"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240120010-0

L 10883-65
ACCESSION NR: AR4046547

the foreign ions cease to participate in the conductivity. The increase in σ with increasing integral radiation dose can be attributed to the formation of additional vacancies (RZhFiz, 1955, no. 10, 23112).

SUB CODE: SS ENCL: 00

Card 2/2

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240120010-0

ACCESSION NR: AP4036568 S/0139/64/000/002/0131/0135

AUTHOR: Pershits, Ya. N.

TITLE: On high temperature electrical conductivity in alkali-halide crystals with impurities

SOURCE: IVUZ. Fizika, no. 2, 1964, 131-135

TOPIC TAGS: electric conductivity, alkali halide, vacant point, lattice, absolute zero, potential barrier, activation energy, ion capture, potassium chloride, potassium bromide

ABSTRACT: Electric conductivity expressed as a function of temperature in alkali-halide crystals KCl and KBr with electrolytically added Cu^+ ions was determined. Analytically, this is expressed by

$$\sigma = Ae^{-\frac{\varepsilon/2+\omega}{kT}} - Be^{-\frac{\varepsilon+\omega_1}{kT}}$$

where ε - work necessary to create a pair of vacant points in a lattice at absolute zero temperature, ω_1 - height of potential barrier for lattice ions at

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ACCESSION NR: AP4036568

absolute zero. Experimental graphs were plotted for $\sigma = f(1/T)$, and the activation energy E of both KCl and KBr was determined from these graphs. In electron-volt units, E is 2.06 for KCl and E is 1.97 for KBr ($E = \mathcal{E}/2 + \omega_1$). It is shown that the increase in electric conductivity of the alkali-halide crystals is caused by Cu^+ ion capture in free lattice points. Orig. art. has: 6 formulas, 4 figures, and 1 table.

ASSOCIATION: Pskovskiy gospedinstitut imeni S. M. Kirova (Pskov State Teachers College)

SUBMITTED: 17Mar62 DATE ACQ: 05Jun64

SUB CODE: SS NO REF SOV: 001 ENCL: 00

OTHER: 006

Card 2/2

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240120010-0"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240120010-0

ACCESSION NR: AM4034661 S/0196/64/000/003/B005/B005

SOURCE: Ref. zh. Elektrotekhn. i energ., Abs. 3B20

AUTHOR: Perchits, Ya. N.

TITLE: Effect of foreign ions on the electric conductivity of alkali-halogene crystals. Abstract.

CITED SOURCE: Izv. Leningr. elektrotekhn. in-ta, vyp. 51, 1963, 106

TOPIC TAGS: ionic crystal, crystal conductivity, foreign ions in crystal, alkali halogene crystal

TRANSLATION: On electrolytic introduction of Cu-ions into alkali-halogene crystals (NCl, KBr), a parallelism can be seen between the logarithmic lines of temperature vs. conductivity for pure crystals and those for the crystals with impurity introduced up to the saturation point at the measurement temperature. Thus, for the high-temperature impurity conductivity, the activation energy coincides with that of majority carriers. The position of the front of the ion cloud leaving the crystal and the current measured in the crystal permit determining the mobility and concentration of foreign ions. The activation-energy components are determined from the temperature-conductivity curve and the mobility. [Pskovskiy gos. pedagogich. in-t im. S. M. Kirova]

1/1 DATE ACQ: 10Apr64 SUB CODE: SS ENCL: 00

OCT 19 1964
Aerospace Information

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240120010-0"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240120010-0

[illegible], Ya.N.

High-temperature [illegible] in alkali [illegible] crystals. Izv.vys. [illegible] zav.; fiz. no. [illegible] 31-135 [illegible].

MIRA 17:6

1. [illegible] pedagogicheskiy institut [illegible] Kirova.

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240120010-0"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240120010-0

PERSHITS, Ya.N.; GUTMAN, V.I.; ANOSOVA, A.I.

Effect of foreign ions on the electroconductivity of irradiated alkali halide crystals. Izv. vys. ucheb. zav.; fiz. no.1:3-7 '64. (MIRA 17:3)

1. Pskovskiy gosudarstvennyy pedagogicheskiy institut imeni Kirova.

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240120010-0"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240120010-0

PERSHITS, Ya.N.

Motion of metal ions in alkali halide crystals. Uch.zap.Ped.inst.Gerts. no.207:132-148 '61.

(MIRA 16:5)

1. Pskovskiy gosudarstvennyy pedagogicheskiy institut imeni S.M. Kirova.

(Alkali metal halide crystals) (Metal ions)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240120010-0"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240120010-0

PERSHITS, Ya.N.; GUTMAN, V.I.

Effect of capture centers on the electric properties of alkali halide crystals. Uch.zap.Ped.inst.Gerts.no.207:149-162 '61. (MIRA 16:3)

1. Pskovskiy gosudarstvennyy pedagogicheskiy institut imeni S.M. Kirova.

(Electrons--Capture)
(Alkali metal halide crystals--Electric properties)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240120010-0"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240120010-0

PRESHITS, Ya. N.

Effect of strange ions on the electroconductivity of alkali metal halide crystals. Izv. vys. uch. zav.; fiz. 3:3-8 '62. (MIRA 15:10)

1. Pskovskiy pedagogicheskiy institut imeni S. M. Kirova.

(Alkali metal halide crystals—Electric properties)
(Ions)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240120010-0"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240120010-0

L 13034-63 EPF(n)-2/EWP(q)/EWT(m)/BDS/T-2 AFFTC/ASD/SSD Pu-4
JD/WB
ACCESSION NR: AP3000613 S/0181/63/005/005/1348/1357

64
63
15

AUTHOR: Pershits, Ya. N.

TITLE: The mechanism of changing conductivity during aging of rutile ceramics and the electrolysis of alkali-halide crystals

27

SOURCE: Fizika tverdogo tela, v. 5, no. 5, 1963, 1348-1357

TOPIC TAGS: rutile, titanium, tantalum, alkali halide, ceramic aging, regeneration, F-center, Cu, KBr, dislocation, conductivity, rutile ceramic, rutile ceramic aging

ABSTRACT: The author's purpose is to show experimentally that not only regeneration but also succeeding aging of Ti-bearing ceramics conforms to the same pattern that is observed in alkali-halide crystals during comparable methods of investigation. In his experiment he used the staining method with a flat tantalum electrode, and found great similarity between the Ti-bearing ceramics and the alkali-halides. His results show that at relatively low temperatures (100-300°) the movement of added current carriers takes place within the crystal grains of rutile or within mosaic blocks, forming dislocations that remain in the crystal after annealing. These carriers could be F-centers, but since such

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ACCESSION NR: AP3000613

centers may be displaced only when ionic conductivity is present, aging clearly begins at temperatures giving rise to marked displacement of ions in the electrical field. The identical character of the time relationship of current at all temperatures during which aging was observed clearly points to electrolytic processes in association with change from regeneration to renewed aging even at low temperatures. Considerable doubt is cast on data suggesting the electrolytic conductivity is absent in titanium oxide. It is more likely that the electrolytic products gather at the boundaries of mosaic blocks or crystal grains. The aging of Ti-bearing ceramics at high temperatures is associated with the spread of current carriers from both electrodes, but regeneration is associated with the movement of electron clouds. Orig. art. has: 8 figures, 2 tables, and 11 formulas.

ASSOCIATI: Pskovskiy gosudarstvenny*y pedagogicheskiy institut im. S. M. Kirova (Pskov State Pedagogical Institute)

SUBMITTED: 09Nov62 DATE ACQ: 11Jun63 ENCL: 00

SUB CODE: 00 NO REF SOV: 012 OTHER: 004

Card 2/2

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240120010-0"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240120010-0

PERSHITS, Ya.N.

Mechanism underlying conductivity variations in the aging of rutile ceramics and the electrolysis of alkali halide crystals. Fiz.tver.tela 5 no.5:1348-1357 My '63. (MIRA 16:6)

1. Pskovskiy gosudarstvennyy pedagogicheskiy institut imeni Kirova.
(Rutile--Electric properties) (Alkali metal halide crystals)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240120010-0"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240120010-0

PERSHITS, Ya.N.; GUTMAN, V.I.

Effect of foreign ions on electron processes in ionic crystals. Izv.vys.uch.zav.; fiz. no.4:123-129 '62. (MIRA 15:9)

1. Pskovskiy gosudarstvennyy pedagogicheskiy institut.
(Ionic crystals) (Electrons)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240120010-0"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240120010-0

S/139/62/000/004/010/018
E132/E435

AUTHORS: Pershits, Ya.N., Gutman, V.I.

TITLE: The influence of foreign ions on electronic processes in ionic crystals

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Fizika, no.4, 1962, 123-129

TEXT: It is established that the influence of added colouring on the electrical properties of alkali halide crystals is caused by the presence in them as impurities of heavy metals, the ions of which act as centres for trapping electrons. The trapping of electrons by foreign ions in crystals irradiated by X-rays has been studied experimentally. A means of colouring crystals from a plane metallic cathode is described. Trapping of electrons by ionic impurities leads to additive or subtractive colouring of the crystal. As a result of additive colouring the neutralization of impurity ions takes place decreasing the number of trapping centres. The trapping of electrons leads to changes in the electrical properties of the crystals. There are 6 figures.

ASSOCIATION: Pskovskiy gospedinstitut (Pskov State-Pedagogical Institute)

SUBMITTED: May 3, 1961

Card 1/1

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240120010-0"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240120010-0

39036
S/139/62/000/003/001/021
E039/E420

24.7700

AUTHOR: Pershits, Ya.N.

TITLE: The influence of impurity ions on the electrical conductivity of alkali-halide crystals

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Fizika, no.3, 1962, 3-8

TEXT: Copper ions are introduced into KBr crystals by passing an electric current through the crystal using a copper anode. The temperature dependence of the electrical conductivity of KBr is measured for different temperatures of introduction of copper and the activation energy is shown to be ~ 0.1 ev less than for the pure crystal. There is a significant increase in conductivity as the Cu^+ ions enter the crystals and a corresponding decrease when they are removed by reversing the direction of the electric field. Measurements are made of the mobility of copper ions in KBr, KCl and NaCl. The temperature dependence of the concentration of copper ions coincides with the temperature dependence of ionic vacancies in the crystals (at 600°C the concentration of ions is $\sim 5 \times 10^{17} cm^{-3}$).

