"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6

X

TUMANYAN, V.G.

Taxonomic significance of the antagonistic properties of actinomycetes[in Armenian with summary in Russian]. Izv.AN Arm.SSR.Biol. i sel'khoz.nauki 10 no.2:25-34 F '57. (MLRA 10:4)

(Armenia--Actinomyces) (Soil micro-organisms) (Antibiotics)

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6

TUMANYAN, V. I., Engineer

"Hydraulics of Siphon Spillways." Sub 25 Feb 47, All-Union Sci Res Inst of Hydraulic Engineering and Soil Improvement imeni V. R. Vil'yams

Dissertations presented for degrees in science and engineering in Moscow in 1947.

SO: Sum. No. 457, 18 Apr 55

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6

TUMANYAN, V. I., Eng. Cand. Tech. Sci.

Dissertation: "Hydraulics of Siphon Spillways." All-Union Sci Res Inst of Hydraulic Engineering and Soil Improvement, 25 Feb 47.

SO: Vechernyaya Moskva, Feb, 1947 (Project #17836)

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6

TUMANYAN, Ye.G.

Device for catching pink bollworms used at cotton ginning plants of the Armenian S.S.R. Zashch. rast. ot vred. i bol. 3 no.4:43-44 Jl-Ag '58. (MIRA 11:9)

1. Nachal'nik Gosinspektsii po karantinu rasteniy.
(Bollwarm) (Cotton--Diseases and pests)

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6

ARUTYUNYAN, V.S.; TUMANYAN, Ye.G.

At the demonstration machine-tractor station of Armenia. Zashch. rast. ot vred. i bol. 2 no.6:26-28 N-D '57. (MIRA 16:1)

1. Glavnyy agronom Oktemberyanskoy oporno-pokazatel'noy mashinno-traktornoy stantsii (for Arutyunyan). 2. Nachal'nik Gosudarstvennoy inspektsii po karantinu rasteniy po Armyanskoy SSR (for Tumanyan).
(Oktemberyan District--Spraying and dusting in agriculture)

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6

TUMANYAN, Ye. G.

In Armenia. Zashch. rast. ot vred. i bol. 5 no.11:49-50 N '60. (MIRA 16:1)

1. Nachal'nik Armyanskoy karantinnoy inspektsii.

(Armenia—Plant quarantine)

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6

ZAKHAROVA, M.I.; TUMAN'YAN, Yu.A.

Precipitation of germanium in the breakdown of the al--Ge solid solution. Kristallografiia 9 no.4:498-500 Jl-Ag '64. (MIRA 17:11)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova.

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6

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"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6

ACCESSION NR: AP5020209

... with two types of oriented

ASSOCIATION: Kafedra fiziki kristallov, Moscow State University (44,55)
... of Physics of Crystals, Moscow State University

SUB CODE: SS

NO REF SOV: 003

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6

L 04291-67 EWT(m)/T/EWP(t)/ETI IJP(c) JH/JD

ACC NR: AP6018945 SOURCE CODE: UR/0126/66/021/006/0868/0872

38

AUTHORS: Zakharova, M. I.; Tuman'yan, Yu. A.

ORG: Moscow State University im. M. V. Lomonosov (Moskovskiy gosuniversitet)

B

TITLE: Decomposition of solid solution in Al-Ag-Ge and Al-Cu-Ge alloys

SOURCE: Fizika metallov i metallovedeniye, v. 21, no. 6, 1966, 868-872

TOPIC TAGS: thermal aging, aluminum base alloy, copper containing alloy, germanium containing alloy, silver containing alloy, solid solution decomposition

ABSTRACT: The effect of germanium upon the aging of Al-Ag and Al-Cu alloys has been investigated. Methods employed in the study were x-ray analysis of the rigid monocrystals, oscillation and rotation, and changes in hardness. The alloys were prepared of Al (99.996%), Cu (99.9%), Ag (99.9%), and Ge (99.99%) and had the following compositions: 1) Al--10% (by weight); Ag--2% Ge; 2) Al--4% Cu--0.4% Ge; 3) Al--3% Cu--1%Ge. Decomposition of the solid solution was observed after aging at 20, 100, 130, and 218C. It was established that introduction of 2% (by weight) of Ge in Al--10% Ag alloy almost entirely suppressed formation of Gin'ye-Preston zones during natural aging. Addition of Ge to Al-Cu alloys also has a retarding effect upon the formation of these zones and accelerates the separation of θ-phase at 130 and 218C. Orig. art. has: 4 figures.

SUB CODE: 11/ SUBM DATE: 08Jun65/ ORIG REF: 002/ OTH REF: 003

UDC: 548.53:546.3-19'621

Card 1/1

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6

ZAKHAROVA, M.I.; TUMAN'YAN, Yu.A.

Calculating two-dimensional plate-type formations in the crystalline structure. Kristallografiia 10 no.2:181-186 Mr-Ap '65. (MIRA 18:7)

1. Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova.

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6

TUMAYAN, S. A. Cand. Tech. Sci.

Dissertation: "Aggregation of the Processes of Cocoon-Winding and Twisting." Moscow Textile Inst, 1[illegible] Dec 47.

SO: Vechernyaya Moskva, Dec, 1 947 (Project #17836)

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6

TUMAYAN, S.A., kandidat tekhnicheskikh nauk.

Standard as a weapon in the struggle for high quality. Tekst. prom. 14 no.6:21-24 Je '54. (MLRA 7:7)
(Silk manufacture)

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6

L 4120-66 FSS-2/EWT(1), T/EEL(b)-3/EWA(c) IJP(c) GW

ACC NR: AP5026466 SOURCE CODE: UR/0006/65/000/010/0051/0059

AUTHOR: Tumar, N. A.; Budylova, T. P.

ORG: none

TITLE: The Stereometrograph

12,44,55

SOURCE: Geodeziya i kartografiya, no. 10, 1965, 51-59

TOPIC TAGS: photogrammetry, photogrammetric instrument, automatic coordinatograph, stereometrograph

ABSTRACT: The national firm of "Karl Zeiss Jena" is now mass-producing the "Stereometrograph," a general purpose stereophotogrammetric instrument of first-order accuracy. The instrument is designed for compiling the relief and planimetric detail for topographic maps from 18 x 18-cm or 23 x 23-cm vertical aerial photographs with a focal length of 98—215 mm. The stereometrograph automatically registers the coordinates of model points, converts them into a geodetic coordinate system, calculates areas, and determines the corrections for elements of reciprocal orientation in the aerial photographs and for elements of exterior orientation in the stereomodel. The basic specifications of the instrument are listed, and its operation is described in detail using schematic diagrams. The viewing system of the stereometrograph has a magnification of 8.7x. In addition to the main instrument, which takes up an area of 210 x 150 cm, the device incorporates a coordinatograph which occupies

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L 4126-66

ACC NR: AP5026466

a space of 150 x 135 cm. The main instrument is 130 cm high and weighs about 1200 kg, while the coordinatograph is 95 cm high and weighs about 1200 kg. The coordinatograph has a drawing area of 800 x 800 mm. Tests show that the accuracy of the instrument is determined by the relative error in height measurement, which is 1:8000 at a focal length of 100 mm and 1:11,000 at f = 200 mm. When determining the altitudes of individual points from photographs controlled by four field control points, the average relative error in height measurement was close to 1:4000, and 1:3600 for planimetric position. One of the disadvantages of the instrument is the limited range of focal lengths for compiling aerial photographs. In addition, the instrument is not designed for constructing spatial photogrammetric nets. The new instrument is inferior to the SPR-2 stereoprojector which can be used to compile larger-scale maps from photographs of any focal length. Orig. art. has: 4 figures and 5 tables. [ER]

SUB CODE: ES/ SUBM DATE: none/ ORIG REF: 001/ OTH REF: 000/ ATD PRESS: 4127

Card 2/2

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6

KOZHAKHMETOV, S.M.; PENZIMONZH, I.I.; TSEFT, A.L.; TUMARBEKOV, Z.T.

Volatilization rate of lead sulfide in the atmosphere of various gases at 900° ÷ 1400°C. Vest. AN Kazakh SSR 21 no.4:64-70 Ap '65. (MIRA 18:5)

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6

9

Ca

Drawing stress in cast steel. A. S. Tumarev. *Sovet. Met.* 1932, 398-405; *Chem. Zentr.* 1933, I, 2918.—By annealing cold-drawn steels at 200-300° they were carried over to a state promoting displacement within the crystals. Between 525° and 900° the recrystn. velocity increases quickly; at 600-25° the drawing stress disappears. The drawn state is interpreted as a function of the velocity of deformation and of recrystn., simultaneous processes which oppose each other. Above the recrystn. temp. the metals are subject to greater plastic deformation. The recrystn. temp. changes with the compn. of the metal over a wide range; it is about 950° for a steel contg. 8% W. Dilatometric and hardness detns. were made.

