"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

25901
S/114/61/000/008/005/005
E194/E155

16.2122

AUTHOR: Rozenberg, S.Sh., Engineer

TITLE: The influence of thermophoresis on the process of deposition of ash particles on cooled blades of gas turbines

PERIODICAL: Energomashinostroyeniye, 1961, No.8, pp 42-45

TEXT: One of many causes of deposition of ash particles and of their retention on a surface is the effect of thermophoresis forces. This effect consists in that suspended particles of aerosols in a temperature field move to the region of lower temperature. Neglecting heat radiation from the particles, the magnitude of thermophoresis forces acting on a spherical particle of aerosol in the absence of convection currents can be calculated from a formula given by N.A. Fuks (Ref.1: "Mechanics of Aerosols", Izd. AN SSSR, 1955):

$$F_t = -9\pi \frac{\lambda_a}{2\lambda_a + \lambda_i} \frac{\mu^2 r}{\rho T} \cdot \frac{dT}{dx} \qquad (1)$$

where: F_t is the force of thermophoresis; r is a particle

Card 1/7

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

radius, μ, ρ are the viscosity and density of the gas, T is the absolute gas temperature, λ_a, λ_i are the thermal conductivities of gas and particles; dT/dx is the temperature gradient in the gas along the x axis. Since the thermophoresis force is directly proportional to the temperature gradient, the thermophoresis effect is strongest in the boundary layer, where it can have a decisive influence on the motion of particles. In particular, a cooled turbine blade can attract particles from a flow of hot gas. For the purposes of theoretical examination, consider the motion of a particle in a laminar boundary layer near a plane wall, calculating thermophoresis by formula (1) above. Using as temperature the mean temperature of the boundary layer, the physical constants are assumed constant over the thickness of the boundary layer and a suitable distribution of temperature in the boundary layer is assumed. Appropriate assumptions are made about the component of the velocity along the x axis, c_x, and for the velocity distribution in a direction perpendicular to the wall, c_y. In deriving the equations of motion of the particle in the non-isothermal boundary layer it is necessary to consider the effects of forces of inertia, the resistance of the medium and

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

thermophoresis. On the basis of Stokes' law the following expression is derived:

$$m\frac{dv}{dt} = m\frac{d^2y}{dt^2} = F_{ty} - 6\pi\mu r(v - c_y);$$
$$m\frac{du}{dt} = m\frac{d^2x}{dt^2} = F_{tx} - 6\pi\mu r(u - c_x) \qquad (11)$$

where v and u are components of velocity of the particles on y and x axes respectively; F_{ty} and F_{tx} are components on the y and x axes of the thermophoresis forces determined by Eq.(1); m is the mass of particles. Two main cases are then considered. In the first, the particles have no significant velocity relative to the flow and so experience little acceleration or retardation due to resistance of the medium. Then neglecting the inertia terms, Eq.(11) is simplified to the following form:

$$\left.\begin{aligned} -9\pi\frac{\mu^2 r}{\rho T}\cdot\frac{\lambda_a}{2\lambda_a + \lambda_i}\theta_0(2 - 2\eta_r)\frac{1}{\delta_r} - 6\pi\mu r(v - c_y) = 0; \\ u - c_x = 0. \end{aligned}\right\} \qquad (13)$$

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

If, on entering the boundary layer the particles have appreciable velocity relative to the laminar boundary layer, for example, because of pulsations of swirling in the incident flow or due to the influence of centrifugal forces, the inertia terms cannot be neglected. However, even in this second case the inertia terms along the x axis may be neglected. Eq.(11) then assumes the following form:

$$m \frac{dv}{dt} = m \frac{d^2y}{dt^2} = F_{ty} - 6\pi\mu r(v - c_y); \quad u - c_x = 0. \quad (20)$$

Using dimensionless coordinates, after suitable conversions the following system of equations is obtained to describe the motion of particles in a laminar non-isothermal boundary layer when $P_r \neq 1$ and when the particles have an initial velocity towards the wall:

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

$$\frac{dv_1}{dt_1} = \frac{5{,}83}{\sqrt{Re_{x_0}}\,\sqrt{x_1}}\left[\frac{a\left(\frac{y_1}{\sqrt{x_1}}\right)^2 - b\left(\frac{y_1}{\sqrt{x_1}}\right)^3}{5{,}83} - \beta\left(Pr^{-\frac{1}{3}} - \frac{y_1}{\sqrt{x_1}}\right)\right] - v_1; \tag{21}$$

$$\frac{dx_1}{dt_1} = \frac{c_0\tau}{x_0}\left[2\left(\frac{y_1}{\sqrt{x_1}}\right) - \left(\frac{y_1}{\sqrt{x_1}}\right)^2\right]; \tag{22}$$

$$\frac{dy_1}{dt_1} = \frac{c_0\tau}{\delta_0}\,v_1,$$

$$v_1 = v/c_0 \tag{23}$$

$$t_1 = t/\tau \tag{24}$$

$$\tau = \frac{2}{9}\cdot\frac{\gamma_3 r^2}{\eta g}$$

Card 5/7

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

25901
S/114/61/000/008/005/005
E194/E155

The influence of thermophoresis ....

The magnitude τ is termed the relaxation time and is widely used in the mechanics of aerosols. In its general form this system of equations (21) is not soluble and must be solved for each particular case by numerical methods. A numerical example is worked out to assess the nature of motion of particles under the influence of thermophoresis. The results show that the influence of thermophoresis is fundamental as compared with other factors which influence the process of deposition. It is particularly important for high-temperature cooled turbines operating on combustion products containing volatile ash. Any particles entering the non-isothermal boundary layer near the cooled wall will inevitably be attracted to the cooled surface by forces of thermophoresis, provided the surface is long enough. In the most important practical case, when the particles have an initial velocity directed towards the wall, motion of the particles in coordinates x_1, y_1 is determined according to Eq. (21) by the complexes:

Card 6/7

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

ROZENBERG, S.Sh., inzh.