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240120010-0

PERSHITS, Ya.N.

Aging and regeneration of ceramics containing titanium. Fiz.tver. tela 3 no.11:3495-3502 N '61. (MIRA 14:10)

1. Pskovskiy gosudarstvennyy pedagogicheskiy institut im. S.M.Kirova.

(Ceramics) (Titanium)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240120010-0"

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S/181/61/003/011/036/056
B138

AUTHOR: Pershits, Ya. N.

TITLE: Ageing and recovery of titan[illegible]ning ceramics

PERIODICAL: Fizika tverdogo tela, v. 3, [illegible] 1961, 3495-3502

TEXT: The electrical conductivity of ceram[illegible]taining titanium increases when a constant electric field is applied for some time. This process is termed ageing. When the direction of the field is reversed, electrical conductivity will rapidly drop again which process is called recovery. The variation of current with time was measured in T-80 (T-80) tikond ceramics in the temperature range 180 [illegible]°C. Disks with graphite electrodes were used as samples. Recovery was treated theoretically as the migration of an additional-carrier cloud between grain boundaries. This was confirmed by experiments which showed that the mechanism holds good at low temperatures (i.e. t <400°C). At high temperatures, intrinsic conductivity will become predominant. The [illegible] of the current was found to be a linear function of the logarithm of time. However, the original conductivity was reached after recovery, the specimens started ageing again.

Card 1/2

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Ageing and recovery of...

S/[illegible]/61/003/011/036/056
B[illegible]/B138

Comparative measurements with alkali-halide [illegible] yielded qualitatively the same results as were obtained for titan[illegible] containing ceramics (S. A. Artsybyshev. Tr. Fiz. inst. im. P. N. Lebedeva, 1, 5, 1938). Ageing was found to be due to electron capture by a[illegible] vacancies. Recovery, on the other hand, is due to the formation of F centers which migrate within the grains. Since the F-centers are partly d[illegible]ated into free electrons and lattice defects, recovery is characteri[illegible] by two processes: one rapid (linear dependence of log I on log t) and [illegible] slow. There are 5 figures, 1 table, and 10 references: 9 Soviet-bloc and 1 non-Soviet-bloc. The reference to the English-language publi[illegible] reads as follows: W. A. Weyl a. N. A. Terhune. Ceram. Age, 62, [illegible] 25 1953.

ASSOCIATION: Pskovskiy gosudarstvennyy peda[illegible]skiy institut im. S. M. Kirova (Pskovsk State Pe[illegible]al Institute imeni S. M. Kirov)

SUBMITTED: April 15, 1961 (initially)
June 26, 1961 (after revision)

Card 2/2

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240120010-0"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240120010-0

PERSHITS, Ya.N.; TARASENKO, G.D.

Effect of additive coloring on electric properties of alkali halide crystals. Izv.vys.ucheb.zav.; fiz. no.5:121-126 '58. (MIRA 12:1)

1. Pskovskiy pedinstitut i Severo-Osetinskiy pedinstitut.
(Alkali halide crystals--Electric properties)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240120010-0"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240120010-0

AUTHORS: Pershits, Ya. N., Tarasenko, G. D.

TITLE: Influence of Additive Coloration on Electrical Properties of Alkali-Halide Crystals (Vliyaniye additivnogo okrashivaniya na elektricheskiye svoystva shchelochno-galoidnykh kristallov)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, fizika, 1958, Nr 5, pp 121-126 (USSR)

ABSTRACT: An alkali-halide crystal lattice is postulated in which the density of 'natural' impurities (F-centres, lattice imperfections) is constant, and into which is introduced an additional type of impurity whose concentration varies in a known manner with time. The added impurity atoms are (or become) ionised and contribute to the electrical properties of the lattice. One may associate for example an ionic conductivity σ_1' with the added impurity, which is distinguishable from the ionic conductivity σ_1 associated with the F-centres. When a potential difference P is applied across such a crystal the following relations hold:

$$\frac{dx}{dt} = - \frac{\sigma_1 P}{\sigma_1' + \sigma_2 - \sigma_1} \cdot \frac{1}{E^2} \cdot \frac{dE}{dt} = uE \quad . \quad (1)$$

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Influence of Additive Coloration on Electrical Properties of Alkali-Halide Crystals

Here E is the field associated with P, σ_2 is the electronic conductivity, deriving from the electrons of the added impurity atoms, x is a measure of the concentration of impurity atoms, and u is the mobility of the F-centres. The σ's and u are related, via the mean free path, to the lattice temperature, and this leads to the following expression for the total current at time t and temperature T:

$$I = I_0 I_1 \left[I_1^2 + (I_0^2 - I_1^2) \frac{t}{T} \right]^{-\frac{1}{2}} \qquad (3)$$

where I_0, I_1 are respectively the current contributions from the added impurity atoms and the F-centres. If one further denotes the ionic part of I_0 by I_{0i} (and hence the electronic part by $I_0 - I_{0i}$) then the F-centre concentration may be

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Influence of Additive Coloration on Electrical Properties of Alkali-Halide Crystals

expressed in terms of the I's thus:

$$N = \frac{2TI_1}{e\ v} \cdot \frac{I_0 - I_{0i}}{I_0 + I_1} \qquad (4)$$

where e denotes the electronic charge and v the crystal volume. Hence measurements of the impurity current enable the F-centre concentration to be deduced. Further, measurements of σ at various temperatures and known impurity concentrations enable the F-centre mobility to be determined: log σ plotted against T^{-1} gives a straight line whose slope is the mobility. Such curves were plotted from measurements on crystals of KCl, KBr and NaCl, to which impurities had been added, at various temperatures. The effect of the added impurity was to increase the F-centre mobility by a factor varying from about 3 at 600°C to 5 at 450°C. The work was first reported at the Conference of Higher Education Establishments on Dielectrics and Semiconductors at Tomsk, in

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SOV/139-58-5-26/35

Influence of Additive Coloration on Electrical Properties of Alkali-Halide Crystals

February, 1958. The paper contains 1 table, 4 figures and 9 references (5 Soviet, 4 German).

ASSOCIATION: Pskovskiy pedinstitut; Severo-osetinskiy pedinstitut (Pskov Pedagogical Institute; North Osetian Pedagogical Institute)

SUBMITTED: April 7, 1958.

Card 4/4

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240120010-0"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240120010-0

PERSHITS, Ya. N., Docent

Docent Ya. N. Pershits (Pskov Institute of Pedagogics) and G. D. Tarasenko (North Ossetian Institute of Pedagogics, Ordzhonikidze)

"The character of the propagation of the F-center cloudlet and that of its mobility is changed in consequence of the primary coloration of the NaCl-, KCL-, KBr- and KJ crystals, whereas the electric conductivity of the ions of the samples is reduced irreversibly"

Report presented at a Conference on Solid Dielectrics and Semiconductors, Tomsk Polytechnical Inst., 3-8 Feb. 58.
(Elektrichestvo, '58, No. 7, 83-86)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240120010-0"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240120010-0

PERSHITS, Ya. N.

Pershits, Ya. N. [Pskovskiy pedagogicheskiy institut (Pskov Pedagogical Institute)] Phenomena in the Conductivity of Dielectrics Forming Near the Cathode

(The Physics [illegible] of Dielectrics) [illegible]

This [illegible] publishes [illegible] Dielectrics, held [illegible] Dielectrics" [illegible] Institute [illegible] AN [illegible]). [illegible]

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240120010-0

PERSHITS, VA. N.

Distr: 4E4j/4E3d/4E4c/4E3c

Thermal electronic conductivity in alkali halide crystals. Va. N. Pershits. *Uchenye Zapiski Pskov. Gosudarst. Pedagog. Inst.* 1955, No. 3, 209-333; *Referat. Zhur., Khim.* 1956, Abstr. No. 35142.—A review of publications on properties of color centers and dark-cond. of colored crystals. 59 references. V. S. Mihajlov.

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240120010-0

68188
SOV/58-59-5-10861

5.4600

Translation from: Referativnyy Zhurnal Fizika, 1959, Nr 5, p 137 (USSR)

AUTHOR: Pershits, Ya.N.

TITLE: Phenomena Near the Cathode During Electric Conduction in Dielectrics That are Being Formed

PERIODICAL: V sb.: Fiz. dielektrikov. Moscow, AS USSR, 1958, pp 76 - 82

ABSTRACT: It is shown that when a current is passed through eternit (asbestos cement), the resistance of the contact with the metallic cathode decreases on the average by half in the course of a few seconds and then does not change. If the layer near the cathode is sandpapered, the conductivity of this layer will be found to increase again. A reduction in the electric field leads to relaxation phenomena: if the time-dependence curve of the current is remeasured 24 hours after the first measurement, its shape will be about the same as that of the first measurement, but the conductivity of the contact will have decreased. In the event of prolonged electrolysis in eternit at 18°C, the process of the increase in conductivity of the layer near the cathode is offset by the formation of a layer near the cathode exhibiting unipolar conductivity and high

Card 1/2

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SOV/58-59-7-[illegible]

Translation from: Referativnyy Zhurnal Fizika, 1959, Nr 7, pp 145 - 146 (USSR)

AUTHOR: Pershits, Ya.N.