Gerald M. Petty

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6

***Phenomena During Wire-Drawing of Copper-Zinc Alloys.** M. P. Slavitsky and A. S. Tumarev (*Trudi Nauchno-Issledovatelskogo Instituta Legkih Metallov "Nitsalumini"*). (*Trans. Sci. Res. Inst. Light Metals "Nitsalumini"*), **1933**, (5), 51-62).—[In Russian.] The power consumed in drawing 80 : 20, 67 : 33, and 60 : 40 brass wire has been measured by a specially designed dynamometer. The temperature of the wire emerging from the die depends mainly on the degree of reduction, but only slightly on the composition, and varies between 75°–150° C. with a reduction of 15-75% per pass. The electrical resistance and tensile strength depend only on the total reduction and not on the speed and degree of reduction per pass, since recrystallization, which removes work-hardening, is not sufficiently rapid at the temperatures indicated. On drawing at 100°, 200°, or 300° C., the temperature of the wire rises 55°, 65°, and 125° C., respectively, with a reduction of 20%. The mechanical properties of wire drawn at 100° C. differ little from those of cold-drawn wire. 80 : 20-brass has a tensile strength of 46, 40, and 35·8 kg./mm.^{2} when drawn at 100°, 200°, and 300° C., respectively; 67 : 33 and 60 : 40 brasses break when drawn at 200° C. The tensile strength of unstretched wires at 15°-600° C. has been determined. The wires show a reduction in area before fracture only up to 300° C. At 550° C. 60 : 40 brass is again capable of plastic deformation, but cannot be drawn on account of its low strength. The tensile strength of wire 3·14 mm. diam. of the above 3 brasses at 15° C. is 38·7, 39·5, and 43 kg./mm.^{2}; at 550° C. 16, 1, 16, and 3·6 kg./mm.^{2}, respectively.—D. N. S.

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6

PROCESSES AND PROPERTIES INDEX

"A Study of Methods of Production of Graphitized Metals and Alloys [Copper; Copper Alloys; Babbitt]. M. P. Slavinsky and A. S. Tumarev (*Metallurg* (*Metallurgist*), **1933**, (4-5), 70-91).—[In Russian.] Experiments on the production of graphitized copper and copper alloys by blowing coal-gas (methane, 48·2%) into the molten metal and by addition of aluminium carbide have given negative results. The best results have been obtained by pressing mixtures of powdered bronze (10 and 20% tin) and graphite into shape under a load of 3000 kg./cm.², and sintering at 850°–950° C. (10% tin-bronze) or at 800°–900° C. (20% tin-bronze). The Brinell hardness decreases from 65 to 6 with increasing graphite content. The resistance to compression is between 3·7 and 24·2 kg./mm.², according to the graphite content. Similar tests have also been carried out with copper, Babbitt metal, "aluminium-bronze," and brass.—N. A.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

BC

B-1-10

Effect of sulphates on ordinary and puzzuolanic Portland cements. A. A. BAIKOV and A. S. TUMAREV (Puzzuolanic Cements, U.S.S.R., 1936, 11—18).—Experiments are described to compare the influence of solutions containing Na_2SO_4 and $CaSO_4$ on four Portland cements of varying CaO content, one slag cement, and two puzzuolanic cements, containing Karadag trass and Briansk diatomite. Specimens for tensile strength tests were prepared both of neat cements and of 1 : 3 mortars, and the strengths at 28 days were determined. The broken test-pieces were then immersed in Na_2SO_4 solutions (10, 1, and 0·1%) and in $CaSO_4$ solutions (0·8, 0·1, and 0·05%) for periods up to 4 years. The resistance of the puzzuolanic cements was > that of the others; that of neat cements was > that of mortars; disintegration caused by Na_2SO_4 was > that caused by $CaSO_4$, and that caused by the higher concns. were > that by the lower concns. There was no relation between strength and resistance to chemical attack. T. W. P.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6

Tumarev, A. S.

LIUBAN, A.P., professor, dokter tekhnicheskikh nauk; TUMAREV, A.S., dotsent.

On O.A.Esin and P.V.Gel'd's article."Dissociation of oxides in the reduction process." Stal' 7 no.2:163-166 '47. (MLRA 9:1)

1.Leningradskiy politekhnicheskiy institut.
(Reduction, Chemical) (Chemistry, Metallurgical) (Esin, O.A.)
(Gel'd, P.V.)

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6

TUMAREV, A. S.

Tumarev, A. S. -"The importance of A. A. Baykov in the development of the Russian theoretical metallurgy," (An abbreviated shorthand report on the joint session of the Council of the metallurgical faculty of the Leningrad-Kalinin Polytechnical Institute and the Leningrad branch of the NITO metallurgists, May 15, 1946), Sbornik nauch.-tekhn. rabot (Vsesoyuz. nauch. inzh. -tekhn. o-vo metallurgov, Leningr. otd-niye), Issue 1,1949, p. 5-9

SO: U-5240, 17, Dec. 53, (Letopis 'Zhurnal 'nykh Statey, No. 25, 1949).

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6

TUMAREV, A. S.

Tumarev, A. S. - "On the interaction of solid phases in the process of reduction of elements," Sbornik nauch.-tekhn. rabot (Vsesoyuz. nauch. inzh.-tekhn. o-vo metallurgov, Leningr. otd-niye), Issue 1, 1949, p. 40-54, - Bibliog: p. 53-54

SO: U-5240, 17, Dec. 53, (Letopis 'Zhurnal 'nykh Statey, No. 25, 1949).

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6

TUMAREV, A.S.; PANYUSHIN, L.A.; GUTS, A.V.

Heat resistance of chromium-aluminum alloys. Izv. vys. ucheb. zav.; chern. met. 7 no.9:143-147 '64. (MIRA 17:6)

1. Leningradskiy politekhnicheskiy institut.

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6

TUMAREV, Aleksey Semenovich; RIKMAN, V.V., redaktor; GORDON, L.M., redaktor; ATTOPOVICH, M.K., tekhnicheskiy redaktor

[Aleksandr Aleksandrovich Baikov, eminent metallurgist and chemist] Aleksandr Aleksandrovich Baikov - vydaiushchiisia metallurg i khimik. Moskva, Gos. nauchno-tekhn. izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1954. 88 p. (MLRA 8:1)
(Baikov, Aleksandr Aleksandrovich, 1870-1946)

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6

GRANSKIY, Viktor Isidorovich; KOMAROV, V.B., prof., doktor tekhn.nauk, retsenzent; POZIN, M.Ye., prof., doktor khim.nauk, retsenzent; TUMAREV, A.S., prof., doktor tekhn.nauk, retsenzent; KARPOV, V.G., dotsent, kand.tekhn.nauk, retsenzent; BLYUMBERG, V.A., kand.tekhn.nauk, retsenzent; BESPALOV, I.V., inzh., retsenzent; RIVLIN, L.B., inzh., retsenzent; ANSEROV, M.A., kand.tekhn.nauk, obshchiy red.; VOLOSHIN, D.A., red.; TOLOCHINSKAYA, B.M., bibliogr.red.

[Guide to technical reference books] Putevoditel' po tekhnicheskim spravochnikam. Pod obshchei red. M.A.Anserova. Leningrad, Gos. publichnaia biblioteka im. M.E.Saltykova-Shchedrina, 1958. 334 p. (MIRA 12:8)

(Bibliography--Technology)

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6

Sov/133/58-9-1/29

AUTHORS: Tumarev, A. S. (Dr.Technical Sciences), Panyushin, L.A.

TITLE: Reduction of Iron Oxides in a Layer at a High Pressure of the Gaseous Phase (Vosstanovleniye okislov zheleza v sloye pri vysokom davlenii gazovoy fazy)

PERIODICAL: Stal', 1958, Nr 9, pp 769-776 (USSR)

ABSTRACT: The influence of pressure of the gaseous reducing medium on the kinetics of reduction of iron oxides were investigated under laboratory conditions. A chemically pure and finely powdered ferric oxide preignited to 1000°C was used as a material for the reduction and carbon monoxide prepared by the decomposition of iron carbonyl as a reducing medium. A 5 g sample of ferric oxide mixed with an equal amount of magnesia was taken for each experiment. The apparatus used is described in some detail (Fig.1). The reduction experiments were carried out at a temperature of 340°C and pressures of 1.2, 7 and 15 atm abs. The reaction rates were determined on the basis of CO_2 content in the outgoing gas (recorded) and analysis of the treated samples. The experimental results are shown in the form of kinetic curves - Figs.2-5. The dependence of the velocity of reduction of ferric oxide on the throughput of reducing gas at various pressures - Fig.6 and that of magnetite - Fig.7; the

Card 1/3

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"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6

Sov/133/58-9-1/29

Reduction of Iron Oxides in a Layer at a High Pressure of the Gaseous Phase

dependence of the velocity of reduction of ferric oxide on the pressure of gaseous phase - Fig.8 and that of magnetite - Fig.9; the dependence of the rate of decomposition of CO (carbon deposition reaction) on the pressure of gaseous phase - Fig.10, and that on the throughput - Fig.11. It is concluded that: 1) In the kinetic region of the reduction process an increase in pressure increases the rate of reduction of iron oxides. 2) The influence of pressure on the rate of the heterogeneous reduction process increases with increasing velocity of the gas stream, i.e., the more is the process shifted into the kinetic region. 3) The influence of pressure on the velocity of reduction is more pronounced for magnetite than for ferric oxide. Generally the influence of pressure increases with increasing difficulty with which an oxide can be reduced. 4) The influence of pressure increases with increasing degree of reduction of an oxide. 5) With increasing pressure in a blast furnace the velocity of reduction of iron oxides in the region of low and moderate

Card 2/3

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"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6

Sov/133/58-9-1/29

Reduction of Iron Oxides in a Layer at a High Pressure of the Gaseous Phase

temperatures should increase, i.e. the velocity and the degree of indirect reduction. 6) The experimental data confirm the correctness of the theoretical analysis of the influence of pressure on the velocity of heterogeneous process of reduction of oxides (Ref.3). 7) With increasing pressure the velocity of carbon deposition reaction increases. With increasing rate of flow of the reducing gas the above influence decreases There are 11 figures and 3 Soviet references.