Effect of thermal phoresis on the settling of ash particles on the cooled blades of gas turbines. Energomashinostroenie 7 no.8:42-45 Ag '61. (MIRA 14:10)
(Gas turbines--Blades) (Fly ash)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

BCS

Ceramic Products

Pottery

104. Overcoming difficulties in the production of facing tiles.—S. V. Rozenberg and P. R. Romanov (*Stek. Keram.*, 8, No. 6, 12, 1951). Experience at 2 Russian plants is described. The dry method of mixing and the plastic method of shaping are used. The batch consists of 45–50% of bond clay (white-burning and early-vitrifying) and 55–50% of grog from the same clay. The average grading of the grog is (%): 1–2 mm., 20–25; 1–0·5 mm., 20–30; and <0·5 mm., 45–55. Clay is ground so that 70–80% is <1 mm. Hot water is added to give a water content of 17·5–18·5%. The tempered mix is then treated either in an edge-runner mill or in a ribbon press. The most effective method of producing the tiles is by first making hollow blocks which are then split into 2 wall-tiles. This method makes it possible to avoid deformation of tiles during drying and firing, increases output, reduces fuel consumption and wt. of ware. A decisive advantage claimed for these products is their improved physico-mechanical properties. The products were shaped in vacuum presses (20 mm. Hg). Details are given on the elimination of lamination and other faults. Drying time is 3–6 days (according to the type of block) in a chamber or 40 hr. in a tunnel dryer. Firing is carried out in a ring or a chamber kiln. The most suitable top firing temp. is 1,180°–1,200° C. for 2–4 hr. Crushing strength is 1,570 and 1,860 lb/sq. in. for corner and flat tiles, respectively. Water absorption is 4–5%. (4 figs., 1 table.)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

LIPAYEVA, Galina Akekseyevna; ROZENBERG, Samuil Vul'fovich; GOOSEN, Kira Yakovlevna; UDAL'TSOV, A.N., glavnyy red.; SENKEVICH, I.V., inzh. red.

[Resonator installation for measuring dielectrics and magnito-dielectrics at 3cm. wave lenths. Overload ammeter] Rezonatornaia ustanovka dlia izmereniia dielektrikov i magnitodielektrikov pri dline volny 3 sm. Peregruzochnyi ampermeter. Moskva, 1956. 17 p. (Pribory i stendy. Tema 5, no.P-56-446) (MIRA 11:3)

1. Moscow. Vsesoyuznyy institut nauchnoy i tekhnicheskoy informatsii. Filial.

(Electric resonators) (Ammeter) (Dielectrics)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

ROZENBERG, S. V.

6891. Rozenberg, S. V. Organizatsionnyye formy upravleniya tramvaynymi i trolleybosnymi khozyaystvami, (M.), 1954, 14s. 20sm. (Akad. Kommun. khozyaystva im. K. D. Pamfilova. Inform. Pis'mo 14/53). 300 ekz. Bespl. -- Art. ukazan na 1-y s. -- (55341zh)

SO: Knizhnaya letopis' No.6, 1955

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

ROZENBERG,S.V.

We should do away with lag in the building-ceramics industry.
Stek. i ker.12 no.7:26-28 Jl '55. (MLRA 8:10)
(Ceramic industries)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

YEFREMOV, I.S., doktor tekhn. nauk; REKITAR, R.A., inzh.; ROZENBERG, S.V., kand. ekon. nauk; BLATNOV, M.D., kand. tekhn. nauk; VIL'KONETSKIY, M.S., inzh.; TOMILIN, A.I., inzh.; POPELYASH, V.N., inzh.; ZAGAYNOV, N.A., kand. tekhn. nauk; FINKEL'SHTEYN, B.S., inzh.; MARINOV, I.A., inzh.; ISTRATOV, V.P., inzh.; MARGOLIN, I.S., inzh.; ENGEL'S, G.G., inzh.; ANTONOV, V.A., inzh.; SOKOLOV, V.D., inzh.; KLESHCHINSKIY, B.K., inzh.; IL'INSKIY, A.I., retsenzent; PAPKOV, N.G., retsenzent; SMIRNOV, G.M., retsenzent; SHPOLYANSKIY, M.N., otv. red. toma; VOLOCHNEV, V.N., red.; TROFIMOV, A.N., red.; RACHEVSKAYA, M.I., red. izd-va; LELYUKHIN, A.A., tekhn. red.

[Technical manual on city electric transportation in three volumes] Tekhnicheskii spravochnik po gorodskomu elektrotransportu v trekh tomakh. Redkollegiia: V.N.Volochnev, A.N. Trofimov, M.N.Shpolianskii. Moskva, Izd-vo M-va kommun. khoz. RSFSR. Vol.1. [City electric transportation (general part)] Gorodskoi elektricheskii transport (obshchaia chast'). Otv. red. toma M.N.Shpolianskii. 1961. 726 p. (MIRA 15:4)
(Streetcars) (Trolley buses)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

ROZENBERG, S.Ye.

[Cost of maintaining mines with wooden timbering] Stoimost' podderzhaniia gornykh vyrabotok, zakreplennykh derevom. Moskva, Ugletekhizdat, 1952. 106 p. (MLRA 6:5)

(Coal mines and mining--Costs) (Mine timbering)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

ROZENBERG, S.Ye., gornyy inzhener.

Experience of moving a conveyer quickly. Ugol' 28 no.6:43-44 Je '53. (MLRA 6:6)

1. Don UGI. (Coal-mining machinery)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

ROZENBERG, T.

USSR/Chemical Technology. Chemical Products and Their Application -- Silicates. Glass. Ceramics. Binders, I-9

Abst Journal: Referat Zhur - Khimiya, No 2, 1957, 5283

Author: Aleksandrov, P., Bogautdinova, G., Kuntsevich, S., Ratinov, V., Rozenberg, T., Stalikova, G.

Institution: All-Union Scientific Research Institute of Reinforced Concrete, Leningrad Institute of Railroad Transport

Title: New Testing Methods for Building and Molding Gypsum

Original Publication: Stroit. materialy, izdeliya i konstruktsii, 1956, No 5, 31-33

Abstract: Work conducted by VNIIZhelezobeton and the Leningrad Institute of Railroad Transport, has shown that termination of the processes of hydration and crystallization of gypsum coincide in time. The hardening process is divided into two periods: end of the first is determined, not accurately, by means of the needle of Vick, as "termination of setting," and the end of the second (13-17 minutes) is the "end of crystallization." It is appropriate to evaluate the kinetics of hardening (setting time, end of crystallization) from the value of exothermy or volumetric changes.