TITLE: Phenomena Pertaining to the Region Near the Electrode in Dielectrics

PERIODICAL: Uch. zap. Leningr. gos. ped. in-ta im. A.I. Gertsena, 1958, Vol 148, pp 131 - 149

ABSTRACT: Using a string electrometer or a cathode oscillograph with photographic registration, the author studied the time dependences of "back" current (I_b) and forward current (I_f) in quartz, glass, NaCl, KCl, Eternit (asbestos-cement), porcelain, mica and asbestos. In order to eliminate the effect of the second electrode and to make a more detailed study of the formation phenomenon, the author used the auxiliary electrode method (Zh. eksperim. i teor. fiz., 1947, Nr 17, p 251). It was found that with a change in the direction of the field, I_b falls off according to a curve with an inflection point whose abscissa is proportional to the time of passage of the current in the forward direction. The identical character of the dependence of I_b in the case of various dielectrics indicates that the generally accepted mechanism of the formation of

Card 1/2

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SOV/58-59-7-15678

Phenomena Pertaining to the Region Near the Electrode in Dielectrics

dielectrics (freeing the layer near the electrodes from impurities due to electrolysis) does not explain the observed phenomena. This conclusion is also borne out by a study of the variations that the unipolarity coefficient undergoes when samples are subjected to heat treatment. At low temperatures formation phenomena were observed that resemble those at high temperatures. It is assumed that under the action of the electric field and temperature, phenomena occur in the layers near the electrodes that lead to a change in the resistance and stability of these regions. It is possible that the formation of the anode and cathode layers is due to processes involving anions and cations respectively. The hypothesis that electron conduction takes place throughout the entire volume of a dielectric that is being formed, contradicts a number of experimental data.

L.K.

Card 2/2

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240120010-0"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240120010-0

GALEYEV, A. M., doktor tekhnicheskikh nauk, professor; PERSHITS, Yu. I.

Characteristics of sliding friction during the movement of a body along an anisotropic surface. Trudy MIIT no.92/11:169-180 '57. (MLRA 10:7)

(Friction) (Surfaces (Technology))

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240120010-0"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240120010-0

SOV 124 58 11 12156

Translation from: Referativnyy zhurnal, Mekhanika 1958 Nr 11 p 26 (USSR)

AUTHORS: Galeyev, A. U., Pershits Yu. I.

TITLE: Peculiarities of the Sliding Friction of a Body Against an Anisotropic Surface (Osobennosti treniya skolzheniya pri dvizhenii tela po anizotropnoy poverkhnosti)

PERIODICAL: Tr. Mosk. in-ta inzh. zh. d. transp. 1957, Nr 92 11 pp 169-182

ABSTRACT: The authors call attention to the great difference often encountered in the friction coefficients of a surface measured in the direction in which the surface has been machined as against measurements made in other directions. In this connection they pose and proceed to investigate, in a general qualitative form, the problem of the friction of a mass point moving over a surface having anisotropic frictional characteristics. As the basic characteristic of the frictional properties of the surface they introduce a polar curve showing the relationship between the specific work of the force of friction and the direction of travel of the mass point. For the purpose of some computational estimates they assume this curve to be an ellipse, but, in principle the investigation remains the same whatever the shape of the curve

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Peculiarities of the Sliding Friction of a Body (cont.)

Further, they construct on the same scale a curve of the specific work of the force exerted on a point as a function of its direction, this second curve being a circle erected on the vector of the acting force as its diameter. In this event motion may occur in directions in which the second curve is found to extend out beyond the first, and it is the authors' assumption that it will actually occur in that direction in which the difference between the radius-vectors of the two curves is maximal. It is the opinion of this reviewer that the authors' designation of the true direction of motion requires further proof. Therefore, as it turns out, the direction of motion does not, in general, coincide with the direction of the force applied. Assuming the curve of the specific work performed by the force of friction to be an ellipse, the authors are able to determine the angle between the direction of motion and the direction of the acting force. In conclusion, they examine the subject of construction of the cone of friction for an anisotropic surface.

G. I. Barenblatt

Card 2/2

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240120010-0

PERSHITS, YU. I. Cand Tech Sci -- (diss) "Investigations of forces occurring in automatic couplers during the braking of loaded trains," Moscow, 1960, 26 pp, 120 cop. (Moscow Institute of Engineers of Railroad Transport im I. V. Stalin) (KL, 42-60, 114)

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240120010-0

GALEYEV, A.U., doktor tekhn.nauk, prof.; PERSHITS, Yu.I., inzh.

Determining impact forces occurring in automatic couplings during emergency braking of freight trains using 270-002 air distributors. Trudy MIIT no.102:5-19 '59. (MIRA 12:10)
(Car couplings) (Railroads--Brakes)

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240120010-0

GAIFYMV, Akhmet Umerovich, prof.; PERSHITS, Yuliy Isaakovich, inzh.; SAZONOV, A.G., inzh., red.; BOBROVA, Ye.N., tekhn. red.

[Problems of the mechanics of trains] Voprosy mekhaniki poezda. Moskva, Gos. transp. zhel.-dor. izd-vo, 1958. 231 p. (MIRA 11:9)
(Railroads--Trains)

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240120010-0

GALEYEV, Akhmet Umerovich [deceased]; PERSHITS, Yuliy Isaakovich; MELAMED, D.A., inzh., retsenzent; LEBEDEV, A.V., inzh., retsenzent; SOBAKIN, V.V., inzh., red.; BOBROVA, Ye.N., tekhn. red.

[Fundamentals of mechanics for locomotive crews] Osnovy mekhaniki dlia lokomotivnykh brigad. Moskva, Vses.izdatel'sko-poligr.ob"edinenie M-va putei soobshcheniia, 1961. 167 p. (MIRA 14:11)
(Mechanics) (Railroads)

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PHASE I BOOK EXPLOITATION SOV/5054

Vsesoyuznaya konferentsiya po treniyu i iznosu v mashinakh. 3d, 1958.

Sukhoye i granichnoye treniye. Friktsionnyye materialy (Dry and Boundary Friction. Friction Materials) Moscow, Izd-vo AN SSSR, 1960. 302 p. Errata slip inserted. 3,500 copies printed. (Series: Its: Trudy, v. 2)

Sponsoring Agency: Akademiya nauk SSSR. Institut mashinovedeniya. Resp. Ed.: I. V. Kragel'skiy, Doctor of Technical Sciences, Professor; Ed. of Publishing House: K. I. Grigorash; Tech. Ed.: S. G. Tikhomirova.

PURPOSE: This collection of articles is intended for practicing engineers and research scientists.

COVERAGE: The collection published by the Institut mashinovedeniya, AN SSSR (Institute of Science of Machines, Academy of Sciences USSR) contains papers presented at the III Vsesoyuznaya konferentsiya po treniyu i iznosu v mashinakh (Third All-Union

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Conference on Friction and Wear in Machines, April 9-15, 1958. Problems discussed were in 5 main areas: 1) Hydrodynamic Theory of Lubrication and Friction Bearings (Chairmen: Ye. M. Gut'yar, Doctor of Technical Sciences, and A. K. D'yachkov, Doctor of Technical Sciences); 2) Lubrication and Lubricant Materials (Chairman: G. V. Vinogradov, Doctor of Chemical Sciences); 3) Dry and Boundary Friction (Chairmen: B. V. Deryagin, Corresponding Member of the Academy of Sciences USSR, and I. V. Kragel'skiy, Doctor of Technical Sciences); 4) Wear and Wear Resistance (Chairman: M. M. Krushchov, Doctor of Technical Sciences); and 5) Friction and Antifriction Materials (Chairmen: I. V. Kragel'skiy, Doctor of Technical Sciences, and M. M. Krushchov, Doctor of Technical Sciences). Chairman of the general assembly (on the first and last day of the conference) was Academician A. A. Blagonravov. L. Yu. Pruzhanskiy, Candidate of Technical Sciences, was scientific secretary. The transactions of the conference were published in 3 volumes of which the present is the second. This volume contains articles on friction materials, and on various aspects of dry friction and boundary lubrication. Among the broad areas covered are: the

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Galeyev, A. U., and Yu. I. Pershits. Sliding Friction During the Motion of a Material Point Along an Anisotropic Surface 15

Gal'chenko, V. V., and D. Ya. Speranskiy. Investigation of the Relationship Between the Temperature During Friction and the Physical Properties of the Surface Layers of the Rubbing Components of Machines 22

Garkunov, D. N. Some Laws of the Wear of Metals Under Conditions of Dry and Boundary Friction and Means for Reducing the Wear 26

Glagolev, N. I. Work of Friction Forces and Wear of Rotating Bodies 34

D'yachenko, P. Ye., N. N. Tolkacheva, and T. M. Karpova. Determination of the Actual Area of Contact of Contacting Surfaces 46

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PERSHEKAVA, A.A. (Orshansk)

Acute appendicitis. Fel'd i akush. 23 no.7:12-15 Jl'58 (MIRA 11:8)
(APPENDICITIS)

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PROCESSES AND PROPERTIES INDEX

Investigation on corrosion and factors governing the selection of alloys in the construction of equipment for the manufacture of caustic soda and caustic potash. M. V. Perehké and (Miss) L. Popova. *Chimie & industrie* Special No., 232-5(March, 1930).—After a brief review of the literature on corrosion of Fe by alkalies, results of corrosion expts. by NaOH and KOH (950 g. per l. and 12 g. Na_2CO_3 and NaCl) for 6 hrs at 160-400° are given, showing that, with gray cast Fe, the main factor in resistance to corrosion is homogeneity of structure, and compn. is of secondary importance. Addn. of Ni reduces the corrosion, which is completely stopped with 12% or more of Ni. Addn. of Cr is less effective, particularly against the action of KOH. Addn. of 6% Ni and 5% Cr is equiv. to 12% Ni. On the whole, corrosion by KOH is 2.5-3 times as great as that by NaOH. Cu is satisfactory for the piping and fittings, as far as resistance to corrosion is concerned, but is too soft; the most satisfactory alloy was found to be obtained by addn. of 21% Ni to Cu. Also in *J. Chem. Ind.* (Moscow) 7, 16-20(1930).