ASSOCIATION: Institut metallurgii AN SSSR (Institute of Metallurgy of the Academy of Sciences of the USSR)

Card 3/3

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6

TUMAREV, A.S.; PANYUSHIN, L.A.

Reduction of copper oxide film at high pressures of the gaseous phase. Zhur. prikl. khim. 31 no.9:1304-1310 S '58. (MIRA 11:10)

1. Laboratoriya vysokochastotnoy elektrotermii instituta metallurgii AN SSSR imeni A.A. Baykova.
(Copper oxides) (Reduction, Chemical)

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6"

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APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6

TUMAREV, A.S.; PANTELEEV, L.A.; PUSHKAREV, V.A.

Kinetics of the reduction of nickel oxide. Izv.vys.ucheb. zav.; tsvet.met. 8 no.2:39-44 '65.

(MIRA 1941)

1. Kafedra obshchey metallurgii Leningradskogo politekhnicheskogo instituta. Submitted November 20, 1963.

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6

L 13012-66 EWT(m)/EPF(n)-2/EWP(t)/EWP(b)/EWA(h) IJP(c) JD/WW/JG/WB

ACC NR: AT6000932 SOURCE CODE: UR/2563/65/000/251/0076/0081

AUTHOR: Guts, A. V.; Tumarev, A. S.

ORG: Leningrad Polytechnic Institute im. M. I. Kalinin (Leningradskiy politekhnicheskiy institut)

TITLE: High temperature resistance of chromium alloyed with zirconium

SOURCE: Leningrad. Politekhnicheskiy institut. Trudy. no. 251, 1965. Metallovedeniye (Metal science), 76-81

TOPIC TAGS: zirconium containing alloy, heat resistant alloy, chromium ~~containing~~ alloy, heat resistance

ABSTRACT: The range of zirconium additions studied was 0.2 to 24 wt %. Samples were oxidized in oxygen atmospheres at 1100 and 1200°C. Oxidation rate was determined by semicontinuous weighing and weight gain over an 8-hr period was used to plot kinetic curves. The alloys were made from high purity zirconium (by the iodide method) and from electrolytic chromium melted together in a vacuum chamber without a crucible by the method of A. A. Fogel'. Chemical analysis gave the zirconium content while phase compositions were determined by the x-ray powder method using Debye cameras and chromium radiation. Kinetic data showed that oxi-

Card 1/2

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L 13012-66

ACC NR: AT6000932

dation of alloys with zirconium content below 5% followed a parabolic law, while above 15%, a linear law obtained. The scale composition (Zr %) also differed significantly as a function of base zirconium content (i. e. below 5%), the scale content (Zr %) was below 1.5% while above 5% the scale content rose sharply: 9.6% at a 15% base zirconium content and 17.5% at a 24% base zirconium content. Significant differences in oxidation behavior were noted at 1100 and 1200°C, the weight gain being larger for the 1200°C oxidation. It was concluded that low zirconium additions (less than 5%) should not affect the high temperature resistance of chromium significantly since chromium oxide forms and the diffusion processes in the oxide layer take place at velocities comparable to those in oxide layers found in pure chromium. Orig. art. has: 5 figures, 1 table.

SUB CODE: 11/ SUBM DATE: 00/ ORIG REF: 000/ OTH REF: 005

jrn

Card 2/2

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L 13013-65 EWT(m)/EWP(t)/EWP(z)/EWP(b)/EWA(h) IJP(c) JD/HW/JB/MJW(CL)
ACC NR: AT6000931 SOURCE CODE: UR/2563/65/000/251/0070/0075

52
B+1

AUTHOR: Guts, A. V.; Tumarev, A. S.

ORG: Leningrad Polytechnic Institute im. Kalinin (Leningradskiy politekhnicheskiy institut)

TITLE: Kinetics and oxidation mechanism in binary nickel-titanium alloys

SOURCE: Leningrad. Politekhnicheskiy institut. Trudy. no. 251, 1965. Metallovedeniye (Metal science), 70-75

TOPIC TAGS: nickel ~~containing~~ alloy, titanium ~~containing~~ alloy, high temperature oxidation, oxidation kinetics, X ray analysis

ABSTRACT: A series of nickel-titanium alloys containing from 0.53 to 16.7% Ti were studied to clarify the high temperature behavior of this system. A survey of earlier work revealed discrepancies in the oxidation behavior of Ni-Ti, probably due to the presence of other elements. In this study the base materials were of high purity (99.85% Ni and 99.25% Ti). Kinetic data were obtained by noting weight gain during oxidation. Oxidation temperatures of 1000°C, 1100°C and 1200°C were used. Kinetic data confirmed that parabolic oxidation obtained for alloys containing up to 8% Ti. For greater quantities of Ti, linear be-

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L 13013-66

ACC NR: AT6000931

havior was observed. The dependence of high temperature stability (resistance to oxidation) was given as a function of Ti content for each of the temperatures studied. Oxidation was most pronounced at 1200°C while at 1000°C it was slight. Macroscopic form of the oxides also varied with Ti content. The layer on alloys with Ti below 8% was dark green and had a fairly strong cohesion with the metal; with increased Ti content, the surface layer spalled easily, disclosing a yellow sublayer. Micrographs were taken of the samples containing 2.2, 7.0 and 16.7% Ti and of pure nickel. It was readily observed that the increased Ti content resulted in increased thickness of the oxide layer. The thickness of the layer was given as a function of the Ti content; the thickness varied from 0.032 mm in the pure Ni to 0.120 mm in Ni-16.7% Ti. X-ray analysis of the oxide layers showed that in pure nickel and nickel alloyed up to 3.65% with Ti, the only x-ray lines present were those of NiO. However, for alloys with 7 and 8% Ti, TiO_2 lines appeared together with those of NiO--the lattice parameter of TiO_2 was: a = 4.560 Å and c = 2.983 Å. The oxide layer of alloys with 11.4% Ti gave very intense TiO_2 lines and NiO lines of decreased intensity. Finally, for the 16.7% Ti alloy, no lines other than those of rutile appeared for the oxide. The Ti and the TiO contents were given as functions of %Ti for the base alloy; both increased with increase in base Ti content, however, the Ti content of the oxide layer was always lower.

Card 2/3

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L 13013-65

ACC NR: AT6000931

e. g., at 16.7% base Ti the %Ti in the oxide was about 60%, while %TiO was about 98%. Since diffusion takes place much more rapidly in TiO_2 the oxidation proceeded more rapidly at the higher Ti levels. The diffusion factors were found to be most important in this system in limiting or increasing the rate of oxidation at high temperatures. Orig. art. has: 5 figures, 1 table.

SUB CODE: 11,07/ SUBM DATE: 00/ ORIG REF: 007/ OTH REF: 002

jrn

Card 3/3

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6

L 04292-67 EWT(m)/EWP(t)/ETI IJP(c) JD/HW

ACC NR: AP6018941 SOURCE CODE: UR/0126/66/021/006/0843/0847

AUTHORS: Guts, A. V.; Tumarev, A. S.

ORG: Leningrad Polytechnic Institute im. M. I. Kalinin (Leningradskiy politekhnicheskiy institut)

67

B

TITLE: Oxidation kinetics and mechanism of binary nickel-cobalt alloys

SOURCE: Fizika metallov i metallovedeniye, v. 21, no. 6, 1966, 843-847

TOPIC TAGS: cobalt alloy, nickel alloy, thermal stability, oxidation kinetics, high temperature alloy

ABSTRACT: A quantitative study of the thermal stability of binary nickel-cobalt alloys has been conducted, and data relating the variations in thermal stability to the variations in the alloy compositions were collected by chemical, microphotographic, and x-ray studies. Twenty specimens of alloys of differing composition were oxidized at 1100 and 1200C by subjecting them to an atmosphere of dry oxygen for 8 hours. The kinetic curves for the investigated alloys are illustrated in Fig. 1. This study shows that oxidation of Ni, Co, and their alloys follows a parabolic law of oxidation, indicating that, during the oxidation process of this type of alloy, the determining forces are diffusion processes taking place in the oxide layer. It was also found that the thermal stability of the alloys is a function of the structure of the formed oxide which changes greatly with varying chemical composition of the