Card 1/1

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

RATINOV, V.; KONSTANTINOV, A.; ROZENBERG, T.; BOGAUTDINOVA, G.; STALIKOVA, G.

New device for measuring plasticity of binding materials. Stroi.mat. 3 no.2:30-31 F '57. (MLRA 10:3)
(Viscosimeter) (Binding materials)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

ALEKSANDROV, P.; BOGAUTDINOVA, G.; KUNTSEVICH, S.; RATIONOV, V.; ROZENBERG, T.; STALIKOVA, G.

New methods of testing building and molding gypsum. Stroi.mat., izdel.i konstr. 2 no.5:31-33 My '56. (MLRA 9:8)
(Gypsum--Testing)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

PROCESSES AND PROPERTIES INDEX

Rapid method for determining hull content of sunflower-seed cake and meal. A. Lyutenberg and T. Rozenberg. *Trudui VNIIZh* 1934, No. 2, 70-6; cf. *C. A.* 29, 3417[8].—The Kozin (NH_4OH) method is unreliable for detg. hulls in seed meal or cake because the fine grinding hinders quant. sepn. A modified Grimme (*C. A.* 8, 2000, 2201) method is described, which is both rapid and accurate.

Julian F. Smith

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

RATINOV, V.B., kand.khim.nauk; ROZENBERG, T.I., kand.khim.nauk; DOVZHIK, O.I., inzh.; KUCHERYAYEVA, G.D., inzh.; SMIRNOVA, I.A., inzh.

Inhibitors of corrosion in the reinforcement of concrete which has an additive of calcium chloride. Trudy NIIZHB no.22:40-53 '61. (MIRA 14:10)

1. Nauchno-issledovatel'skiy institut zhelezobetonnogo stroitel'stva Glavmospromstoymaterialov Mosgorispolkoma.
(Lime, Chloride of) (Concrete reinforcement) (Sodium nitrate) (Steel--Corrosion)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

RATINOV, V.B.; ROZENBERG, T.I.; RUBININA, N.M.; MELENT'YEVA, G.G.

Mechanism of the crystallization of cement stone components. Dokl. AN SSSR 136 no.6:1407-1409 F '61. (MIRA 14:3)

1. Predstavleno akademikom P. A. Rebinderom.
(Cement)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

ROZENBERG, T. I., Cand Chem Sci -- (diss) "Investigation of the Mechanism of Solidification of Gypsum and ~~of~~ the Action of Admixtures." Mos, 1957. 10 pp (Min of Education RSFSR, Mos State Pediatric Inst im V. I. Lenin), 140 copies. Bibliography: p 10 (14 titles). (KL, 47-57, 86)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

RATINOV, V.B.; ROZENBERG, T.I.; RUBININA, N.M.

Crystallization kinetics of calcium aluminate hydrosulfate.
Dokl.AN SSSR 145 no.5:1089-1091 '62. (MIRA 15:8)

1. Nauchno-issledovatel'skiy institut zhelezobetonnykh izdeliy stroitel'nykh i nerudnykh materialov. Predstavleno akademikom P.A.Rebinderom.
(Calcium aluminate sulfate) (Crystallization)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

ROZENBERG, T. I.

1939. Control of the rate of setting of gypsum by means of multicomponent admixtures.— T. I. ROZENBERG *et al.* (*C.R. Acad. Sci. U.R.S.S.*, 112, 919, 1957). In Russian.

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

ROZENBERG, T. I.

Crystallization mechanism of the hardening of gypsum plasters. Yā. L. Zabezhinskiĭ, V. B. Ratinov, and T. I. Rozenberg. *Proc. Acad. Sci. U.S.S.R., Sect. Chem. Technol.* 108, 79-81(1956)(English translation).—See *C.A.* 51, 1578g.

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

Rozenberg, T. I.

Rheological study of the setting processes of gypsum. V. B. Ratinov, T. I. Rozenberg, O. O. Bogautdinova, and G. D. Stalikova (Sci. Research Inst. Reinforced Concrete and Non-Ore Materials, Moscow). *Kolloid. Zhur.* 18, 237–41 (1956).—Setting of gypsum occurs in 3 stages. First, its yield stress θ is small and its viscosity is a linear function of the H_2O: $CaSO_4$ ratio. Then, θ increases with time but the mixt. still can flow at high stresses. Finally the mixt. is a brittle solid.

I. I. Bikerman

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

ROZENBERG, T.I.; RUBININA, N.M.; RATINOV, V.B.

Controlling the rate of solidification of gypsum by means of multi-component admixtures. Dokl. AN SSSR 112 no.5:919-922 F '57. (MLRA 10:4)

1. Vsesoyuznyy gosudarstvennyy nauchno-issledovatel'skiy institut zhelezobetonnykh izdeliy i nerudnykh materialov. Predstavleno akademikom P.A. Rebinderom.

(Gypsum) (Solidification)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

SOV/124-58-5-6196

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 5, p 161 (USSR)

AUTHORS: Bogautdinova, G.G., Ratinov, V.B., Rozenberg, T.I., Smirnova, I.A., Stalikova, G.D.