A. Papineau-Couture

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1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

Influence of External Factors on the Corrosion of Lead in Sulphuric Acid Production. V. Pershke and V. Ignat'eva (*Khimstroi*, 1935, 7, 38–40; *Cf. Abs.*, 1935, 29, 3786).—[In Russian.] (*Cf. Met. Abs.*, 1934, 1, 499.) In the uniformly even and the local disintegrations of lead lining of sulphuric acid chambers and towers, the latter form of corrosion may be ascribed to a formation of a galvanic element: (+) PbH_2SO_4 or nitroso acid | H_2SO_4 (or nitroso acid) + HNO_3 Pb (−). The mechanical imperfections of lining (folds, seams, &c.) cause local differences in temperature and condensation of the reacting mixture. This contains traces of free nitric acid, as a result of varying conditions of production, which attacks lead. The lead nitrate formed is immediately converted, in the presence of sulphuric acid, into lead sulphate, with liberation of nitric acid, and the cycle is indefinitely repeated. These spongy and brittle corrosion products, deposited on the anode, easily fall off, exposing a new surface to the destructive process. Detection of lead nitrate in the corrosion products substantiates the proposed explanation of the corrosion process. The corrosion can be counteracted by a preliminary exposure of lead lining to the action of sulphur dioxide.—S. G.

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1ST AND 2ND LETTER

AUTHOR INDEX

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MATERIALS INDEX

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Pershke, V., and Lashin, N. ALUMINUM SULFATE: ITS PRODUCTION FROM CLAYS FROM THE DISTRICT OF POLEVSKII. *J. Chem. Ind.* (U.S.S.R.), 7, 954–59 (1930). White clays with an average 34.1% alumina content are treated with sulfuric acid to produce raw aluminum sulfate. The disintegration of uncalcined clay by sulfuric acid of 40 Bé is slow and produces only small quantities of aluminum sulfate. On the other hand, with clay calcined at 700° for 2 hr., and then treated with sulfuric acid for 7 hr., the surplus acid being neutralized by a 15% addition of clay, the yield is 87.6% of aluminum sulfate 5 hr. after the beginning of the reaction. The insoluble residue contains 78.6% silica which is used for preparing sodium silicate by boiling it for 1 hr. with caustic soda. The silicate contains about 43% Na_2SiO_3 or K_2SiO_3 and an insignificant quantity of free caustic soda.

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COMMON VARIABLES INDEX

COMMON ELEMENTS

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1ST AND 2ND ORDERS

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3RD AND 4TH ORDERS

BC

Aluminium sulphate from clay of the Polovski district. V. Pereyra and N. Lashin (J. Chem. Ind., Moscow, 1930, 7, 954—959).—The clay (34·1% Al_2O_3) is heated at 700° for 2 hr. and then treated with H_2SO_4 for 7 hr., the excess of acid being neutralised by 15% of clay after 5 hr.; 87·[illegible]% of $Al_2(SO_4)_3$ is obtained. The residue contained 78·6% SiO_2.

CHEMICAL ABSTRACTS.

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RESTRICTED

PERSHKE, V.

PERSHKE, V.
J. Russ. Phys.-Chem. Soc. 60, 1019-35 (1928);
Z. Elektrochem. 35, 13-7 (1929)
The relations between the physical constants of a liquid.

CA: 23-2338/9

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240120010-0

Influence of external factors on the corrosion of lead in sulfuric acid production. V. Pershke and V. Ignat'eva.

Khimstroi 7, 38-40(1935); cf. C. A. 28, 5000[illegible]. Of the uniformly even and the local disintegrations of Pb lining of H_2SO_4 chambers and towers, the latter form of corrosion may be ascribed to a formation of a galvanic element (+) Pb H_2SO_4 or nitroso acid H_2SO_4 (or nitroso acid) + HNO_3 Pb (−). The mechanical imperfections of lining (folds, seams, etc.) cause local differences in temp. and condensation of the reacting mixt. This contains traces of free HNO_3, as a result of varying conditions of production, which attacks Pb. The $Pb(NO_3)_2$ formed is immediately converted, in the presence of H_2SO_4, into $PbSO_4$, with liberation of HNO_3, and the cycle is indefinitely repeated. These spongy and brittle corrosion products, deposited on the anode, easily fall off, exposing a new surface to the destructive process. Detection of $Pb(NO_3)_2$ in the corrosion products substantiates the proposed explanation of the corrosive process. The corrosion can be counteracted by a preliminary exposure of Pb lining to the action of SO_2. Chas. Blanc

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1ST AND 2ND ORDERS

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3RD AND 4TH ORDERS

Ca

18

Aluminum sulfate obtained from the clay of the Polovskii district. V. Pershek and N. Lashin. *J. Chem. Ind.* (Moscow) 7, 954-9(1930).—The white clay contg. an av. of 34.1% Al_2O_3 was treated with H_2SO_4 to produce the standard technical $Al_2(SO_4)_3$. Decompn. of non-ignited clay with 40° Bé. H_2SO_4 progressed very slowly and gave small quantities of $Al_2(SO_4)_3$. On the contrary when the clay was ignited at 700° for 2 hrs. and then treated with H_2SO_4 for 7 hrs. and the excess of acid was neutralized by the addn. of 15% of clay, at the expiration of 5 hrs. from the start of the reaction, 87.6% $Al_2(SO_4)_3$ was obtained. The insol. residue contg. 78.6% SiO_2 could be used for the prepn. of water glass by boiling it with caustic for 1 hr. The silicate so obtained contained about 43% Na_2SiO_3 (or K_2SiO_3) and an insignificant amt. of free caustic. V. D. Karpenko

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PERSHKE, V. K.

Rate of transformation of ammonium nitrate from α- to β-form. V. K. Pershke and A. N. Popov. J. Gen. Chem. (U. S. S. R.) 7, 303-8(1937); cf. C. A. 31, 25[1], 1707[8], 2106[1,8].—The rate of transformation increases in the presence of moisture and with increase in number of transformation centers. It increases in direct proportion to the difference between the temp. at which transformation is taking place and the true transformation temp. which was found to be 33.0-32.5°. S. L. Madorsky

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MA

***Investigation of the Chemical Resistance of Manganese- and Antimony-Bronzes** [illegible] 1939, [illegible] 112 [illegible] 1940, [illegible] 142 [illegible] 1942, 36, [illegible] [illegible] the chemical stability of manganese- and antimony-bronzes [illegible] replacing tin bronze was investigated. Solid solution alloys containing [illegible] of manganese or 4.5% of antimony were prepared. Up to 2% of silicon was added to the manganese bronze. Solutions containing various [illegible] trations of H_2SO_4 at 70–105° C were used as the corrosion media. [illegible] and silicon bronzes were also examined in order to compare their properties with those of manganese- and antimony-bronzes. The antimony-[illegible] ganese- and manganese-silicon bronzes, being solid solutions at the [illegible] trations investigated, are resistant to concentrated H_2SO_4 solutions. The [illegible] are slightly less resistant towards H_2SO_4 than the aluminum- and tin bronzes. Antimony-bronzes are slightly less resistant than the other bronzes and also their mechanical properties are poorer. Manganese-silicon and manganese bronzes are equally resistant. The addition of silicon is therefore not recommended. The temperature limit of the resistance of manganese bronzes in 60–70% H_2SO_4 is 80° C.

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MA

Corrosion and Related Phenomena

***The Action of Sulphuryl Chloride on Metals.** V. K. [illegible] Tsvetnyeyeye Prikladnyi Khimii (Applied Chem.), 1939, 12, [illegible]

[illegible] metals and alloys exposed to dry sulphuryl chloride [illegible] to sulphuryl chloride containing [illegible] volume [illegible] dry compound magnesium aluminium, and nickel were completely [illegible] Attack on 17% chromium steel was negligible, while the following [illegible] slightly corroded. Boiler plate, cast iron, lead, and zinc, the last [illegible] appreciably corroded by the vapour. Copper and brass were [illegible] corroded, while aluminium bronze and nickel silver showed only [illegible] corrosion. The presence of moisture in sulphuryl chloride [illegible] increased the corrosion of iron, cast iron, bronze, steel, lead and [illegible] caused corrosion of aluminium, while corrosion of copper was unaffected. [illegible]

1942

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Corrosion and Related Phenomena

MA

The Action of Sulphuryl Chloride on Metals. V.K. Pershke and Kh. L. Tsoytlin (Zhur. Prikladn. Khimii (J. Applied), 1939, 12, (2), 182-187).- (In Russian.)
Loss-in-weight determinations were made on a number of metals and alloys [illegible] to dry sulphuryl chloride (liquid and vapour) and to sulphuryl chloride containing [illegible] and 4.75% moisture by volume. In the dry compound magnesium, aluminium, and nickel were completely resistant. Attack on 17% chromium-steel was negligible, while the following were slightly corroded: boiler plate, cast iron, lead, and zinc, the last being appreciably corroded by the vapour. Copper and brass were appreciably corroded, while aluminium bronze and nickel silver showed only traces of corrosion. The presence of moisture in sulphuryl chloride appreciably increased the corrosion of iron, cast iron, chrome-steel, lead, and zinc, and also caused corrosion of aluminium, while corrosion of copper was unaffected.

—A. S.

MA2

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MA

4

Selection of Constructional Materials for Esterification. V. K. Pershke, [illegible] and S. S. Gastev (*Trudy Moskov. Inst. Khim. Mashinostroenia* [illegible] *Chem. Eng.*), **1939**, (7), 106–108; *Khim. Referat. Zhur.*, 1940, [illegible] 1942, **36**, 5451).— In Russian.] Constructional [illegible] and [illegible] resistant to esterification condit[illegible] of the initial reaction mixture equal volumes of H_2SO_4 [illegible] and at 125–145° C., were investigated in 3 di[illegible] [illegible] of these media were approx. equal to those [illegible] at various stages of the esterification process initial mixtures [illegible] H_2SO_4 solutions). Chromium cast iron, EZh 17, EYa-1, EY[illegible] chromium nickel alloys (containing chromium 23%, nickel 14–15% and molybdenum 3.5–4.5%), copper, tin lead bronzes (containing [illegible]), silicon bronzes, nickel-bronze (containing 30% nickel) and other [illegible] corroded in aq. H_2SO_4 solutions to not less than 1–2 cm. annually. [illegible] led considerably more in 80% H_2SO_4. The corrosion decreased sharply in 55% H_2SO_4. Materials stable in all 3 media were Thermosilid, Antichlor, and the alloy containing nickel 50 and molybdenum [illegible]. Inasmuch as steel coils cannot be used in the apparatus [illegible] propose either to use steel coils preliminarily tinned and uniformly lead plated with a thick layer of lead, or to change the technical process by using a mixture with a minimum permissible concentration of H_2SO_4.