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ACC NR: AP6018941

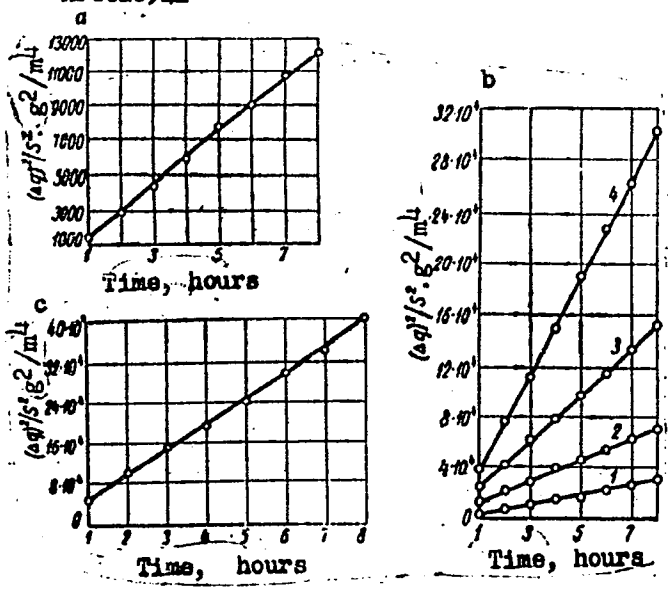

Fig. 1. Kinetic curves for the oxidation of cobalt alloys at 1200C. Co content: a - 0 to 17%; b - 1 - 26.2; 2 - 37; 3 - 46; 4 - 55.3%; c - 62 to 100%.

alloy. Orig. art. has: 1 table and 1 figure.

SUB CODE: 11/ SUBM DATE: 28Jun65/ ORIG REF: 004/ OTH REF: 009

Card 2/2

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6

TUMAREV, A.S.; FILINA, L.N.

Kinetics of tin monosulfide sublimation. Izv. vys. ucheb. zav.; tsvet. met. 8 no.3:82-85 '65. (MIRA 18:9)

1. Leningradskiy politekhnicheskiy institut, kafedra obshchey metallurgii.

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"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6

S/148/63/000/003/001/007
E193/E135

AUTHORS: Tumarev A.S., Panyushin L.A., and Guts A.V.

TITLE: The mechanism of oxidation of nickel-chromium alloys

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Chernaya metallurgiya, no.3, 1963, 26-33

TEXT: The object of the present investigation was to obtain quantitative data on the oxidation resistance of binary nickel-chromium alloys as a function of their chromium content. The effect of both small and large additions of each constituent was studied by chemical, X-ray diffraction and metallographic analyses. In order to shorten the duration of the experiments, the oxidation tests were conducted in dry, CO_2-free oxygen at 1100 and 1200 °C. Each test piece was oxidized for 8 hours, the oxidation rate being determined by semi-continuous gravimetric measurements. Levitation melting was used in the preparation of the experimental materials to ensure a high degree of their purity. A thin, narrow band of platinum was electrodeposited on every cylindrical test piece (5 mm diameter, 25 mm long) to serve as a marker. The results of the tests at 1200 °C are reproduced in

Card 1/4

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Fig.1, where the relative weight increment (g/m^2) is plotted against the oxidation time (h), the number ascribed to each curve denoting the chromium content in the alloy. Integrated results of the gravimetric measurements, chemical analysis, and X-ray diffraction examination of specimens oxidized for 8 hours at 1200 °C are reproduced in Fig.5, where the total relative weight increment (g/m^2, left-hand scale, curve 1), the nickel content in the oxide scale (%, right-hand scale, curve 2), and the constitution of the scale (top of the diagram) are plotted against the chromium content of the alloy. Conclusions. Small (up to 5.5%) chromium additions lower the oxidation resistance of nickel which reaches the highest level in alloys containing 15 - 50% chromium. As the chromium content in the alloy increases, the constitution of the scale formed at 1200 °C changes in the following manner: NiO; $NiCr_2O_4$ + NiO; $NiCr_2O_4$ + + α-Cr_2O_3; α-Cr_2O_3. The concentration-dependence of the oxidation resistance of nickel-chromium alloys can be explained as follows. At low (up to 5.5%) chromium concentrations, the chromium oxide dissolves in NiO and increases the number of the

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vacant cationic sites in the NiO lattice; this facilitates diffusion of metal ions through the oxide scale and, consequently, increases the oxidation rate. When the chromium content is increased, a stage is reached at which more chromium oxide is formed than can be dissolved in NiO; as a result of a reaction between these two oxides a new compound (spinel) is formed. The scale consists now of two phases: spinel + NiO, since the rate at which ions can exchange sites in the spinel lattice is very slow, the rate of oxidation sharply decreases and remains at its lowest level as long as spinel is a constituent of the oxide scale. The oxidation resistance of the alloys is unaffected by the nature of the other constituents. In alloys containing more than 55% Cr, spinel is no longer formed and the scale consists of α-Cr_2O_3 alone; since diffusion in α-Cr_2O_3 is more rapid than in $NiCr_2O_4$, the oxidation resistance of the alloys decreases.
There are 5 figures and 1 table.

ASSOCIATION: Leningradskiy politekhnicheskiy institut
(Leningrad Polytechnical Institute)

SUBMITTED: February 10, 1962

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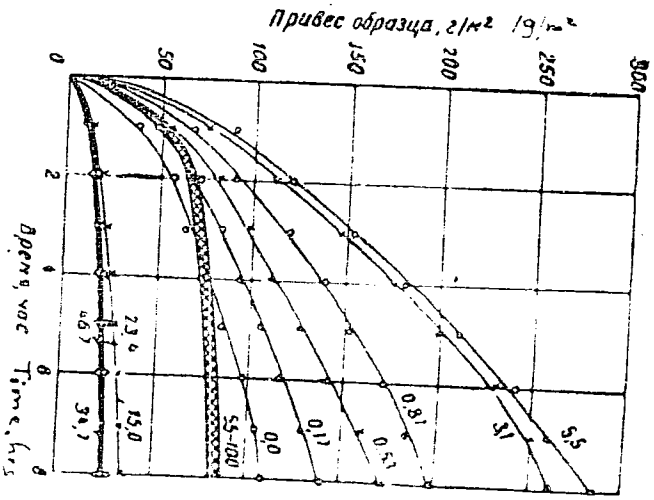

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Fig.1

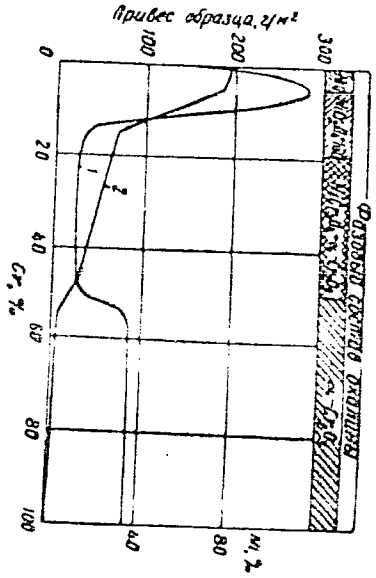

Fig.5

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TUMAREV, A.S.; URAZGIL'DEYEV, A.Kh.; PANYUSHIN, L.A.

Steel desulfuration by the injection of powder reagents. Izv. vys. ucheb. zav.; chern. met. 5 no.7:86-96 '62. (MIRA 15:8)

1. Leningradskiy politekhnicheskiy institut.
(Desulfuration)

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6

TUMAREV, A.S.; PANYUSHIN, L.A.

Interaction of chromium with iodine vapors. Zhur.prikl.khim. 35 no.5:1000-1008 My '62. (MIRA 15:5)
(Chromium) (Iodine)

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6

TUMAREV, A.S.

BAYKOV, Aleksandr Aleksandrovich, akademik; BARDIN, I.P., akademik, otvetstvennyy redaktor; DLUGACH, L.S., professor, vedushchiy redaktor; BAYKOVA, A.D., redaktor; LEBEDEV, V.P., redaktor; SOKOLOV, N.A., redaktor; SHUSHPANOV, L.I., kandidat tekhnicheskikh nauk, redaktor; PAVLOV, M.A., akademik, redaktor; GUDTSOV, N.T., akademik, redaktor; BRITSKE, E.V., akademik, redaktor; CHIZHEVSKIY, N.P., akademik, redaktor [deceased]; URAZOV, G.G., akademik, redaktor; VOL'FKOVICH, S.I., akademik, redaktor; KARNAUKHOV, M.M., chlen-korrespondent, redaktor; STARK, B.V., chlen-korrespondent, redaktor; KASHCHENKO, G.A., professor, redaktor; MONASTYRSKIY, D.N., professor, redaktor; PEVZNER, R.L., professor, redaktor; TUMAREV, A.S., professor, redaktor; SHCHAPOV, N.P., professor, redaktor; KIND, V.V. kandidat tekhnicheskikh nauk, redaktor; LUKASHEVICH-DUVANOVA, Yu.T., kandidat tekhnicheskikh nauk, redaktor; SMIRNOVA, A.V., tekhnicheskiy redaktor

[Collected works] Sobranie trudov. Moskva, Izd-vo Akademii nauk SSSR. Vol. 1. [Articles, addresses and speeches] Stat'i, vystupleniia i rechi. 1952. 344 p. (MLRA 8:2)

(Baikov, Aleksandr Aleksandrovich, 1870-1946)

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"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6

S/080/62/035/005/004/015
D204/D307

AUTHORS: Tumarev, A. S. and Panyushin, L. A.