TITLE: Effect of Some Organic and Nonorganic Additives on the Plastic Properties of Gypsum (Vliyaniye nekotorykh organicheskikh i neorganicheskikh dobavok na plasticheskiye svoystva gipsa)

PERIODICAL: Sb. tr. Vses. n.-i. in-ta zhelezobeton. izdeliy i nerudn. materialov, 1957, Nr 1, pp 71-78

ABSTRACT: Bibliographic entry

1. Gypsum--Plasticity 2. Organic materials--Performance 3. Inorganic materials--Performance

Card 1/1

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

ROZENBERG, T. I

3

Crystallization mechanism of the hardening of gypsum plasters

end of crystn. is a [illegible] The mech. strength decreasing with increasing addns. The rate of the soln. of the hemihydrate (standard granulometric compn., with particles of r about 3 to 5 μ) is about 1.3 g./l. sec., the diffusion coeff. $D = 0.78 \times 10^{-4}$ cm.²/min., the change of the soln. concn. $\Delta C = 5$ g./l. $CaSO_4$. The kinetics of the plaster setting exactly corresponds to the rules of crystn. from liquid solns. and nucleation (cf. equation of Kholmogorov, 1937). Expts. of the authors and of previous investigators agree excellently with this theoretical basis and the statistical discussion. The times t_1 and t_2 (of the beginning and end of setting, resp.) equal 0.35 t_k and 0.45t_k (within ±8%), resp., where t_k is the time of the gypsum crystn. The decreasing setting rates of plasters with increasing temp. (40° to 70°) are a consequence of a reduction of the degree of supersatn. of the hemihydrate soln. Also the effects of electrolyte addns. in their accelerating and retarding actions can be discussed on a theoretical basis of the kind here given.

W. Eitel

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

ROZENBERG, T. I.

Chem

Crystallization mechanism of setting of plaster of Paris. Ya. L. Zabezhinskii, V. B. Ratinov and T. I. Rozenberg (*Doklady Akad. Nauk SSSR*, 1958, 103, 1137—1139).—The setting of plaster of Paris is a process depending on dissolution of hemihydrate, to give a supersaturated solution from which $CaSO_4,2H_2O$ crystallizes. The kinetics of the process are represented by $V_t = V_0(1-e^{-\pi nc^3t^4/3})$, where V_0 and V_t are the vol. of the solid phase initially and at time t, n is the probability of formation of a centre of crystallization in 1 ml. of solution per sec., and c is velocity of linear growth of the crystals. R. Truscon.

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

RATINOV, V.B.; ROZENBERG, T.I.; BOGAUTDINOVA, G.G.

Investigation of mineral binding materials in an automatic capillary viscosimeter. Zav.lab. 22 no.6:743-745 '56. (MLRA 9:8)

1. Vsesoyuznyy gosudarstvennyy nauchno-issledovatel'skiy institut Zhelezobetonnykh izdeliy i nerudnykh materialov.
(Gypsum) (Binding materials) (Viscosimeter)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

ROTINOV, V.B.; ROZENBERG, T.I.; BOGAUTDINOVA, G.G.; STALIKOVA, G.D.

Rheological studies on the setting of gypsum [with English summary in insert]. Koll.zhur. 18 no.2:237-241 My-Ap '56. (MLRA 9:8)

1. Nauchno-issledovatel'skiy institut zhelezobetonnykh isdeliy i nerudnykh materialov, Moskva.
(Gypsum) (Rheology)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

KOZENBERG, T.I.

Crystallization mechanism [illegible] gypsum [illegible] substances. [illegible]
Rozenberg [illegible]
1950. Processes [illegible]
hardening of gypsum [illegible]

3/

All-Union State Sci-Res. Inst. Ferro-concrete Products and non-metallic Materials

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

RATINOV, V.B.; ZABEZHINSKIY Ya.L.; ROZENBERG. T.I.

Study of the solidification mechanism of gypsum binding materials with admixtures. Dokl. AN SSSR 109 no.5:979-981 Ag. 1956.
(MIRA 9:10)

1. Vsesoyuznyy gosudarstvennyy nauchno-issledovatel'skiy institut zhelezobetonnykh izdeliy i nerudnykh materialov, Predstavleno akademikom P.A. Redinderom.

(Gypsum)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

S/081/61/000/023/030/061
B138/B101

AUTHORS: Ratinov, V. B., Rozenberg, T. I., Dovzhik, O. I. Kucheryayeva, G. D., Smirnova, I. A.

TITLE: Corrosion inhibitors for reinforcement bars in concrete containing calcium chloride

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 23, 1961, 290, abstract, 23I272 (Tr. N.-i. in-ta betona i zhelezobetona Akad. str-va i arkhitekt. SSSR, no. 22, 1961, 40 - 53)

TEXT: An investigation of the mechanism of reinforcement iron corrosion in concrete with additions of $CaCl_2$ and $NaNO_2$ has shown that the process takes place with diffusion control. It is noted that $NaNO_2$ is an effective corrosion inhibitor for reinforcements, due to its power of rapidly creating or healing protective films, passivating the metal thereby. The addition of $NaNO_2$ together with $CaCl_2$ will increase the strength of concrete without making plastic deformation any greater than

Card 1/2

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

Corrosion inhibitors for reinforcement... S/081/61/000/023/030/061
B138/B101

in concrete without these additions. [Abstracter's note: Complete translation.]

Card 2/2

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

RATINOV, V.B.; ROZENBERG, T.I.

Basic regular processes in the formation of layers during the hardening of binding substances, and chemical methods of influencing the formation process and properties of the layers. Sbor. trud. NIIZHelezobetona no.2:7-36 '59. (MIRA 15:1)
(Binding materials)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

MUSABAYEVA, Nagima Abdrakhmanovna; POLOSUKHIN, A.P., akademik, otvetstvennyy redaktor; ROZENBERG, TS.P., redaktor; ALFEROVA, P.F., tekhnicheskiy redaktor

[The physiological basis of sensory perception in the light of I.P. Pavlov's teaching regarding the higher nervous activity] O fiziologicheskoi osnove chuvstvennogo poznaniia v svete ucheniia I.P.Pavlova o vysshei nervnoi deiatel'nosti. Alma Ata, Izd-vo Akademii nauk Kazakhskoi SSR, 1956. 86 p. (MLRA 9:10)

1. Akademiya nauk Kazakhskoy SSR. (for Polosukhin)
(NERVOUS SYSTEM) (SENSES AND SENSATION)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

DZHUNUSOV, M.S., prof.; SUZHIKOV, M.M., kand. filos. nauk; KSHIBEKOV, D., kand. filos. nauk; SAPARGALIYEV, G., kand. yurid. nauk; UTAMBETOV, S., kand. filos. nauk; ROZENBERG, TS.R., red.; ROROKINA, Z.P., tekhn. red.