1943

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1/A

Investigations on the Protective Sulphate Layer on Lead. V. K. Perchik, Ye. I. Vasyutovich, and Ye. N. Bravermann (*Zhur. Prikkl. Khimii*, 1938, 11, 1450–1464; *Chem. Zentr.*, 1940, **111**, (I), 351).—(In Russian.) The protective film formed on lead in H_2SO_4 can be removed by conc. NH_4OH; the use of ammonium acetate and tartrate solutions is not advisable on account of their corrosive action on metallic lead itself. The formation of the film is quickest in 40–78% H_2SO_4; in 95·6% H_2SO_4 no film forms. The protective action of the layer is limited by its porosity. The formation of the layer can be accelerated and its protective action increased by painting the lead surface with $PbSO_4$. Addition of antimony, bismuth, tin, copper, zinc, or silver has hardly any effect on the formation of the protective layer. The thickness of the film varies between one and some thousands of molecular layers. The film is easily destroyed in H_2SO_4, water, and air, and by mechanical action. The layer persists when heated to 85° C., but it is destroyed at 95°, probably on account of a decrease in adhesiveness and an increase in the solubility of $PbSO_4$. A durable film is formed in 67 and 78% nitric acid in the presence of 2% HNO_3, but this is not the case in 95·6% nitric. Rolled lead sheet is equally or more corrosion-resistant than cut sheet. Addition of 0·05–0·1% [illegible] to the lead increases its chemical resistance against the action of H_2SO_4 even at higher temperatures (e.g. 100–115° C.) and high acid concentrations (e.g. 95·6%).

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M.Q.

4

Chemical Resistance of Aluminum in Organic Technical Products

1913

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Co

C

The corrosive action of potassium (and other alkali) salt solutions on metals. I Action on cast iron and lead. V. K. PERSHIN AND G. I. CHUPAROV *Ann Inst Polytech Oural* 7, 81-90(1929-30); *Chem Zentr* 1931, I, 2390, cf *C A* 26, 4433

The actions of solns. of carnallite, sylvinite, NaCl, KCl and $MgCl_2$ on cast iron and lead were studied. Cast iron was most strongly attacked by NaCl and least by $MgCl_2$, KCl having an intermediate action. Sylvinite soln corrodes more strongly than carnallite. Dil solns are more corrosive than concd. The corrosive action of the former is 1.25-1.75 times that of water, while that of the latter is less than that of water. Satg the salt solns. with air increases their corrosive action 3 times, light 1.7 times. The lower the content of impurities in the iron, the less it is corroded. A coating of wood tar serves as an effective protection for the iron and lowers the corrosion to 1%. Lead is 9 times more resistant to the action of salt solns than iron. M. G. M.

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*Constructional Materials for Pans for Drying Organic Dyes. V. K. Popkin and M. A. Voroshilova (*Promishlen. Organich. Khimii* (*Organic Chem. Ind.*), 1937, 4, 518-522; *C. Abs.*, 1938, 32, 4788). —(In Russian.) Because of the corrosive action of most of the dyes tested, the use of sheet iron pans for drying is considered impracticable. Excellent results were obtained with aluminum and stainless steel drying pans; copper and bronze are also suitable. The selection of the materials depends on the nature of each dye and on the contaminating products. —S. O.

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1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

***Influence of Metallic Impurities on the Corrosion of Lead in Sulphuric Acid Production.** V. K. Pershke (*Khimstroi*, 1934, 6, 284-287; *C. Abs.*, 1934, 28, 3933).—[In Russian.] Different samples of pure lead (Kahlbaum) alloyed in various proportions with antimony, bismuth, tin, copper, zinc, and silver were exposed to the action of commercial lead-chamber acid containing 1·72% N oxides (based on nitric acid) at 20° C. for 40 hrs. and at 200° C. for 6 hrs. The tabulated results show that bismuth has the greatest corrosive influence, tin somewhat less, antimony and copper very little, if at all, and zinc and silver in the cold have no effect and at 200° C. retard the corrosion. 27 references are given. S. G.

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PROCESSES AND PROPERTIES INDEX

4

*Corrosion of Metals by Hydrochloric Acid, Chlorine, and Carnallite. V. K. Perchik and L. A. Pecherkina (*Khimstroi*, 1934, 6, 140-141; *Chem.*, 1934, 28, 5020).—[In Russian.] Iron and copper alloys subjected to the action of gaseous hydrochloric acid and chlorine and carnallite at temperatures of 300-700° C. showed highly destructive corrosion.—S. G.

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Influence of Organic Compounds on the Corrosion of Metals by Inorganic Agents. V. K. Paralike and A. S. Vinogradova (*Promishlennost Organicheskoi Khimii (Org. Chem. Ind.)*, 1936, **2**, 419-423; *C. Abs.*, 1937, **31**, 1750).—[In Russian.] A physico-chemical interpretation of the inhibiting action of stable organic compounds and accelerating action of easily reducible organic compounds on the destruction of metals by corroding agents in the process of $PhNH_2$ production, based on the literature and some experimental data (cf. Jenckel and Braucker, *Z. anorg. Chem.*, 1935, **221**, 249; Jimeno and Grifol, *Met. Abs.*, 1936, **3**, 276).—S. G.

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1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

2

The heat effect of distribution. V. K. Pershke and A. V. Lakedemonskii. *J. Gen. Chem.* (U. S. S. R.) 9, 110-13(1939).—The exptl. part of the investigation consisted in the detn. of the heat effect and of the distribution coeff. for the system water-Am alc. (solvent) and AcOH (solute). The substances used were: ordinary distd. water, Am alc. (the 128-130° fraction; one fraction for each expt.), and 100% glacial AcOH. Into a 0.5-l. Dewar's flask (in a glass jar and isolated from it by a layer of cotton) were introduced 100 ml. of water and 100 ml. of Am alc., and the soln. was stirred until a finely dispersed system was obtained. The usual calorimetric expt. was performed at 17 ± 1°. The temp. was noted on a Beckmann thermometer every 30 sec. for 10 min. After that 20-21 g. of AcOH was added and the temp. change detd. for 10 min. The heat capacity of water was taken as 1.000, of Am alc. as 0.554, and of AcOH as 0.484. The mean exptl. error was calcd. from $E = \pm\sqrt{S/n(n-1)}$ ≈ 2 cal. where S = sum of the squares of the errors of the individual results, n = no. of the results. Thus the distribution heat effect at 17 ± 1° was found to be equal to 214 ± 2 cal. per mol. For the distribution coeff. detn. 100 ml. each of mutually satd. water and Am alc. were placed in a thermostat. To the soln. was added 20 ml. of AcOH and the liquid was shaken for 30 min. After shaking the vol. of both layers were measured; samples were taken from the water layer, and titrated with 0.1 N NaOH soln. The mean $K = A/W$ values obtained at 12, 17, and 30° were 0.913 ± 0.003, 0.917 ± 0.003, and 0.930 ± 0.002, resp. The change of vols. ΔV of the solvents during the distribution of AcOH attained 7-5%. The main reason for the change in heat effect with temp. is the change in the mutual soly. in the presence of a third substance. From the exptl. results the formula for the heat effect of the distribution of AcOH between water and amyl alc. was found to be $U = 550.2 - 5.2T + 0.00863T^2$, and from this a distribution coeff. curve was constructed.

W. R. Henn

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PROCESSES AND PROPERTIES INDEX

Ca

2

The equilibrium between two solid substances in a common solvent. V. K. PRIBOKE. *J. Russ. Phys. Chem. Soc.* **61**, 441-4(1929). Two solids, which do not interact chemically, in contact with a solvent will dissolve spontaneously in the ratio characterized by max. free-energy change, $A = xRT \ln(a/x) + yRT \ln(b/y)$, where x is the no. of dissolving mols. and a the soly. in the pure solvent of the first solid, and b and y are the no. of mols. and the soly. of the second solid. As the first deriv. should equal 0, $\partial A/\partial x = RT[\ln(a/x) - 1] = 0$ and $\partial A/\partial y = RT[\ln(b/y) - 1] = 0$. It follows that $a/b = x/y$. Azobenzene (x) m. 68°, urea (y) m. 132.3° and abs. EtOH b. 78° were chosen for the soly. measurements. Thermostatic control within ±0.1° was used. The concn. of the solns. was detd. by withdrawing 10 cc. samples with a Ritting pipet, drying at room temp. and weighing. An experimentally detd. correction was applied to compensate for the volatility of azobenzene. Urea was sepd. from azobenzene by treatment of the residue with water and subsequent filtering. B. S.

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Physicochemical data for the vacuum evaporation of solutions of magnesium chloride. V. K. PERSHER AND S. K. KALININ. *J. Chem. Ind.* (Moscow) 1933, No. 12, 16-17.—The b. pts. of solns. of $MgCl_2$ at concns. of 100-855 g. per kg. H_2O are given at pressures of 100-760 mm. The vapor-pressure curves are also given. The tendency toward hydrolysis of $MgCl_2$ at the b. p. of its solns. decreases with the pressure.