TITLE: A study of the interaction of chromium with iodine vapor

PERIODICAL: Zhurnal prikladnoy khimii, v. 35, no. 5, 1962, 1000-1007

TEXT: The present work is the first stage of a program undertaken at the Laboratoriya Vysokochastotnoy elektrotermii Instituta metallurgii AN SSSR (High-Frequency Electrothermal Processes Laboratory of the Metallurgy Institute AS USSR), aimed at (1) determination of the thermodynamic and kinetic data necessary for increasing the efficiency of purification of Cr by decomposition of its iodides, and (2) investigation of the possibility of devising a new and more productive process. Iodine vapor at 10^{-3} - 10^{-4} mm Hg was passed through a vertical reactor packed with +0.42 - -0.85 mm particles of electrolytic Cr, at temperatures ranging from 150 to

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1100°C. The vapor was almost fully dissociated into atomic I. The iodides deposited on the walls of the reactor were analyzed and the Cr consumption was determined to assess the extent of reaction. Iodides of various compositions formed simultaneously but CrI_2 predominated between 500° and 1100°C, CrI_3 at 400°C and CrI_4 at lower temperatures. Times of contact >70 min between the reactants (20 g of each) had no influence on the amount of Cr consumed, but shorter interactions were considerably less efficient. Reaction rates were measurable at 150°C, reached a maximum at 750°C and decreased fairly rapidly above 750°C. The equilibrium constant $\left(= \frac{p_{CrI_2}}{p_I}\right)$ was calculated between 500 and 1200°C and was found to decrease with rising temperature. The degree of dissociation of CrI_2 simultaneously rose from 0.90% at 500°C to 96.06% at 1200°C. Activation energy of the iodination process between 150 and 750°C was 23.60 Kcal. 96 - 99% utilization of I is possible between 500 - 600°C by adjusting

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A study of the ... S/080/62/035/005/004/015
D204/D307

the height of Cr column and the rate of flow of the I vapor. There are 4 figures and 1 table.

SUBMITTED: March 25, 1961

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"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6

TUMAREV, A. S.; URAZGHILDEEV, A. H. [Urazgildeyev, A. Kh.]

Influence of manganese on the speed of desulfuration of the low-carbon iron. Analele metalurgie 15 no.4:35-44 O-D '61.

(Iron—Metallurgy) (Manganese) (Desulfuration)

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6

BAYKOV, Aleksandr Aleksandrovich [deceased]; TUMAREV, A.S., doktor tekhn.nauk; SHUSHPANOV, L.I., kand.tekhn.nauk; OZERETSKAYA, A.L., red.izd-va; KARASEV, A.I., tekhn.red.

[Selected works] Izbrannye trudy. Moskva, Gos.nauchno-tekhn. izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1961. 327 p. (MIRA 15:2)

(Metallurgy)

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6

TUMAREV, A.S.; URAZGIL'DEYEV, A.Kh.

Effect of manganese on the speed of desulfuration of low-carbon iron. Izv.vys.ucheb.zav.; chern.met. no.4:38-45 '61. (MIRA 14:4)

1. Leningradskiy politekhnicheskiy institut.
(Iron--Metallurgy) (Desulfuration)

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A006/A001

Translation from: Referativnyy zhurnal, Metallurgiya, 1960, No.12, p.236, # 29982

AUTHORS: Tumarev, A.S., Panyushin, L.A., Guts, A.V.

TITLE: Scale Resistance of Alloys of the Ternary Nickel-Aluminum-Titanium System

PERIODICAL: Nauchno-tekhn. inform. byul. Leningr. politekhn. in-t, 1959, No. 10, pp. 3 - 8

TEXT: The authors investigated the scale resistance of 70 alloys of the Ni-Al-Ti system whose Al and Ti concentration varied within 0 - 20%. Cast specimens, made of pure charge materials, were oxidized for 8 hours at 1,000, 1,100 and 1,200°C in dry O_2 atmosphere; the oxidation rate was determined by the method of periodic weighing without removal from the furnace. It was found that within the range of the compositions investigated, least scale resistance was shown by alloys with a high Ti content and 2-4% Al. Scale resistance increases with a higher Al

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A006/A001

Scale Resistance Alloys of the Ternary Nickel-Aluminum-Titanium System

content and lower Ti concentration. At high amounts of Al, even at higher Ti concentration, the alloys are more scale resistant than pure Ni.

G.T.

Translator's note: This is the full translation of the original Russian abstract.

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"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6

TUMAREV, A.S., prof.; PANYUSHIN, L.A., dots.

Effect of certain elements on the scale resistance of nickel. Izv.vys.ucheb.zav.; chern.met. 2 no.8:117-121 Ag '59. (MIRA 13:4)

1. Leningradskiy politekhnicheskiy institut.
(Nickel alloys--Corrosion)

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"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6

18.8000,18.3100

77144
SOV/148-59-9-14/22

AUTHORS: Tumarev, A. S. (Professor), Panyushin, L. A. (Docent)

TITLE: Oxidation Resistance of Nickel-Aluminum-Chromium Ternary Alloys

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Chernaya metallurgiya, 1959, Nr 9, pp 125-131 (USSR)

ABSTRACT: Each of the above elements affects oxidation resistance of alloys in a different way. Results of previous investigations on the subject are presented in the papers of O. Kubashevskiy, V. Gopkins (Oxidation of Metals and Alloys, Publishing House of Foreign Literature, 1955) and I. I. Kornilov (Iron Alloys, Vol 3, 1956). The authors investigate alloys which correspond to the nickel corner of the concentration triangle, with sides on which aluminum and chromium are plotted with the content of the latter up to 20%, i.e., within the range of widely used alloys. Specimens (5 mm diam, 25 mm long) from alloys being investigated were oxidized for 8 hr at temperatures ranging from 900 to 1,200° C in a dry oxygen

Card 1/9

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"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6

Oxidation Resistance of Nickel-Aluminum-Chromium Ternary Alloys 77144
SOV/148-59-9-14/22

atmosphere. Rates of oxidation were determined by weight increases of specimens registered every hour. The index of oxidation (g/m^2) was obtained by dividing the weight increase in grams by the surface area of the sample in m^2. About 50 nickel alloys with a maximum aluminum and chromium content of 20% each were tested. To begin with, 6 groups of alloys with the following chromium content: 0; 2; 4; 9; 12; and 16% were taken. An analysis of the graphs plotted during investigations revealed that the presence of up to 4% aluminum decreases the oxidation resistance of nickel, while 4-9% aluminum promotes such resistance considerably. Further increases in aluminum content have almost no effect on oxidation resistance of the alloy. However, the introduction of chromium changes the character of this dependence. With the presence of 2% chromium, small additions of aluminum fail to lower oxidation resistance of the alloy. In alloys with high chromium content, aluminum additions greatly promote oxidation resistance. An addition of 2% sharply improves

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oxidation resistance of an alloy with 12% chromium. However, further increases of aluminum are not effective. The influence of temperature is higher for less oxidation-resistant alloys. Fig. 4 shows that oxidation resistance of alloys at 1,200° C with varying chromium content is greatly changed by minor aluminum additions, but remains almost unaffected by major additions of aluminum. In a second series of tests, six groups of alloys with the following constant aluminum contents were investigated: 0; 2; 4; 6; 9; and 13% Al. The authors found the presence of maximum 5% chromium to increase the rates of nickel oxidation. Further additions of chromium drastically reduce the rates of oxidation. However, the effect of chromium is less conspicuous at higher oxidation temperatures. Introduction of aluminum changes the effect of chromium on oxidation resistance of the alloy. Fig. 8 illustrates the effect of aluminum at 1,200° C, i.e., the higher the aluminum content in

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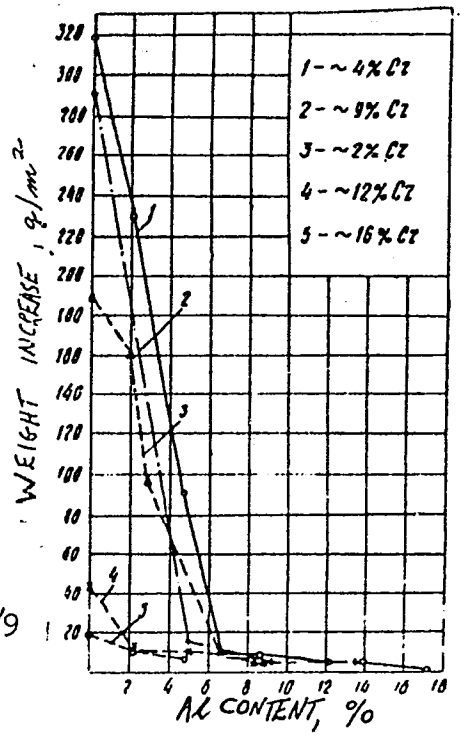

Fig. 4. Dependence of oxidation resistance of alloys of varying chromium content on aluminum content.