[Laws governing the transition of peoples in formerly underdeveloped contries to socialism; based on the Kazakh people] O zakonomernostiakh perekhoda narodov ranee otstalykh stran k sotsializmu; na primere kazakhskogo naroda. Alma-Ata, Izd-vo Akad. nauk Kazakhskoi SSR, 1961. 225 p. (MIRA 15:2)

1. Akademiya nauk Kazakhskoy SSR. Institut filosofii prava. (Kazakhstan--Economic conditions) (Kazakhstan--History)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

MATYAGIN, Valeriy Sergeyevich; ROZENBERG, TS.R., red.; ROROKINA, Z.P., tekhn.red.

[Meteors, fireballs, meteorites] Meteory, bolidy i meteority. Alma-Ata, Izd-vo Akad.nauk Kazakhskoi SSR, 1959. 67 p. (MIRA 13:5)

(Meteors) (Meteorites)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

BAYSALOV, S.; KUDAYBERGENOV, U.; TOMANOV, M., otv.red.; ABDRAKHMANOV, A., otv.red.; ROZENBERG, TS.R., red.; AYTMUKHAMBETOVA, S., red.; ROROKINA, Z.P., tekhn.red.

[Russian-Kazakh terminological dictionary] Russko-kazakhskii terminologicheskii slovar'. Alma-Ata. Vol.4. 1960. 185 p. (MIRA 13:4)

1. Akademiya nauk Kazakhskoy SSR, Alma-Ata. Institut yazyka i literatury.

(Russian language--Dictionaries--Kazakh)
(Law--Dictionaries) (Education--Dictionaries)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

DARCHIYA, Shota Petrovich; TIKHOV, G.A., redaktor; ROZENBERG, Ts.R., redaktor; ALFEROVA, P.F., tekhnicheskiy redaktor.

[Fluorescence of plants during exposure to light of various wave lengths] Fluorestsentsiia rastenii pri obluchenii svetom raznoi dliny volny. Alma-Ata Izv-vo Akademii nauk Kazakhskoi SSR, 1956. 114 p. (MLRA 9:5)

1.Chlen korrespondent Akademii nauk SSSR (for Tikhov)
(Plants, Effect of light on) (Fluorescence)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

KOLLIN, T. S.

"Magnesiumammoniumphosphate, Its Thermal Stability and Stabilization," Zhur. Prik. Khim., 22, No. 5, 1949.

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

ROZENBERG, V.

Hydraulic engineering in the German Democratic Republic, Mor.flot 17 no.2:29-31 F '57. (MIRA 10:3)

1. Glavnyy inzhener Glavnogo upravleniya morskogo stroitel'stva.
(Germany, East--Hydraulic engineering)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

S/107/60/000/011/001/010
E073/E335

AUTHORS: Prokhorov, A. and Rozenberg, V., Engineers

TITLE: In the World of Cybernetics

PERIODICAL: Radio, 1960, No. 11, pp. 3 - 5

TEXT: A popular article explaining the fundamentals of cybernetics. It is stated that the Soviet Union is the first country in the World to possess a completely interconnected power system. At present, cybernetic machines are being built for controlling the distribution of the power resources, selecting optimum transmission circuits and optimum conditions of operation of all the interconnected power stations. Computers are extensively used in the Soviet Union for designing electric motors, transformers, turbine blades, etc. An increasing number of tasks are being tackled by computers, including automatic translation, "hearing", "reading", "speaking", etc. The "language" of the machines and finally the international computer "language" are closely linked with structural linguistics, i.e. a science which applies extensively mathematical

Card 1/4

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

S/107/60/000/011/001/010
E073/E335

In the World of Cybernetics

methods for solving numerous linguistic problems. The Leningrad scientists, D.A. Kerimov and N.D. Andreyev, have arrived at the conclusion that cybernetics and computers can be utilised for legal information work and for other work dealing with legal problems. Particularly important are the prospects of using computers in medicine and biology.

Professor Braynes, jointly with G.K. Krug and others, produced an automatic machine for studying conditioned reflexes. Under the direction of Academician of the AS UkrSSR B.V. Gnedenko and Professor N.M. Amosov a machine is being built in Kiyev for diagnostic purposes, to help doctors in diagnosing heart diseases. There are numerous prosthetic appliances controlled by biocurrents which are generated in the muscles, artificial hearts, a valve for X-ray apparatus controlled by biocurrents and permitting obtaining an X-ray picture of the heart in a predetermined phase. Instruments controlled by biocurrents have great

Card 2/4

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

S/107/60/000/011/001/010
E073/E335

In the World of Cybernetics

potentialities not only in medicine but also in industry, where work has to be carried out under conditions which are dangerous to the human body (for instance, handling radio-active substances, control operations at elevated temperatures) and also for military control operations. Highlights in insets mention the following applications:
1) an electronic machine which assists the dispatcher of the Georgia power system to select the optimum regime of the operation of the power system. It enables calculation of the voltage and power losses simultaneously for 5 sections of the power system. The results are given either in the form of voltage levels on a special instrument or in numerical values printed by means of special equipment.
2) At the Zaporozhe and Zestafoni Ferro-alloy Works a computer will shortly be put into operation for maintaining automatically the desired electrical conditions in arc ferro-alloy smelting furnaces. The control of the melting process is based on controlling the r.m.s. value of the

Card 3/4

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

S/107/60/000/011/001/010
E073/E335

In the World of Cybernetics

current or the r.m.s. value of the power.
3) At the Rustavskiy metallurgicheskiy zavod (Rustavi Metallurgical Works) good results were obtained with a machine for monitoring and controlling the radial distribution of the gas flow in the throat of blast furnaces. Such equipment has been built for the first time. It determines accurately and eliminates errors in the distribution of gas flow which could lead to serious disturbance of the technological process; errors which could not be detected by the operating personnel. Use of this equipment results not only in considerable improvement of the quality of the molten cast iron but also in an increase in productivity.
There are 3 figures.

ASSOCIATION: Nauchnyy sovet kibernetiki AN SSSR (Scientific Council on Cybernetics of the AS USSR)

Card 4/4

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

PENCIU,P., dr.; ROZENBERG, Viorica, dr.