H. M. LEICESTER

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Rate of transformation of ammonium nitrate from α- to β-form V. K. Pershke and A. N. Popov. *J. Gen. Chem.* (U. S. S. R.) 7, 953-8 (1937); cf. C. A. 31, 25[1], 1707[2], 2106[3]. The rate of transformation increases in the presence of moisture and with increase in number of transformation centers. It increases in direct proportion to the difference between the temp. at which transformation is taking place and the true transformation temp. which was found to be 32.0-32.5°. S. L. Madorsky

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10

Chemical resistance of aluminum in the production of organic compounds. V. K. Pershke and Kh. L. Tseitlin. *Org. Chem. Ind.* (U. S. S. R.) 6, 682-6(1939); cf. *C. A.* 31, 1759[9].—Several tables are given to show the relative resistance to corrosion of Al in the production of organic compds. and dyes, involving the use of HCO_2H, AcOH, H_2SO_4, SO_2Cl_2 and other reagents. Chas. Blanc

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3RD AND 4TH ORDERS

18

CA

The action of sulfuryl chloride on metals. V. K. Pr-
shke and Kh. L. Tseitlin. *J. Applied Chem.* (U.S.S.R.)
12, 182-7 (in French, 187) (1939).—Dry SO_2Cl_2 does not
affect Al, Mg and Ni at room temp., but considerably
corrodes Cu and brass. It corrodes very slightly Cr
steel, Fe, cast Fe, Pb, Zn, Al bronze and German silver.
The corrosion of metals increases in moist SO_2Cl_2, especially
in the case of Zn, Al, cast Fe, Cr steel and Fe. Corrosion
of Cu and Pb increases comparatively slightly because of
the protective action of the film formed on the metals.
A. A. Podgorny

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240120010-0

The preparation of ammonium chloride from the gases. V. K. Pershke and K. G. Potaskuev. *J. Chem. Ind.* (Moscow) 1932, No. 11, 15–17.—If gaseous NH_3 is well mixed with HCl from the hydrolysis of Mg cement (*C. A.* 25, 4077) and the resulting NH_4Cl drawn through a chamber at 130–70° at a rate of 20 cc. per min., 75% settles in this chamber. The finely dispersed particles are then drawn into a chamber at room temp., where practically all the remainder is caught as a satd. soln. by the condensed H_2O of the process.

H. M. Richster

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3RD AND 4TH ORDERS

BC

B I 8

Hydrochloric acid and magnesia from magnesium chloride. V. K. Pershke and G. I. Chufarov (J. Chem. Ind., Russia, 1930, 7, 332—335).—The solid prepared from 35% $MgCl_2$ solution (100 pts.) and MgO (10 pts.) is dried at 100° to 50% loss in wt., and calcined at 500° in a mixture of air and H_2O vapour (1 pt. H_2O to 1 pt. total MgO). The MgO contains 0·5% Cl.

Chemical Abstracts.

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PROCESSES AND PROPERTIES INDEX

Destructive action of phosphoric acid on alloys. V. K. [illegible], M. P. [illegible], and E. V. [illegible] (J. Chem. Ind., Russia, [illegible], 7, [illegible]).—The resistance of cast Fe and Cu alloys containing Sn, Zn, Al, Pb, Sb, and Ni to the action of [illegible] H_3PO_4 at [illegible] was studied. Alloys containing [illegible] Cu are resistant; those containing [illegible] Cu are satisfactory. Alloys with the same Cu content, and nearly equal percentages of Pb, Al, or Sb, have the same resistance. Alloys containing much Pb and Zn are not resistant. Brass with a Cu content of [illegible], and Cu-Ni alloys containing 80% Cu are recommended for apparatus coming into contact with conc. H_3PO_4 at 150°.

CHEMICAL ABSTRACTS.

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3RD AND 4TH ORDERS

Destructive action of phosphoric acid on metallic alloys. V. K. [illegible], M. P. KAPOSTUIN AND E. V. YUSHIMANOV. *J. Chem. Ind.* (Moscow) 7, 875-7(1931). — Expts. are described on the resistance of cast Fe and Cu alloys contg. Sn, Zn, Al, Pb, Sb and Ni to the action of 84.7% H_3PO_4 at a temp. from 20° to 150°. The results are given in 3 tables. Alloys contg. 78% Cu are resistant to H_3PO_4, with 63-80% Cu they are satisfactory but with a Cu content lower than 63% they are not resistant to H_3PO_4. Alloys with the same Cu content and nearly equal percentages of Pb, Al and Sb show the same resistance. With the same Cu content, Ni instead of Zn and Pb, or Sn and Zn and P instead of Zn increase the resistance; Pb instead of Sn has no influence; Pb and Sb instead of Zn do not change the resistance of the alloy. Alloys with a high content of Pb and Zn are not resistant. Brass with a Cu content of 85-90% and Cu-Ni alloys with 80% Cu are recommended for app. coming in contact with concd. H_3PO_4 at 150°. F. G.

COMMON ELEMENTS

OPEN

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6

CA

Preparation of dehydrated magnesium chloride from magnesium cement. V. K. Pershke and A. P. Lohvitzkaya. *Kalii* (U. S. S. R.) 1933, No. 4, 33-5.—A method for prepn. of dehydrated $MgCl_2$. Mg cement in briquets prepd. from a 35% soln. of $MgCl_2$ and MgO (10 g. per 100 g. soln.) were dried after solidifying in an elec. drier at 150°. Then the temp. was raised to 400-600° and the gas mixt. (air-HCl) was drawn through the briquets by suction. A product contg. about 97% $MgCl_2$ was obtained.

James Sorrel

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1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES

The use of nickel chlorinator. A. K. Pershke and M. G. Grigorev. *Org. Chem. Ind.* [illegible]

The corrosion rates of com. Ni, Ag, Pb and Cr, Si and Cr cast iron and steel by the gas and liquid mixts. in the direct chlorination of org. compds. were studied by suspending weighed, polished plates [illegible] sq. cm. from a stirrer above and inside the liquid reaction mixt. The corrosion rate was [illegible] In the chlorination of [illegible] AcOH with the SC catalyst at 105-50 for [illegible] hrs. only Ag can be successfully used. Cr steel and cast iron inhibit the formation of CH_2ClCO_2H. In the prepn. of 2,4-$MeC_6H_3(Cl)SO_3H$ from p-$MeC_6H_4SO_3H$ in 100% H_2SO_4 at [illegible] for [illegible] hr. Ni is nearly 100% resistant to the action of gases and is somewhat more stable to the action of H_2SO_4 than cast iron, the corrosion of which progressively increases, and a little less stable than Cr cast iron and steel. In the chlorination of dry p-ClC_6H_4Me at [illegible] for [illegible] hrs. Ni proved to be the most stable metal. Ni, Ag and glass app. give chiefly $ClC_6H_4CH_2Cl$, while cast iron, Cu and Pb give considerable chlorination product substituted in the nucleus. In the presence of water Ni cannot be used for chlorination and bromination. Its corrosion was by gases 16.2 and by liquid 17.2 g./sq. m./hr. after [illegible] hrs. of interaction. Satisfactory results in the presence of water were obtained with Si cast iron. — Chas. Blanc.

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240120010-0

PROCESSES AND PROPERTIES INDEX

Chemical resistance of chromium and aluminum steels to sulfur vapors at high temperatures V. K. Pershke, S. S. Gastev and I. V. Oknin. *Khim. Mashinostroenie* 6, No. 4, 27-30 (1937); *Chimie & industrie* 40, 265-6. Up to 700°, "fechral" (a ferritic alloy contg. 12-14% Cr, 3-5% Al and 0.15% C) and especially chromal exhibit satisfactory resistance to S vapors (0.3 g. per l.), whereas materials such as boiler plate, Cr steel, Ni steel, etc., under the same conditions undergo such strong corrosion as to render them useless. S concn. is of considerable importance in the corrosion of "fechral." On the other hand, variation in the content of H_2S (up to 0.5%), of SO_2 (up to 4%) and of CS_2 (up to 7%) has no effect. Chromal is twice as resistant as "fechral." The optimum proportions of the alloying metals are Cr 13-14 and Al 4-5%. A. P.-C.

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A

Influence of metallic impurities on the corrosion of lead in sulfuric acid production. V. K. Pershke. *Khimstroi* 6, 284-7(1934).—Different samples of pure Pb (Kahlbaum) alloyed in various proportions with Sb, Bi, Sn, Cu, Zn and Ag were exposed to the action of factory lead-chamber acid contg. 1.72% N oxides (based on HNO_3) at 20° for 40 hrs. and at 200° for 6 hrs. The tabulated results show that Bi has the greatest corrosive influence, Sn somewhat less, Sb and Cu very little, if at all, and Zn and Ag in the cold have no effect and at 200° retard the corrosion. Twenty-seven references. Chas. Blanc

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240120010-0

Preparation of dehydrated magnesium chloride by means of ammoniate. V. K. Pershke and S. K. Kalinin. *Kabi* 1933, No. 6, 17-21.—Lab. expts. were made to verify Brit. pat. 330,650 (*C. A.* 26, 5948) for the prepn. of dehydrated $MgCl_2$. NH_3 gas was passed through a soln. of $MgCl_2$ contg. NH_4Cl to form the ammoniate ($MgCl_2.6NH_3$, $MgCl_2.2NH_3$; $MgCl_2.NH_3$). The best results were obtained with a soln. of 17.5% $MgCl_2$ and 6% NH_4Cl at 20° when practically all of the $MgCl_2.6NH_3$ is pptd out. $MgCl_2$ of 95-96% dehydration was obtained. James Sorrel

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PERSHKE, V. K., LAKEDEMONSKIY, A. V.

"On the Thermal Effect of Distribution," Zhur. Obshch. Khim., 9 No. 2, 1939.
Laboratory of Physical Chemistry, Moscow Institute of Nonferrous Metals and Gold.
Received 27 May 1938

U-1517, 22 Oct 1951

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Corrosion of metals by hydrochloric acid, chlorine and carnallite. V. K. Pershke and L. A. Pecherkina. *Khimstroi* 6, 140-1(1934).—Fe and Cu alloys subjected to the action of gaseous HCl and Cl_2 and carnallite at temps. of 300-700° showed highly destructive corrosion. C. B.

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6

M

*The Use of the Nickel Chlorinator. [Corrosion of Nickel, Silver, &c.] V. K. Pershke and M. G. Grigoriev (*Promish. Organ. Khimii* (*Organic Chem. Ind.*), 1938, 8, (1), 50-52; *C. Abs.*, 1938, 32, 6218).—[In Russian.] The corrosion rates of commercial nickel, silver, and a number of ferrous materials by the gas and liquid mixtures involved in the chlorination of organic compounds were studied by suspending weighed, polished plates (15 cm.^{2}) from a stirrer above and within the liquid reaction mixture. The corrosion rate was calculated from the loss in weight in grm./m.^{2}/hr. In the chlorination of 100% AcOH with the SCl_2 catalyst at 105°-150° C. for 15-17 hrs., only silver can be successfully used. In the preparation of 2:4-$MeC_6H_3(Cl)SO_3H$ from p-$MeC_6H_4SO_3H$ in 100% H_2SO_4 at 40°-45° C. for 49 hrs., nickel is almost 100% resistant to the gases and is somewhat more stable to the action of H_2SO_4 than is cast iron, the corrosion of which progressively increases, and a little less stable than chromium cast iron and steel. In the chlorination of dry p-ClC_6H_4Me at 155°-220° C. for 30-40 hrs., nickel proved to be the most stable metal. In the presence of water nickel cannot be used for chlorination and bromination. Its corrosion was by gases 16·2 and by liquid 17·2 grm./m.^{2}/hr. after 9 hrs. of interaction. Satisfactory results in the presence of water were obtained with silicon cast iron.