Card 4/9

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77144 SOV/148-59-9-14/22

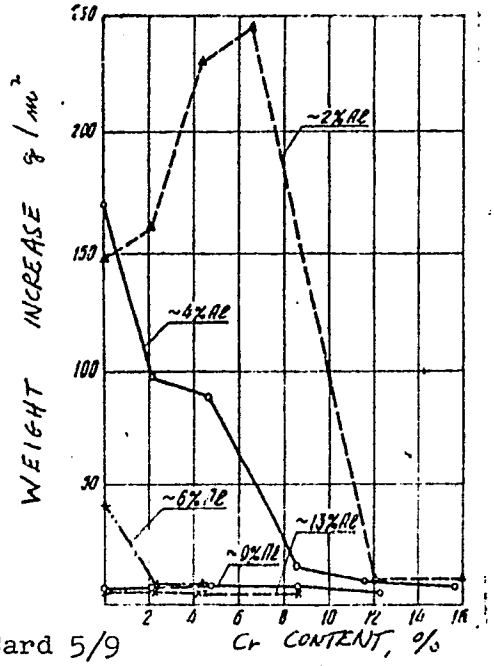

Fig. 8. Dependence of oxidation resistance of alloys with varying Al content on Cr content.

Card 5/9

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the alloy, the higher its resistance to oxidation; it also shows that for alloys with an aluminum content of $\geqslant 9\%$ additions of chromium do not change the oxidation resistance of the alloy. The influence of aluminum and chromium on heat resistance of ternary alloys Ni-Cl-Cr is most obvious from a three-dimensional diagram plotted as the result of 8-hr oxidation at 1,200° C (see Fig. 9). The same results are shown in a two-dimensional diagram in the form of lines of equal oxidation resistance for binary alloys. As a result of investigation, the authors conclude that binary Ni-Cr alloys (0-12% Cr) and ternary alloys adjoining them in the diagram have the lowest resistance to oxidation. Larger amounts of chromium result in higher oxidation resistance of the alloy as compared with pure nickel. Aluminum additions are even more effective. Figure 9 allows the determination of optimal aluminum and chromium concentrations and the Al-Cr ratios for achieving the required oxidation

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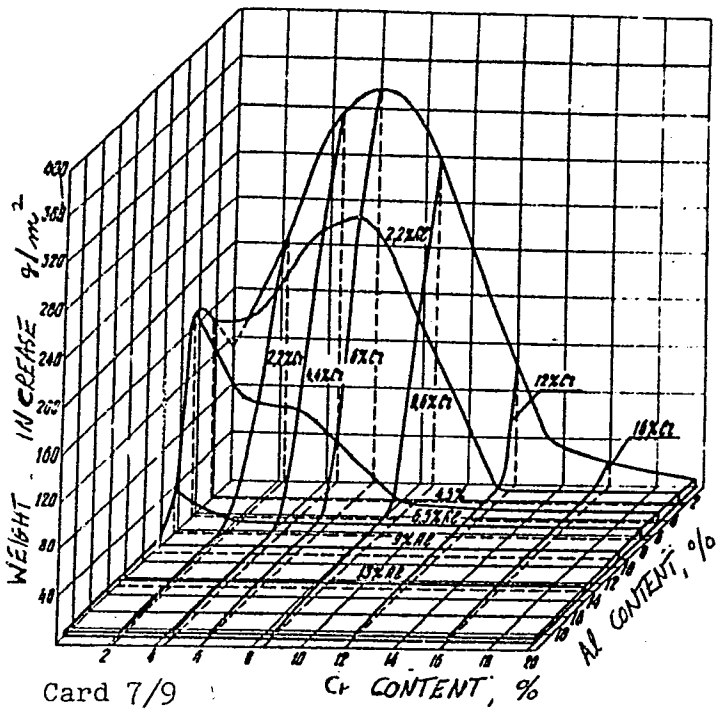

Fig. 9. Three-dimensional diagram of composition versus oxidation resistance for alloys of nickel with aluminum and chromium.

Card 7/9

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77144 SOV/148-59-9-14/22

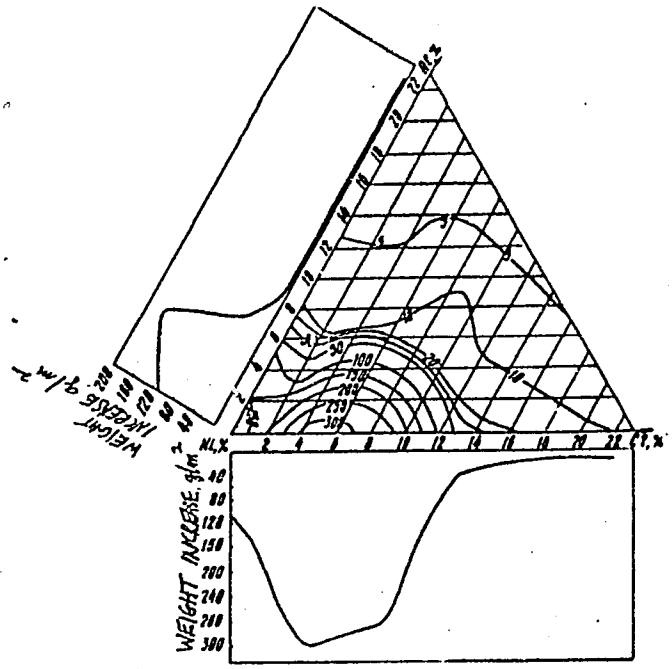

Fig. 10. Diagram of composition versus oxidation resistance for alloys of nickel with aluminum and chromium.

Card 8/9

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Oxidation Resistance of Nickel-Aluminum-Chromium Ternary Alloys 77144
SOV/148-59-9-14/22

resistance with a low concentration of these elements. There are 10 figures; and 2 Soviet references as given above.

ASSOCIATION: Leningrad Polytechnic Institute (Leningradskiy politekhnicheskiy institut)

SUBMITTED: June 1, 1959

Card 9/9

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TUMAREV, K.K.

Geology of the Gusinoye Lake Basin. Trudy Inst.nefti 7:24-29 '56. (MIRA 10:1)

(Gusinoye Lake Basin--Geology)

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6

SARKISYAN,S.G.; SOKOLOVA,N.N.; KLIMOVA,L.T.; TUMAREV,K.K.

Tertiary deposits of the Lake Baikal region and their formations.
Trudy Inst.nefti no.5:22-48 '55. (MLRA 8:12)
(Baikal region--Geology, Stratigraphic)

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"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6

ZHUZE, T. P.; YUSHKEVICH, G. N.; USHAKOVA, G. S.; TUMAREV, K. K.

Utilization of data on phase composition in the petroleum-gas system having high pressures for determining the origin of certain pools. Geol. nefti i gaza 7 no.4:12-17 Ap '63. (MIRA 16:4)

1. Institut geologii i razrabotki goryuchikh iskopayemykh AN SSSR.

(Petroleum geology)
(Gas, Natural--Geology)

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"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6

S/048/62/026/011/008/021
B125/B102

AUTHORS: Tyutikov, A. M., Kuzmina, M. F., and Tumareva, T. A.

TITLE: Some technical and operational characteristics of the "open" secondary-electron multiplier

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya, v. 26, no. 11, 1962, 1390 - 1391

TEXT: Practical experience gained with open (i.e. without glass balloon) secondary-electron multipliers is reported. Such multipliers have been developed and investigated in recent years at the laboratoriya A. A. Lebedeva (Laboratory A. A. Lebedev). They can be used, without previous calibration, to determine absolutely the number of interaction events in the radiation to be studied using the cathode substance, provided that, in this interaction, at least one electron is stripped. They are especially efficient for recording ultraviolet radiation, soft X-rays and low-energy charged particles. Cathode efficiency and amplification factor of these multipliers appear not to be affected by air when the multipliers are used in vacuum plants with a daily air entrance. The coefficient of secondary-electron emission is found to be most stable

Card 1/2

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against the action of air when activated beryllium bronze emitters are used. 16-channel multipliers of this type with trough-shaped dynodes have amplification factors from 10^8 to 10^9 with potential differences of 3000 to 4000 v applied to the divider. This amplification factor decreased to between 1/3 and 1/5 of the initial value when the multiplier was kept in either dry or damp air. The initial value can be regained by additional oxidation at 650°C. The initial instability of amplification decreases when the output amperage is reduced, when the multiplier ages, and when the thickness of the emitting layer of the last dynodes decreases. The operating time of these multipliers is limited by a decrease of the amplification factor to ~1% of its initial value. At 10^{-5} mm Hg and with a current output of 1 μa this time extends over 3 - 6 months. The efficiency with which the radiation to be studied can be recorded depends only on the cathode efficiency. The reduction of the amplification factor owing to the ageing of the multiplier and to the fluctuations of the potential difference at the voltage divider is accompanied by a reduction of the deviations of the pulse amplitudes with relatively small changes of the minimum values.

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"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6

TYUTIKOV, A.M.; KUZ'MINA, M.F.; TUMAREVA, T.A.

Some technological and operational characteristics of secondary-electron multipliers of the open type. Izv.AN SSSR. Ser.fiz. 26 no.11:1390-1391 N '62. (MIRA 15:12)
(Photoelectric multipliers)

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6

TUMARINSON, Kh. S.