Research on the role of sanitary education in prevention and control of zoonoses. J. hyg. epidem. (Praha) 9 no.1:77-79 Ja-F '64

1. Institutul de igiena si protectia muncii, Sectia de educatie sanitara.

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

POLYAKOV, V., inzh.; ROZENBERG, V., inzh.; KUVSHINOV, S., starshiy inzh.; GULIN, G., tekhnicheskiy inspektor (Serov, Sverdlovskoy oblasti); GERCHIKOV, I., vrach

Technical information. Okhr.truda i sots.strakh. 5 no.3:30-33 Mr '62. (MIRA 15:4)

1. Byuro ratsionalizatsii i izobretatel'stva fabriki "Izoplit", g. Sverdlovsk (for Polyakov). 2. Otdel izobretatel'stva tekhnicheskogo upravleniya Ministerstva rechnogo flota RSFSR (for Rozengerg). 3. Vsesoyuznyy sovet nauchno-tekhnicheskikh obshchestv (for Kuvshinov).

(Technological innovations) (Safety appliances)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

PANAFIDIN, A.P.; ROZENBERG, V.A.

Toroidal magnetoanisotropic stress transducer. Priborostroenie no.5:26 My '64. (MIRA 17:6)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

VASIL'YEV, Nikolay Grigor'yevich; KOLESNIKOV, Boris Pavlovich; ROZENBERG, V.A., otv.red.; SOKOLOV, D.V., red.izd-va; BOCHEVER, V.T., tekhn.red.

[Mixed needle fir and hardwood forests in the southern part of the Maritime Territory]. Chernopikhtovo-shirokolistvennye lesa IUzhnogo Primor'ia. Moskva, Izd-vo Akad.nauk SSSR, 1962. 145 p. (Akademiia nauk SSSR. Dal'nevostochnyi filial, Vladivostok. Trudy, vol. 8. Seriia botanicheskaia, vol. 8). (MIRA 15:7)
(Maritime Territory— Forests and forestry)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

KIZEVETTER, Ye.N.; KLEYN, P.N.; KHARCHEV, M.K.[deceased]; VOLOBRINSKIY, S.D.; GRODSKIY, S.Ye.; YERMILOV, A.A.; KAYALOV, G.M.; LIVSHITS, D.S.; MAKSIMOV, A.A.; MESHEL', B.S.; MUKOSEYEV, Yu.L.; OGORODNOV, S.I.; ROZENBERG, V.A.; SHRAYBER, L.G.; ZALESSKIY, Yu.Ye., retsenzent; IOKHVIDOV, E.S., retsenzent; FEDOROV, A.A., retsenzent; SAVEL'YEV, V.I., red.; LARIONOV, G.Ye., tekhn. red.

[Temporary instructions for determining the electrical loads of industrial enterprises] Vremennye rukovodiashchie ukazaniia po opredeleniiu elektricheskikh nagruzok promyshlennykh predpriiatii. Moskva, Gosenergoizdat, 1962. 45 p. (MIRA 16:2)

1. Russia (1923- U.S.S.R.) Glavnoye energeticheskoye upravleniye. 2. Leningradskoye otdeleniye Gosudarstvennogo proyektnogo instituta tyazheloy promyshlennosti (for Kizevetter, Kleyn, Kharchev). 3. Komissiya po elektricheskim nagruzkam Nauchno-tekhnicheskogo obshchestva energeticheskoy promyshlennosti (for Volobrinskiy, Grodskiy, Yermilov, Kayalov, Livshits, Maksimov, Meshel, Mukoseyev, Ogorodnov, Rozenberg, Shrayber). (Electric power distribution)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

ROZENBERG, V. A. PA47T24

USSR/Electricity Mar 1948
Drives, Electric

"Scientific Engineering Session for Electrical Drives," Docent V. A. Rozenberg, Chm of Session; Yu. A. Sabinin, Candidate Tech Sci, Sci Secy of Session, 3¼ pp

"Elektrichestvo" No 3

Held in Leningrad, 8 - 13 Dec 1947. Main object: to place before electrical engineers the plans for first postwar Five-Year Plan. Lists the more important attending scientists and technicians. Briefly describes some of articles submitted for reading and judgment.

[redacted] 47T24

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

VOROB'YEV, D.P.; ROZENBERG, V.A., kand.biolog.nauk, otv.red.; GOFMAN, M.L., otv.za vypusk

[Key to the trees and shrubs of the Maritime Territory and the Amur area] Opredelitel' derev'ev i kustarnikov Primor'ia i Priamur'ia. Blagoveshchensk, Amurskoe knizhnoe izd-vo, 1958. 183 p. (MIRA 13:4)

(Soviet Far East--Trees)
(Soviet Far East--Shrubs)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

ROZENBERG, V. A.

Forests and Forestry - Mensuration

Volume tlbles for themensuration of young stands of trees. Les.khoz. 5 No. 6 1952.

9. Monthly List of Russian Accessions, Library of Congress, August 1953, 2Uncl.

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

ROZENBERG, V. A.

"Fir and Spruce Forests of Southern Sikhote-Alin." Cand Biol Sci, Far East Affiliate imeni V. L. Komarov, Acad Sci USSR, Vladivostok, 1955. (KL, No 10, Mar 55)

SO: Sum No. 670, 29 Sep 55 - Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (15)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

ROZENBERG, V.A.; VASIL'YEV, N.G.; MAN'KO, Yu.I.; POPOV, N.A.; KURENTSOVA, G.E.

Relation of the pine (Pinus koraiensis) and oak (Quercus mongolica) in the southern Maritime Territory. Soob.DVFAN SSSR no.12:89-95 '60. (MIRA 13:11)

1. Dal'nevostochnyy filial imeni V.L.Komarova Sibirskogo otdeleniya AN SSSR.
(Maritime Territory--Forest ecology) (Oak) (Pine)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

ROZENBERG, V.A.; IVANOV, G.I.; PROZOROV, Yu.S.