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Ca

26

Construction materials for pans in drying organic dyes
V. K. Pershke and M. A. Vinoshilova. *Org. Chem. Ind.* (U. S. S. R.) 4, 518-22(1937).—Because of the corrosive action of most dyes tested, the use of sheet iron pans for drying is considered impractical. Excellent results were obtained with the use of Al and stainless steel drying pans. Cu and bronze are also suitable materials. The selection of a metal depends on the nature of each dye and the contaminating products. Chas. Blanc.

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PROCESSES AND PROPERTIES

Influence of aromatic acids on the corrosion of metals by sulfuric acid. V. K. Pershke and R. I. Gracyskaya. *Org. Chem. Ind.* (U. S. S. R.) 5, 58-60 (1948); cf. C. A. 31, 1750[8]. The inhibiting action of aromatic acids on the corrosion of boiler plate (0.6% C), Cr steel (16.9% Cr and 0.24% C) and com. Pb by 10, 40 and 70% H_2SO_4 at 20, 60 and 90° was studied by stirring polished metal plates of equal wt. and dimensions for 3-6 hrs. in H_2SO_4, with and without the addn. of 1% of org. acids, and in 1% aq. solns. of the org. acids. The tabulated results show that the inhibiting action of salicylic, benzoic and phthalic acids is about equal and considerably lower than that of *p*-toluene-*o*-benzoic acid. In the presence of the org. acids the corrosion of Fe and steel is retarded at max. 40% H_2SO_4 and 60° (cf. Jenckel and Brauecker, C. A. 20, 2428[9]), very little, if at all, at higher H_2SO_4 concns. and higher temps., while at the concn. of 70% H_2SO_4 the rate of corrosion is slightly accelerated. In general, the rate of corrosion is influenced more by the H_2SO_4 concn. than the temp. Though the addn. of org. acids reduces the corrosion considerably, the abs. value of the corrosion by H_2SO_4 is so great that the inhibiting effect of the addns. of org. acids has no practical value. The corrosion of Pb by org. acids and H_2SO_4 is comparatively small at 20° and 60° and considerable at 90°. Chas. Blanc

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High-chromium cast iron as a construction material of equipment for use in the production of organic chemicals

V. K. Pershke and R. I. Gracyskaya. *Org. Chem. Ind.* (U.S.S.R.) 8, 126-30(1938); cf. C. A. 31, 1750[illegible]. Several tables are given to show the relatively high resistance to corrosion of Cr-Fe (2-2.2% C and up to [illegible] Cr) in the production of some 100 org. compds. and 8 dyes.

Chas. Blanc

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1ST AND 2ND ORDERS

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CA

Influence of organic matter on the corrosion of metals by mineral agents. V. K. Pershke and M. A. Voroshilova. *Org. Chem. Ind.* (U. S. S. R.) 5, 562-7 (1938); cf. *C. A.* 31, 1750[9]; 32, 4788[9]. Addnl. data on the accelerating action of aromatic nitro compds. on the destruction of metals by corroding mineral agents are given. Chas. Blanc

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1ST AND 2ND ORDERS

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C 4

Chromium alloys for use in the chemical industry. A. K. Pershke and Kh. I. Tsetlin. *Khim. Mashinostroenie* 1938, No. 5, 42-4. *Khim. Referat. Zhur.* 2, No. 3, 137 (1939). Cr cast iron (35% Cr) and Cr steels (EYa 1 (18% Cr and 8% Ni), EI 100 (12% Cr, 8% Mn and 3% Ni), EZh 17 (17% Cr), "Inradit" (26% Cr), "Ickhral" (14% Cr and 4% Al), ordinary cast iron, boiler iron, Pb and Al were tested for corrosion resistance in the processes of acetylation, chlorination, phenylation, tolylation, sulfonation and nitration. The Cr cast iron and steels corroded not at all, or much less than ordinary cast iron, Fe, Pb and Al. W. R. Henn

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PROCESSES AND PROPERTIES INDEX

Corrosion of metals in the amination of aromatic chlorides V. K. Pershke and Kh. L. Tseltlin. *Org. Chem. Ind.* (U. S. S. R.) 5, 694-7 (1938); cf. C. A. 31, 1750[9]. Cr-Ni, Cr and C steels and boiler plate resist the corrosive action of NH_4Cl and $CuSO_4$ (catalyst) in the production of β-aminoanthraquinone from the Cl deriv. and concd. NH_4OH at 200° and 50 atm. The inhibition of the corrosion of Fe in the presence of excess NH_4OH and gaseous NH_3 is traced to the impeded dissocn. of the NH_4Cl and copper-ammonia complex formed in the reaction. Chas. Blanc

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C 4

9

Investigation of the chemical resistance of manganese and antimony bronzes. V. K. Pershke and S. I. Vasyutovich. *Trudy Moskov. Inst. Khim. Mashinostroeniya* 1939, No. 7, 109-12; *Khim. Referat. Zhur.* 1940, No. 6, 142. The chem. stability of Mn and Sb bronzes for the purpose of replacing Sn bronze was investigated. Compn. diagrams of Cu-Mn and Cu-Sb alloys are described. Alloys contg. not more than 7% of Mn and 4.5% of Sb were prepd. on the base of these alloys. Bronzes of such compns. are solid solns. Up to 2% of Si was added to Mn bronze. Various concns. of H_2SO_4 at 70-105° were used as the corrosion medium. Al and Si bronzes were examd. for comparing their properties with those of Mn and Sb bronzes. The Sb-, Mn- and Mn-Si bronzes, being solid solns. at the concns. investigated, are stable in concd. H_2SO_4 solns. They are slightly less stable against H_2SO_4 than the Al- and Sn bronzes. Sb bronzes are slightly less stable than other bronzes and their mech. properties are poorer than those of other bronzes. Mn-Si and Mn bronzes are equally stable. The addn. of Si is, therefore, not recommended. The temp. limit of the stability of Mn bronzes in 60-70% H_2SO_4 is 80°. W. R. Henn

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CA

Selection of construction materials for esterification

V. K. Pershke, I. V. Oknin and S. S. Gastev. *Trudy Mosk. Inst. Khim. Mashinostroeniya* 1939, No. 7, 106-8. *Khim. Referat. Zhur.* 1940, No. 6, 144.—Construction materials (29 metals and alloys) stable under esterification conditions at variable compns. of the initial reaction mixt. [equal vols. of H_2SO_4 (1.8) and 90% alc.] and at 125-45° were investigated in 3 different media. The compns. of these media were approx. equal to those of the reaction media at various stages of the esterification process (initial mixt., 80% H_2SO_4 and 55% H_2SO_4 soln.). Cr cast Fe, EZh-17, EYa-1, EYa-Ti, Fe-Cr-Ni alloys (contg. Cr 23-5, Ni 14-15 and Mo 3.5-4.5%), Cu, Sn-Pb bronzes (contg. from 11 to 30% of Pb), Si bronzes, Ni bronze (contg. Ni 30%) and other alloys corroded in aq. H_2SO_4 solns. to not less than 1-2 cm. annually. Alloys on Cu base corroded considerably more in 80% H_2SO_4. The corrosion decreased sharply in 55% H_2SO_4. Materials stable in all 3 media were: thermosilid, antichlor and the alloy contg. Ni 50 and Mo 50%. Inasmuch as steel coils cannot be used in the app. P., O. and G. propose either to use steel coils preliminarily tinned and uniformly Pb plated with a thick layer of Pb or to change the tech. process by using a mixt. with a min. permissible concn. of H_2SO_4.

W. R. Herm

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CA

20

The effect of low temperatures and cold carnalite solutions on properties of cements V. K. Pershke, E. I. Zinov'ev and S. N. Agatonov. Kaliy, U.S.S.R. 1933, No. 2, 14-19. The results of tests made with setting and properties of Mg and slag cements at low temps. in the presence of carnalite solns. are given. The tests showed that under these conditions pouring of slag and Mg cements in intermitting layers produce the best results.

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1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

18

Investigation of the protective sulfate film formed on lead [by the action of sulfuric acid]. V. K. Perabke, E. F. Vasyutovich, E. N. Braverman and O. K. Varentsova. *J. Applied Chem.* (U. S. S. R.) 11, 1450-64 (in French, 1464) (1938).—The protective film formed by dipping lead into H_2SO_4 of any concn. up to 95.6% can be removed by treatment with concd. NH_4OH soln. NH_4OAc and NH_4 tartrate cannot be used, because they dissolve the lead. The best concn. of H_2SO_4 for the formation of film was 40-78%. The film did not completely protect Pb from corrosion, apparently because of porosity; however, the corrosion under the film was very slight. The formation of film and its protective effect can be accelerated and improved by rubbing $PbSO_4$ into the Pb surface. $PbSO_4$ stopped up pores and crevices in the film and adhered to the surface of the metal. Admixts. of other metals (Sb, Bi, Sn, Zn, Fe and Cu) had no effect on film formation and, hence, on corrosion. The thickness of film varied from one to several thousand mols. The film was easily destroyed in water and in air and by various mech. treatments. A temp. of 85° did not affect the formation and existence of film, but at 95° the film was destroyed and renewed formation failed. The film was formed and existed in 67% (better) and in 78% nitrosylsulfuric acid; addn. of 2% HNO_3 did not change the corrosive effect. The film did not form or exist in 95.6% nitrosylsulfuric acid. Addn. of 0.03-0.1% Te considerably improved the chem. stability of Pb against H_2SO_4 at high temp. and concn. of acid. Thus, the stability of Pb increased 24-65 times in 78% H_2SO_4 at 100-110° and 4 times in 95.6% acid.

