and the influence of trichloro-acetic acid as an inhibitor were investigated. Experiments were made with 98.5% $HClO_4$, anhydrous $HClO_4$, and mixtures of $HClO_4$ and Cl_2O_7. The disintegration was brought about in 15 cm^3-containers. The quantity of liberated oxygen was determined. The rate of O_2 separation was set equal to the reaction rate. Figs. 2 and 3 show the results of these

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1

88602

On the Thermal Decomposition of Perchloric Acid

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B004/B059

experiments. The induction periods in the case of various compositions are compiled in Table 1:

Composition	Temperature, °C 50	55	60	65	70	80	Activation energy kcal/mole
	induction period, minutes						
98.5% $HClO_4$	-	-	86	-	20	5	33.2
unhydrous $HClO_4$	-	-	53	25	14	4	30.1
67.3% $HClO_4$+32.7% Cl_2O_7	150	-	28	-	7	-	33.4
64.5% $HClO_4$+35.4% Cl_2O_7	-	25	11	-	3	-	31.6

Card ~~2/9~~

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1

86602

On the Thermal Decomposition of Perchloric Acid

S/078/61/006/002/002/017
B004/B059

Figs. 4 and 5 demonstrate the inhibiting effect of CCl_3COOH and Table 3 shows a list of the induction periods for various inhibitor concentrations. The results of the experiments made it possible to distinguish a fourth stage, lasting one to two minutes, which precedes the induction period and which is based on intense separation of the oxygen dissolved in the acid. The linear function $\log \tau = f(1/T)$ was found for the induction period τ. However, at temperatures above 85 - 90°C, a deviation from linearity occurs. Within the limits of error, activation energy was 32.6 kcal/mole in the average for all experiments. Since this corresponds to the activation energy of Cl_2O_7, it is assumed that the process is initiated by Cl_2O_7 formation: $2HClO_4 = Cl_2O_7 + H_2O$ (2); $H_2O + HClO_4 = HClO_4 \cdot H_2O$ (3). That amount of monohydrate corresponding to these equations was found in all experiments. N. N. Semenov, V. Ya. Rosolovskiy, N. V. Krivtsov, A. Ye. Missan, and A. M. Sukhotin are mentioned in the paper. There are 9 figures, 3 tables, and 12 references: 8 Soviet, 1 British, and 4 German.

ASSOCIATION: Institut obshchey i neorganicheskoy khimii im. N. S.

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APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1

88602

On the Thermal Decomposition of Perchloric Acid

S/078/61/006/002/002/017
B004/B059

Kurnakova Akademii nauk SSSR (Institute of General and Inorganic Chemistry imeni N. S. Kurnakov, Academy of Sciences USSR)

SUBMITTED: November 13, 1959

Card 4/9

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1

SHCHIROVA, N.A.; ZINOV'YEV, A.A.

Binary system $Ce(ClO_4)_3 - H_2O$. Zhur.neorg.khim. 6 no.5:1227-1232 My '61. (MIRA 14:4)

1. Institut obshchey i neorganicheskoy khimii imeni N.S.Kurnakova AN SSSR.

(Cerium perchlorate)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1

ZINOV'YEV, A.A., inzhener.

Using an air-water mixture in boring with a sinking perforator. Gor.zhur. no.5:26-28 My '56. (MLRA 9:8)

1. Zapadno-sibirskiy filial AN SSSR.
(Rock drills)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1

POKROVSKIY, G.N.; ZINOV'YEV, A.A.

Picture of forces acting on the cutter, chip formation, and nature of force changes shearing off chip elements during rock boring and cutting. Trudy Gor.-geol. inst. Zap.-Sib. fil. AN SSSR no.19:259-276 '57. (MIRA 11:7)

(Boring machinery)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1

Zinov'yev A. A.

AUTHORS: None given 127-58-4-9/31

TITLE: Author's Certificate (Avtorskoye svidetel'stvo)

PERIODICAL: Gornyy Zhurnal, 1958, Nr 4, pp 35,46,48-49,58 (USSR)

ABSTRACT: B.V. Sudnishnikov, P.M. Yemel'yanov, A.A. Zinov'yev and L.I. Semenov, "Pneumatic Hammer With a Multi-Chamber Shank"; Yu.A. Zablotskiy, V.P. Pankratov, M.Z. Iokhel'son, "Apparatus for Shaft Concreting"; P.M. Volchkov, V.D. Rykov and N.S. Olendarev, "Reinforced Concrete Blocks for the Shoring of Vertical Shafts"; S.I. Vesnik, "Assembled Reinforced Concrete Supports Mostly for Trapezoidal Drifting"; L.M. Podymov, K.S. Isayev and A.V. Kudryashov, "Track Laying Machine for Laying of Railway Sections", L.P. Starchik, "Device for Catching the Dust Caused by Blast Hole Boring".