Amur Forestry Expedition of the Far Eastern Branch of the Academy of Sciences of the U.S.S.R. in 1955. Soob.DVFAN SSSR no.9:155-156 '58. (MIRA 12:4)
(Sikhote-Alin Range--Coniferae)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

ROZENBERG, V.A.

Dark conifer forests of the northern tip of the Sikhote-Alin' Range. Soob.DVFAN SSSR no.11:17-23 '59. (MIRA 13:11)

1. Dal'nevostochnyy filial imeni V.L.Komarova Sibirskogo otdeleniya AN SSSR.
(Sikhote-Alin'--Coniferae)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

ROZENBERG, V.A.; POPOV, N.A.

Growth and development of young Mongolian oak undergrowth. Soob.DVFAN SSSR no.12:111-118 '60. (MIRA 13:11)

1. Dal'nevostochnyy filial imeni V.L.Komarova Sibirskogo otdeleniya AN SSSR.

(Soviet Far East--Oak)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

DERKACH, K.F., inzh.; MOZNAIM, G.I. inzh.; ROZENBERG, V.B., inzh.

Mining and ore-dressing equipment made by the Yasinovatka Machinery Plant. Gor. zhur. no.3:63-66 Mr '62. (MIRA 15:7)

1. Yasinovatskiy mashinostroitel'nyy zavod.
(Yasinovatka--Mining machinery)
(Yasinovatka--Ore dressing--Equipment and supplies)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

ZAGORUYKO, N.G.; ROZENBERG, V.I.; KOBKOVA, V.I., red.

[Computation of the fields of magnetic heads by an electronic computer] Raschet polei magnitnykh golovok na elektronnoi vychislitel'noi mashine. Novosibirsk, Akad. nauk SSSR Sibirskoe otdnie. In-t matem. s Vychislitel'nym tsentrom, 1961. 31 p. (MIRA 15:6)

(Magretic recorders and recording)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

SKOPETS, Z.A. (Yaroslavl'); OSTROVSKIY, A.I. (Moskva); BESKIN, L.N. (Moskva); BALK, M.B. (Smolensk); BORSUK, M.V. (L'vov); BYKOV, A.M. (Baku); CHANTURIYA, Z.A. (Tbilisi); NOVIKOVA, V.S. (Orekhovo-Zuyevo); DUBNOV, Ya.S. (Moskva); STECHKIN, S.B. (Moskva); KHAVIN, L.P. (Leningrad); FRDNIYEV, P., (Stavropol'); CHIAREULI, D.L. (GruzSSR); ASEKRITOV, U.M. (Yaroslavl'); GOLUBEV, V.A. (Kuvshinovo); MALININ, V.V. (Leningrad); DAVIDOV, U. (Gomel'); ROZENBERG, V.I. (Leningrad); TIKHONOV, P.G. (Karaganda); ROMANCHUK, N.A. (Khar'kov); MIMLOS, R.A. (Moskva); OGAY, S.V. (Frunze); ROFE-BEKETOV, F.S.; BERSHTEYN, A. (Moskva); ARLAZAROV, V.L. (Moskva)

Solutions to problems. Mat.pros. no.4:253-270 '59.

(MIRA 12:11)

(Mathematics--Problems, exercises, etc.)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

ROZENBERG, V.I.

System of mechanical recording of the performance of machine tools. Mashinostroitel' no.7:32-33 Jl '65. (MIRA 18:7)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

ROZENBERG, V. I.; STAROSTIN, N. V.

Extension of Fick's equation in case of thermal diffusion. Trudy Giprotsement no. 26:193-195 '63. (MIRA 17:5)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

TKACHEV, V. V.; SLANEVSKIY, A. V.; ROZENBERG, V. I.; OGANESOV, V. N.

Classification of cylindrical pebbles in tube mills. Trudy Giprotsement no. 26:63-74 '63. (MIRA 17:5)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

ROZENBERG, V.I.

Block tectonics of the Anabar-Khatanga interfluve. Trudy NIIGA 132:53-60 '62. (MIRA 16:4)

(Anabar Valley--Geology,Structural)
(Khatanga Valley--Geology, Structural)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

ROSTOVTSEV, V. I.

Steel Castings

Casting housings for boring bits. Lit. proiz. No. 6, 1952.

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

2

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

[illegible], M. I.

Boring Machinery

Testing housings for boring bits. Lit. proiz. No. 6, 1952.

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

2

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

MIKELADZE, G.Sh.; NADIRADZE, Ye.M.; PKHAKADZE, Sh.S.; GOGORISHVILI, B.P.; DGEBAUDZE, G.A.; SOLOSHENKO, P.S.; SEMENOV, V.Ye.; BARASHKIN, I.I.; SHIRYAYEV, Yu.S.; POSPELOV, Yu.P.; KATSEVICH, L.S.; ROZENBERG, V.L.; Prinimali uchastiye: LORDKIPANIDZE, I.S.; TSKHVEDIANI, R.N.; DZODZUASHVILI, A.G.; DUNIAVA, A.G.; PEKARSKIY, L.F.; GRITSFNYUK, Vu.V.; ZHELTOV, D.D.; LUZANOV, I.I.; GLADKOVSKIY, V.P.; PODMOGIL'NYY, V.P.; VOROPAYEV, I.P.; BRIKOVA, O.V.; VRUBLEVSKIY, Yu.P.; KLYUYEV, V.I.; BAYCHER, M.Yu.; LOGINOV, G.A.; SHILIN, V.K.; POPOV, A.I.; ZASLONKO, S.I.

Industrial experiments in the smelting of 45 o/o ferrosilicon in a heavy-duty closed electric furnace. Stal' 25 no.5:426-429 My '65. (MIRA 18:6)

1. Gruzinskiy institut metallurgii (for Lordkipanidze, TSkhvediani, Dzodzuashvili, Guniava). 2. Nauchno-issledovatel'skiy i proyektnyy institut metallurgicheskoy promyshlennosti (for Brikova, Vrublevskiy, Klyuyev). 3. Vsesoyuznyy nauchno-issledovatel'skiy institut elektro-termicheskogo oborudovaniya (for Baycher, Loginov, Shilin, Popov, Zaslonko).

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

AMIRNOV-AYAYEV, G. A., ROZENBERG, V. M.