A. A. Podrorny

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1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

B-I-8

BC

Influence of metallic impurities on corrosion of lead in sulphuric acid production. V. K. [illegible] (Khimstr., 1934, 6, 264—267).—Samples of Pb containing impurities were exposed to H_2SO_4 (1·72% of N oxides) at 20° (40 hr.) and at 200° (6 hr.). Bi had the max. corrosive influence, Sn had less, Sb and Cu had little action, and Zn or Ag had no effect in the cold, but retarded corrosion at 200°. Cu. Abs. (c)

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1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

18

Hydrochloric acid and magnesia from magnesium chloride. V. K. PERSHKE AND G. I. CHUFAROV. *J. Chem. Ind.* (Moscow) 7, 332-5 (1930). A method is described for $MgCl_2$ decompn. to MgO and HCl by prepn. of solid cement from 35% $MgCl_2$ soln. and MgO (100 parts $MgCl_2$ soln. to 10 parts MgO by wt.), drying at 200° to 50% loss of wt., calcining at 500° in air water vapor mixt. (1 part vapor to 1 part MgO by wt. based on total Mg). The products obtained are HCl, sp. gr. 1.14-1.15, and MgO containing 0.5% Cl. JAMES SORREL.

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Influence of organic compounds on the corrosion of metals by inorganic agents. V. K. Pershke and A. S. Vinogradova. *Org. Chem. Ind.* (U. S. S. R.) 2, 410-23 (1939).—A physicochem. interpretation of the inhibiting action of stable org. compds. and accelerating action of easily reducible org. compds. on the destruction of metals by corroding agents in the process of $PhNH_2$ production is based on literature and some exptl. data (cf. Jenckel and Bräucker, *C. A.* 29, 2428[8]; Jimeno and Griffol, *C. A.* 30, 3378[1], 4133[6]). Chas. Blanc

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BC

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

B-I-4

Corrosive action of potassium (and other alkali) salt solutions on metals. I. Cast iron and lead. V. K. Pershke and G. I. Chuparov (Ann. Inst. Polytech. Oural, 1929—1930, 7, 81—90).—Cast Fe was most strongly attached by NaCl, less by KCl, and least by $MgCl_2$; sylvinite is more corrosive than carnallite, and dil. solutions are more corrosive than conc. solutions. Light (1·7 times) and air (3 times) increase the action. Pure Fe is less corroded than impure; Pb is "9 times more resistant than Fe." Cu. Ans.

COMMON ELEMENTS

COMMON VARIABLES INDEX

MATERIALS INDEX

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PERSHKHAVA, A.A.

Case of acute appendicitis in a newborn infant. Pediatriia 38 no.10:77-78 O '60. (MIRA 13:11)

1. Iz rayonnoy bol'nitsy (glavnyy vrach A.A. Pershkhava) sela Orshanka Mariyskoy ASSR.
(APPENDICITIS) (INFANTS (NEWBORN)—DISEASES)

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PERSHKHOVA, A.A.

PERSHKHOVA, A.A.

Early hospitalization of emergency surgical cases in rural areas. (MLRA 7:11)
Khirurgiia no.8:58-60 Ag '54.

1. Iz Orshanskoy rayonnoy bol'nitsy Mariyskoy ASSR (glavnyy vrach T.Yu.Pirogova)
(RURAL CONDITIONS,
early hospitalization of emergency surg. cases)
(EMERGENCIES,
early hospitalization of emergency surg. cases in rural cond.)

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NEUR

1666. **Selective Involvement of the Hand in Parasagittal Meningioma.** (Избирательное поражение руки при парасагиттальных менингиомах)
R. E. PERSHMAN. Вопросы Нейрохирургии [*Vop. Nejrokhir.*] 14, No. 2, 21–27, March–April, 1950.

Symptoms or signs present in the hand are at times the only, or the main, localizing features in cases of parasagittal meningioma. They were observed in 16 cases out of 70 in this series. Ten such cases are described and the author suggests that these phenomena are produced in different ways. Pressure on the motor pathways in the subcortical substance is one of them, and the irritative action of the tumour on contiguous areas, which are themselves in a state of " altered function ", is another. The cause in most cases, however, is interference with venous drainage from the lower part of the parietal lobe through the superficial cortical veins, which are compressed by the tumour at a point near their entry into the sinuses.

L. Crome

See also Section Radiology, Abstract 1435.

PERSHMAN, R.E.

Abstracts of World Medicine
Vol 8 1950

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240120010-0

PERSHMAN , R.E.K.

25307 PERSHMAN, R.E.K. Voprosy O Miokloys-Epilepsii. Nevropatologiya i Psikhiatriya. 1949, No. 4, S. 38-42

SO: Letopis' No. 33, 1949

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240120010-0

PERSHMAN, R.Ye., kand.med.nauk

Diagnostic errors in craniopharyngiomas. Probl.sovr.neirokhir. 3:259-267 '59. (MIRA 16:6)

(PITUITARY BODY--TUMORS)

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240120010-0

Cand. Med. Sci.

PERSHMAN, R. Ye.

Dissertation: "Neuologic-Clinical Treatment of the Primery Extracerebral Tumors of the Parasagittal Region."

27/6/50
Acad. Med. Sci. USSR

SO Vecheryaya Moskva
Sum 71

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240120010-0

PERSHMAN, R.Ye.; KONOVALOV, Yu.V.

Clinical aspects of so-called "recurrent" astrocytomas of the cerebellum in children. Vop.neirokhir. 19 no.5:20-25 S-O '55. (MLRA 8:11)

1. Iz Nauchno-issledovatel'skogo ordena Trudovogo Krasnogo Znameni Instituta neyrokhirurgii imeni akad. N.N.Burdenko Akademii meditsinskikh nauk SSSR.

(ASTROCYTOMA,
cerebellum, recur. in child.)
(CEREBELLUM, neoplasms,
astrocytoma, recur. in child.)

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240120010-0

BURGMAN, G.P.; VOZNAYA, A.TS, NITROFANOVA, N.P.; PERSHMAN, R.Ye.

Preoperative and postoperative cerebrospinal fluid in cerebellar medulloblastomas and its clinical significance. Vop.neirokhir. 19 no.6:25-32 N-D '55. (MLRA 9:1)

1. Iz nauchno-issledovatel'skogo ordena Trudovogo Krasnogo Znameni instituta neyrokhirurgii imeni Akad. N.N.Burdenko Akademii Meditsinskikh nauk SSSR.

(CEREBROSPINAL FLUID, in various diseases, medulloblastoma of cerebellum)
(MEDULLOBLASTOMA, cerebellum, CSF in)
(CEREBELLUM, neoplasms, medulloblastoma, CSF in)

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001240120010-0

PERSHMILT, YA. A.

report to be presented at the 1st Intl Congress of the Intl Federation of Automatic Control, 25 Jun-5 Jul 1960, Moscow, USSR.

LEBNER, A. Ya., - "The application of a self-adjusting system of automatic control"
MALOV, V. S., PSHENICHNIKOV, A. M., and [redacted] A. - "Industrial telemeasurement systems and digital technique"
MEYEROV, M. V. - "Some peculiarities of the structure of multi-communications regulation systems"
MIKHAYLOVSKIY, V. N. - "Evaluation indexes and the possibility of increasing the quality of telemeasurement systems"
NEMTSKIY, V. V. - "Concerning the problem of established routines in automatic regulation systems"
NETREBENKO, K. A. "Principals of construction of digital double code automatic compensators"
NEYMARK, Yu. I. - "Concerning the relation of systems of automatic regulation with the parameters of periodic movements"
NIKOLAYEV, N. S., and EPSHTEYN, V. L. - "System of automatic control of cutting of rolled metal on a continuous bar mill with the use of digital calculating machines"
ONOYNTSEV, V. M. - "Some principles of organizing systems of complex automation of large scale chemical production and optimization of these systems"
OSTROVSKIY, G. M. - "Systems of automatic regulation with intermittent change of parameters"
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PETROV, B. N. - "The invariant principle and its application in the calculation of linear and nonlinear systems"
PIVEN, V. D. - "The problem of autonomy in the technique of automatic control"
POPOV, E. P. - "Some problems of synthesis of automatic control non-linear systems"
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ROGINSKIY, V. N. - "The development of the theory of relay devices in the USSR"
ROCKENBLAT, M.A. - "Dynamic characteristics of cores with right angle hysteresis winding and their influence on magnetic boosters"
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RUBINSKIY, V. M. - "Dynamics of automatic regulation of boiler-turbine units"
SHUMILOVSKIY, N. N., MEL'TTSER, L. V., NAUMOV, A. A., MEN-CHZHI-CHZHUN, and PIVOVAROV, L. A. - "Automatic control of composition of multi-ingredient mixtures"
[redacted], R. S., and [redacted], V. G. - "Some results of work for the utilization of radioactive radiation for automatic control of mining machinery"
SOLODOVNIKOV, Y. V., BATEUV, A. M., BABURIN, V. M., VAL'DEYBERG, Yu. S., MATVEYEV, P. S., and POKROVSKIY, A. K. - "Analyses and synthesis of automatic control systems with the aid of calculating machine facilities"
STAKHOVSKIY, R. I., FITSNER, L. N., and [redacted] "Automatic optimizers and their use for solution of variation problems in automatic synthesis"
STRAKHOV, S. V. - "A system of alternating current electric drives with autonomous power supply"
TAKHAR, I. M., and YANUSHKOVSKIY, V. A. - "Apparatus for technical control of production with the use of nuclear radiation"
TROKORCHIK, K. F., and BENDRIKOV, G. A. - "Methods of organizing the trajectory of roots of linear systems and qualitative determination of type of trajectory"
TSYPKIN, Ya. Z. - "Elements of the theory of digital automatic systems"
VENCHKOVSKIY, D. B., KASHIRIN, V. A., CHUGIN, Yu. I., and SHASTOVA, G. A. - "Static stability of telemeasurement"
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