"Serological Study of Geographical Populations of Wheat Bunt in the U.S.S.R.," Itogi Nauchno-Issledovatel'skikh Rabot Vsesoiuznogo Instituta Zashchity Rastenii za 1936 Goda, part 1, 1937, pp. 113-114, 423.92 L54I

So: Sira Sl-90-53, 15 Dec. 1953

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6

TUMARINSON, Kh. S.

On the Physiological Basis of Scales for Estimating the Injuriousness of Rust, Trudy po Zashchite Rastenii, Seriia 2, no. 6, 1934, pp. 35-56.
423.92 L54P

SO - SIRA SI 90-53, 15 December 1953

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6

TUMARINSON, N.S., inzh.

Assembly-line construction of large-panel houses for railroad workers. Transp. stroi. 9 no.11:27-30 N '59 (MIRA 13:3)
(Precast concrete construction)
(Railroads--Buildings and structures)

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6

KIROV, S.A., kand.tekhn.nauk; LISTOV, A.M., kand.tekhn.nauk; KOPYSHTA, I.L., inzh.; DROZDOV, V.A., kand.tekhn.nauk; TITORENKO, N.Ye., kand.tekhn.nauk; BUTOR, A.I., inz.; Prinimali uchastiye: ALEKSEYEV, A.P., kand.tekhn.nauk; MALYSHEV, Ye.G., kand.tekhn. nauk; GAGARIN, Yu.A., inzh.; TITOV, S.A., inzh.; TUMARINSON, N.S. inzh.; KRUTIKOV, V.I., inzh., red.; MEDVEDEVA, M.A., tekhn.red.

[Completely precast buildings with few stories] Polnosbornye maloetazhnye zdaniia. Moskva, Vses. izdatel'sko-poligr. ob"edinenie M-va putei soobshcheniia, 1962. 87 p. (Vsesoiuznyi nauchno-issledov. institut transportnogo stroitel'stva. Trudy no.44). (MIRA 15:8)
(Railroads—Buildings and structures)
(Precast concrete construction)

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6

KRUPEN', A.I., kand.tekhn.nauk; ARTEM'YEV, V.I., inzh.; TUMARINSON, N.S., inzh.

Laying and ballasting track on the Karaganda - Karagayly line. Transp. stroi. 12 no.12:10-13 D '62. (MIRA 16:1)
(Railroads--Track)

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6

TUMARINSON, N.S.; YEKIMCHEV, D.M.

Assembling prefabricated units for large-panel apartment houses. Transp. stroi. 13 no.6:41-43 Je '63. (MIRA 16:9)

1. Nachal'nik tekhnicheskogo otdela Glavnogo upravleniya zheleznodorozhnogo stroitel'stva Kazakhstana i Sredney Azii (for Tumarinson). 2. Glavnyy inzh. tresta TSelintransstroy (for Yekimchev).

(Apartment houses)

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"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6

TUMARINSON, N.S.

Industrialization of the construction of railroad buildings and structures. Trudy MIEI no.15:288-296 '61. (MIRA 14:12)

1. Zamestitel' nachal'nika proizvodstvenno-tekhnicheskogo otdeleniya Glavzheldorstroya Kazakhstana i Sredney Azii Mintransstroya SSSR.
(Railroads--Buildings and structures)

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"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6

TUMARINSON, N.S., inzh.

Traveling housing construction concerns. Transp.stroi. 11 no.4: 30-32 Ap '61. (MIRA 14:5)

(Railroads--Buildings and structures)
(Reinforced concrete construction)

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"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6

TUMARKIN, B.M.

Furuncles and hidradenitis developing against a background of other dermatoses. Vest.derm.i ven. 34 no.6:63-65 '60. (MIRA 13:12)

1. Iz Sverdlovskogo nauchno-issledovatel'skogo kozhno-venerologicheskogo instituta (dir. - kand.med.nauk A.V. Bakhireva) Ministerstva zdravookhraneniya RSFSR.
(SKIN--DISEASES) (FURUNCLE) (SWEAT GLANDS--DISEASES)

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B-2-5

Standard classification of purified cotton-wool according to viscosity. Technical method for preparation of collodion wools of various viscosity. D. Galperin and D. Tumarkin (J. Appl. Chem. Russ., 1933, 6, 860—866).—The η of solutions of cellulose nitrate (I) of a given N content depends on that of the original cotton-wool (II), on the temp. of nitration, and on the conditions of stabilisation. Standard conditions for purification and dissolution in Schweitzer's reagent of (II) are given. Preps. of (I) of low η are obtainable from any (II) by heating the (I) during 1 hr. at 150° with H_2O. R. T.

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1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

BC

B-II-5

Homogeneity of plant celluloses and their products. I. Cross-section elements and methods of their separation. II. Content of cross-structure elements in plant celluloses. A. ZAKOSCHTSCHIKOV and D. TUMARKIN (Izkusst. Volok., 1934, 5, 5—15; 1935, 6, 176—182).—I. The presence of cross-section elements in the cellulose material of untreated flax and ramie, mercerised cotton, pulps, microcellulose, etc. was shown by treating with 94—95% H_2SO_4. The solutions, diluted with ice-H_2O, filtered, and centrifuged, separated the chemically unchanged cross elements.

II. A method of determining these cross-section elements is based on treatment with H_2SO_4. Vals. were 0·1—0·5% in raw and 0·07—0·16% in refined cotton, 1·3% in unbleached and 0·07—0·09% in bleached spruce pulp. CH. ABS. (e)

COMMON ELEMENTS

OPEN

MATERIALS INDEX

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6

a

23

Comparative experiments on bleaching cotton cellulose with solutions of calcium and sodium hypochlorites. D. Halperin, G. Tumarkin and B. Kuzhovskii. *J. Applied Chem.* (U. S. S. R.) 6, 530-45(1933). $Ca(OCl)_2$ solns. are distinguished from those of NaOCl having the same original content of active Cl by a higher "activity," *i. e.*, higher bleaching and oxidizing powers, the difference being particularly noticeable when NaOCl solns. are used with an excess of alkali. The consumption of the active Cl is in the following decreasing order: $Ca(OCl)_2$ soln., "neutral" soln. of NaOCl and "alk." soln. of NaOCl. The difference in the bleaching power of the solns. is particularly noticeable for low concns., disappearing for the high ones. The destructive power of the solns. in bleaching is evident only for severe conditions such as a temp. of 30°. Since the effect of all the solns. is the same, preference should be given to the most economical. A. A. B.

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CA

23

Classification of purified cotton fiber according to its viscosity. Preparation of colloxylin of various viscosities. D. Halperin and D. Tumarkin. *J. Applied Chem.* (U. S. S. R.) 6, 850-68(1933).—A uniform method has been developed for the regulation of the viscosity of purified cotton cellulose based on modifications of the alkali treatment. It is not advisable to use bleaching for this purpose or to give a special treatment, *e. g.*, boiling in dil. H_2SO_4. A project is proposed for a standard classification for bleached cotton cellulose according to its viscosity. In this classification the brands are arranged in accordance with the alkali treatment they received, a treatment which will assure the attainment of the corresponding viscosity limits of the cuprammonia soln. of the purified cellulose. The basic factors which govern the viscosity of the nitrocellulose at a given N content are the viscosity (grade) of the original cotton cellulose and the nitration temp. A table is given showing the characteristic relation of the viscosity of the nitrate to that of the original cotton cellulose, the nitration temp. (30-40°) and the N content (11-11.8%). The viscosity depends also on the stabilizing conditions (duration of boiling) (data are tabulated). A rational technological process can be selected by studying the 3 factors, *i. e.*, viscosity of the original cotton cellulose, the nitration temp. and the stabilization; this permits prepn. of colloxylin of desired properties. For the prepn. of colloxylin with a viscosity below 1.4-1.5° Engler (below 7-10° by the American method) (a conversion table is given); special methods of treating the nitrocellulose during stabilization are recommended. The best methods were: (1) boiling in pure water under pressure; (2) boiling in dil. aq. solns. of NH_4OH; and (3) boiling in a high-boiling inert liquid ($C_6H_4(CH_3)_2$). The first 2 methods should be given preference. They permit the use of high-viscosity cotton cellulose for the original material. Boiling in water under pressure is of primary importance in the manuf. of "half second" colloxylin.

A. A. Boehtlingk

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1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

B-II-5

VI.—BLEACHING; DYEING; PRINTING; FINISHING.

Comparison of bleaching of cotton cellulose by means of aqueous calcium and sodium hypochlorite. D. Galperin, D. Tumarkin, and B. Kozlovski (J. Appl. Chem. Russ., 1933, 6, 536–546).—The oxidising and bleaching properties of solutions of equal active Cl content increase in the order alkaline NaOCl < neutral NaOCl < $CaOCl_2$; in the systems used industrially, however, the bleaching effect is practically identical in all cases. At 50° the destructive effect of $CaOCl_2$ on the fibres is > that of NaOCl, which is for this reason preferable for bleaching at temp. > the ordinary.