Card 1/1

1. Bibliography - Mining industry - Equipment
2. Reinforced concrete - Applications

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1

ZINOV'YEV, A.A.

Investigating the operation of a submerged percussion drill on a mixture of air and water. Izv.Sib.otd.AN SSSR no.9:52-62 '60. (MIRA 13:11)

1. Institut gornogo dela Sibirskogo otdeleniya AN SSSR.
(Boring machinery)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1

44463
S/078/63/008/001/019/026
B124/B186

11.2110

AUTHORS: Krivtsov, N. V., Zinov'yev, A. A.

TITLE: Melting-point diagrams in the systems $LiClO_4$ - $Ca(ClO_4)_2$ and $NaClO_4$ - $Ca(ClO_4)_2$

PERIODICAL: Zhurnal neorganicheskoy khimii, v. 8, no. 1, 1963, 186 - 191

TEXT: The visual polythermal method using the Kurnakov pyrometer and the thermographic method using a device whose principle has been described by I. A. Zakharova et al. (Zh. neorgan. khimii, 5, 914 (1960)) were used for determining the melting-point curves. A chromel-alumel thermocouple with a millivolt ammeter was used for temperature measurement. Lithium perchlorate shows no polymorphous phase transition, melts, without decomposition, at 249±2°C and decomposes quickly at about 470°C. In the case of sodium perchlorate, the polymorphous transition takes place at 308°C; its melting point, with partial decomposition occurring, lies at 482±4°C and the temperature of its quick decomposition at about 570°C. Calcium perchlorate shows two endothermal effects (at 342 and 406°C) and one exothermal one (at 465°C), the first two being traced back to transitions in the solid state and the third to thermal decomposition. The melting-point curve of

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S/078/63/008/001/019/026
B124/B186

Melting-point diagrams...

the system lithium perchlorate - calcium perchlorate shows two transition points and transition levels at 342 and 406°C, corresponding to the polymorphous transition of the latter; the polymorphism of the mixtures is proved by the fact that the intensity of the heat effects at 342 and 406°C rises with the content of calcium perchlorate in the mixture. The melting point of the eutectic mixture containing 76.9 equ.-% $Li_2(ClO_4)_2$ and 23.1 equ.-% $Ca(ClO_4)_2$ is 228°C. Decomposition sets in above 370°C. In the system sodium perchlorate - calcium perchlorate decomposition occurs at 380°C; the eutectic mixture composed of 44.9 equ.-% $Na_2(ClO_4)_2$ and 55.1 equ.-% $Ca(ClO_4)_2$ melts at 293°C. In the range with high sodium perchlorate content, two solid solutions with an eutectic point at 270°C were found for a composition of about 29 equ.-% $Na_2(ClO_4)_2$ and 71 equ.-% $Ca(ClO_4)_2$. The following solid phases can be present in the system sodium perchlorate - calcium perchlorate: (1) γ-$Ca(ClO_4)_2$ above 406°C, (2) β-$Ca(ClO_4)_2$ between 342 and 406°C, (3) α-$Ca(ClO_4)_2$ below 342°C, (4) solid solution α' on the basis of sodium perchlorate and (5) solid solution α'' on the basis of

Card 2/3

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1

Melting-point diagrams... S/078/63/008/001/019/026
B124/B186

sodium perchlorate. There are 4 figures and 4 tables. The English-language reference is: M. M. Markowitz et al, J. Phys. Chem. 65, 261 (1961).

ASSOCIATION: Institut obshchey i neorganicheskoy khimii im. N. S. Kurnakova Akademii nauk SSSR (Institute of General and Inorganic Chemistry imeni N. S. Kurnakov of the Academy of Sciences USSR)

SUBMITTED: March 20, 1962

X

Card 3/3

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065220012-1

KRIVTSOV, N.V.; ZINOV'YEV, A.A.

Fusibility in the system $LiClO_4$ - $NaClO_4$- $Ca(ClO_4)_2$.
Zhur. neorg. khim. 8 no.11:2589-2592 N '63.
(MIRA 17:1)

1. Institut obshchey i neorganicheskoy khimii imeni N.S. Kurnakova AN SSSR.

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SHCHIROVA, N.A.; ZINOV'YEV, A.A.; MIKHEYEVA, V.I.

Melting diagram of the system Cl_2O_7-SO_3 - H_2O in the region of high concentrations of perchloric and sulfuric acids. Dokl. AN SSSR. 152 no.2:346-348 S '63. (MIRA 16:11)

1. Institut obshchey i neorganicheskoy khimii im. N.S. Kurnakova, AN SSSR. Predstavleno akademikom I.I. Chernyayevym.

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ZINOV'YEV, A.A.

Perchloric acid. Usp. khim. 32 no.5:590-616 My '63. (MIRA 16:8)

1. Institut obshchey i neorganicheskoy khimii AN SSSR imeni Kurnakova.

(Perchloric acid)

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