H. T.

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1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

BC

B-II-5

Production of celluloses of different viscosities. Activated bleaching. A. Zakoshchikov, D. Tumarkin, and T. [illegible] (Iskusst. Volok., 1934, 5, No. 4, 22—26).—The regulated reduction of η of linters cellulose by bleaching with NH_3 as an activator for the decomp. of $Ca(OCl)_2$ (I) has been studied. The optimum effect was obtained on introducing the alkali-steeped linters into a bleaching mixture containing active Cl and NH_3 (10 : 1). By bleaching for 1 hr. at 13—15° η was reduced with 0·2% active Cl to 175 or, with NH_3, to 43; other data are recorded. The activation is connected with NH_4Cl formation. The high decomp. velocity of (I) renders the industrial use of the process difficult. A uniform bleaching may, however, be obtained by mixing steeped linters with dil. aq. NH_3, pressing the material out, and introducing it into the bleaching liquor. A cellulose of consistently even η (8—10) was thus obtained.

Ch. Abs. (e)

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MATERIALS INDEX

AUTHOR INDEX

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"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757420018-6

PROCESSES AND PROPERTIES INDEX

New method of production of celluloses of different viscosities. Activated bleaching. A. Zakoshchikov, D. Tumarkin and Ts. Meshnikova. *Ishustvennoe Volokno* (*Artificial Fiber*) 5, No. 4, 22-8(1934); cf. Kauffmann, *C. A.* 19, 561; 23, 2298; 24, 5580; 27, 421; *Melliand Textilber.* 14, 138-9(1933).—A study was made of regulated reduction of viscosity of linters cellulose by bleaching with the aid of NH_3 as an activator of the decompn. of $Ca(ClO)_2$. Optimum activation and viscosity reduction were obtained by introducing alkali-steeped linters into a bleaching mixt. contg. active Cl_2 and NH_3 in proportion of 10:1. By bleaching 1 hr. at 13-15° the viscosity was reduced with 0.2% active Cl_2 without NH_3 to 178, and with NH_3 (Cl_2:NH_3 = 10:1) to 43, with 0.3% Cl_2, resp., to 149 and 12.7 and with 0.4% Cl_2 to 181 and 9.5. The degree of viscosity can also be regulated by working with a const. concn. of active Cl_2 and varied proportions of NH_3. Thus by bleaching steeped linters of viscosity 700 for 1 hr. at 13° with 0.3% of active Cl_2, the viscosity was reduced to 150 without NH_3, and with Cl_2-NH_3 in proportions of 50:1, 20:1, 10:1 and 2:1 to, resp., 90, 33, 12 and 300. Thus with the increasing proportion of NH_3, the activation of decompn. of hypochlorite increases and then at the ratio 2:1 is checked with the resulting cessation of bleaching and a viscosity of the material considerably higher than is obtained by bleaching without the activator. The activation is closely connected with the formation of NH_2Cl, which is consumed in the process of decompn. of hypochlorite. Steeped linters with viscosities of 3000, 2000, 1000, 700 and 31, when bleached under equal conditions with the aid of NH_3, produced celluloses of equal viscosities (7.9-11.9). The industrial use of the process is rendered difficult by the high velocity of decompn. of $Ca(ClO)_2$ (and bleaching) on addn. of NH_3 to the bleaching liquor. Thus by introducing linters immediately, 5, 15 and 30 min. after mixing, the resulting viscosities of the bleached cellulose were, resp., 23, 30, 50 and 97. The difficulty was overcome by mixing steeped linters with dil. aq. NH_3 (0.05-0.2%), pressing the material out and introducing it into the bleaching liquor. By this method the bleaching proceeds uniformly throughout the material, giving a cellulose of consistently even viscosity (8-10) and allowing a wider limit of the proportion of Cl_2 to NH_3 (5:1-10:1) for optimum results. While the viscosity of cellulose is lowered with the increased consumption of Cl_2, it is little affected by variations in temp. (up to 35°) of the NH_3-activated bleaching. While the NH_3 activation is possible only in alk. medium, the degree of alky. has no effect on lowering of viscosity. From the fact that bleaching progresses satisfactorily in 0.25% NaOH and ceases in 0.6-1% NaOH, while the viscosity is reduced to an equal degree (12-13-17), it follows that the reduction of viscosity on bleaching of cellulose and the bleaching are 2 different processes proceeding independently of each other.

Chas. Blanc

ASS-SLA METALLURGICAL LITERATURE CLASSIFICATION

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TUMARKIN, D.D

Papers submitted for the 10th Pacific Science Congress, Honolulu, Hawaii 21 Aug-6 Sep 1961.

SKOPINTSEV, B. A., Marine Hydrophysics Institute, Academy of Sciences USSR - "Investigation into mineralization of organic substances of dead plankton under anaerobic conditions" (Section VII.C.1)

SMETANIN, D. A., Institute of Oceanology - "Some regularities concerning the zonal distribution of chemical characteristics in the waters of the central part of the Pacific" (Section VII.C.1)

SOKOLOV, S. A., All-Union Scientific Research Institute of Marine Fishing and Oceanography - "Submarine 'Severyanka' - a new means for marine fishery investigations" (Section III.C.4)

SOKOLOVA, M. N., Institute of Oceanology - "The distribution of deep-sea biocoonosis in the Pacific in connection with food conditions" (Section III.C)

SOROKIN, Yu. N., Institute of Biology of Reservoirs, Academy of Sciences USSR - "The submarine illumination and the primary production of photosynthesis in the sea" (Section III.C.4)

STEGMAN, B. K., Institute of Biology of Reservoirs, Academy of Sciences USSR -"The problem of Beringian continental connection in the ornithogeographic elucidation" (Section III.A.8.a)

SYSOYEV, N. N., and SHIREY, V. A., Institute of Oceanology - "The measurement of deep oceanic currents with the application of anchor buoys (methods, apparatus, results)"(Section VII.B.5)

TAREYEV, B. A., and FOMICHEV, A. V., Institute of Oceanology - "Geostrophic currents in the Antarctic sector of the Pacific" (Section VII.D.1)

TIKHONOV, V. I., Institute of Geology - "New data on the tectonics of southern Kamchatka" (Section VII.C)

TUMARKIN, D. D., Institute of Ethnology - "The ethnologic study of the peoples of Oceania in the USSR" (Section II.B)

UDINTSEV, G. B., Institute of Oceanology - "Features of evolution in the bottom topography of the Pacific Ocean" (Section VII.C.1)

VAKHRAMEYEV, V. A., Institute of Geology - "Cretaceous floras of the Pacific coast in the USSR as a basis for the subdivision of continental deposits of this age" (Section VII.C)

VINOGRADOVA, N. G., Institute of Oceanology - "Geographical distribution of abyssal bottom fauna and the problem of vertical zonation" (Section III.C)

VITVITSKIY, G. N., Moscow State University, Geographical Faculty - "On the nature of the summer monsoon in east Asia" (Section VI.C)

VLASOV, G. M., Institute of Geology - "The island arches and the peripheric folded areas in the western belt of the Pacific belt" (Section VII.C)

YANOVSKAYA, T. B., and KEYLIS-BOROK, V. I., Institute of Earth Physics imeni O. Yu. Schmidt - "Some possibilities in interpretation of surface waves of the Pacific" (Section VII.C.2)

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YASENKO-KEMELEVSKIY, Andrey A., The Leningrad Forestry Engineering Academy imeni S. M. Korov - "Some problems involved with wood studies in southeast Asia" (Section III.A.7)

YEFREMOV, Yu. K., Asst. Director, Geographical Museum, Moscow State University - "The physico-geographical zonation of the Sakhalin and the Kuril Islands" (Section VI.D)

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1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

COMMON ELEMENTS

OPEN

MATERIALS INDEX

Effect of chemical separation of linter on the viscosity of the resulting cellulose and its nitrates. D. I. GALPERIN AND D. I. TUMARKIN. *J. Applied Chem.* (U. S. S. R.) 5, 34-02(1932).—Exptl. results presented in graphs and tables show that viscosity of linter in ammoniacal Cu solns. is the only important characteristic for all practical purposes. Other tests may become valuable only for very low grades of linter.
V. KALICHEVSKY

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1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3rd

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CA

29

Some simplifications in the procedure of determining the viscosity of cuprammonium solutions of fibers. D. I. Tumarkin. *J. Applied Chem.* (U. S. S. R.) 6, 326-32 (1933).—The customary method for the detn. of the viscosity of the cuprammonium soln. was modified. The preliminary drying was either discarded when air-dry samples were used or the samples were dried with alc. and ether and by heating for 30 min. at 96-100°. In the last case the wet fiber was pressed in a Büchner funnel and stirred in a porcelain dish with strong alc., the alc. was then removed, the operation repeated and the product treated finally a few times with ether. The operation can also be carried out with acetone. The substance was finally dried for 30 min. at 96-100°. In the viscosity detn. by dissolving the fiber in the Scheider soln. (Cu 1.3 ± 0.02%, NH_4OH 15 ± 0.2%, sugar 1%, the concn. of the fiber being 1%, *i. e.*, 1 g. in 100 cc. soln.), the soln. of the fiber was carried out in the app. and the metal ring used for agitation was replaced by Hg. The operation of the viscometer is described in detail. The exptl. results were quite satisfactory, a great saving in time being effected (only 3-7 hrs. was required for the entire operation).

A. A. Boehtlingk

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