Deformations (Mechanics)

Analysis of plastic deformation of metals by micro-structural measurements. Inzh. sbor., 10, 1951.

Describes method of detg deformation of small particle, carried beyond limit of elasticity, of surface layer of metal detail by microscopic measurements. By means of these measurements the character of reciprocal displacements of individual metallic grains in the microscopic field can be detd, following which a mathematical treatment of the resultant data enables one to establish degree and type of deformation. Theoretical analysis tested experimentally. Results were satisfactory.

257T58

Monthly List of Russian Accessions, Library of Congress, May 1952, UNCLASSIFIED.

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

SOV/137-57-1-1191

Translation from: Referativnyy zhurnal. Metallurgiya, 1957, Nr 1, p 155 (USSR)

AUTHORS: Rozenberg, V. M., Shvartsman, L. A.

TITLE: Thermodynamic Activity of Carbon in Austenite Containing Manganese and Silicon (Termodinamicheskaya aktivnost' ugleroda v austenite, soderzhashchem marganets i kremniy)

PERIODICAL: Probl. metalloved. i fiz. metallov, Nr 4, 1955, pp 309-317

ABSTRACT: The authors determined the thermodynamic characteristics of C dissolved in γ Fe (I) with Si and Mn impurities. The calculations were based on the data of Smith (Smith R. P., J. Amer. Chem. Soc., 1946, Vol 68, p 1163; 1948, Vol 70, p 2724) who studied the equilibrium of gaseous mixtures of $CO-CO_2$ or CH_4-H_2 with I. The activity of C was determined as a function of the partial pressures of the gases P and a constant K of equilibrium of the reactions of C with the gases K.

$$a_c = P^2_{CO} / P_{CO_2} \cdot K_1 \quad \text{and} \quad a_C = P_{CH_4} / P^2_{H_2} \cdot K_2 .$$

The authors developed the following equations for the coefficient of

Card 1/2

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

SOV/137-57-1-1191

Thermodynamic Activity of Carbon in Austenite Containing Manganese (cont.)

activity γ when I contained Mn and Si as well as C

$$\gamma = 1,040/[1-5(N_C + N_{Si})] \cdot \exp(-4,242\ N_{Mn}),$$

where N is the atomic portion of the element and the constants are determined experimentally. It is shown that the application of the thermodynamic relationships found to simple systems permits the development of analytical expressions for the calculation of the solubility of elements in a multicomponent solid solution. The equations adduced permit the calculation of the solubility of C in I containing Mn and Si at 1000°C with different concentrations of the constituent elements.

V. R.

Card 2/2

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

KUGAYENKO, O.M. (Moskva); ROZENBERG, V.M. (Moskva); SHALIMOVA, A.V. (Moskva)

Density of slip traces on the surface and in the body of a specimen. Izv. AN SSSR. Otd. tekh. nauk. Met. i topl. no.5:126-127 S-O '62. (MIRA 15:10)

(Deformations (Mechanics)) (Metallography)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

S/126/63/015/003/010/025
E193/E383

AUTHOR: Rozenberg, V.M.

TITLE: The effect of temperature and stress on the elementary strain components in creep of nickel

PERIODICAL: Fizika metallov i metallovedeniye, v. 15, no. 3, 1963, 397 - 404

TEXT: The total strain ε_t in creep comprises deformation by slip ε_s, deformation at the grain boundaries ε_g, revealed by the formation of steps at the grain boundaries, and deformation ε_x that cannot be detected by metallographic examination. The object of the present investigation was to study the effect of temperature and stress on the magnitude of each of these components in creep of 99.95% pure nickel, tested in vacuum at 600 to 800 °C under stresses ranging from 1 - 4 kg/mm^2. The method of evaluating ε_s, ε_g and ε_x was described earlier (Minkina and others - Izv. AN SSSR, OTN, 1959, no. 2, 49). Conclusions - 1) Both the number of coarse slip lines and the height ρ_s of the steps due to coarse slip increase during the primary creep, the number of slip lines remaining constant in the steady-creep stage.

Card 1/3

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

S/126/63/015/003/010/025
E193/E383

The effect of temperature ....

Curves representing the relationship between the logarithm of time t required for ρ_s to reach a certain value and the value of $1/T$ (where T is the absolute temperature) are described by $t = A.\exp(Q/RT)$, where Q is the activation energy, equal in this case to 65 kcal/mole. Using this value of Q it is possible to plot ρ_s at the various temperatures as a function of the reduced time $\Theta = t \exp(Q/RT)$. The fact that the experimental points obtained at various temperatures lie on one curve indicates that the rate of increase in ρ_s under the conditions studied is determined by a certain elementary process which - judging by the value of Q approaching that of the activation energy for self-diffusion - constitutes some sort of recovery process. 2) The stress- and temperature-dependence of the rate of grain-boundary strain is described by $\varepsilon_g = A\sigma^n.\exp(-Q/RT)$, where σ is the stress and A and n are constants. Q has been found to be equal to 62 ± 8 kcal/mole and $n = 2.3$. These results disprove the theory that the formation of steps at the grain boundaries is associated with viscous grain-boundary flow because the activation energy for viscous flow at the grain boundaries should be near to

Card 2/3

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

that for grain-boundary diffusion (29 kcal/mole) and n should be equal to 1 . 3) Analysis of the time-dependence of ε_x at the various temperatures, the relationship between the $\varepsilon_x/\varepsilon_t$ ratio and ε_t, the stress- and temperature-dependence of the $\varepsilon_x/\varepsilon_t$ ratio and the stress-dependence of the rate of ε_x all indicate that ε_x is associated with fine slip. There are 11 figures.

ASSOCIATION: Institut metallofiziki TsNIIChM
(Institute of Metal Physics, TsNIIChM)

SUBMITTED: July 17, 1962

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

ROZENBERG, V.M.; SHALIMOVA, A.V.

Effect of the substructure on the creep of iron silicide single crystals. Dokl. AN SSSR 148 no.1:82-83 Ja '63. (MIRA 16:2)

1. Institut metallovedeniya i fiziki metallov TSentral'nogo nauchno-issledovatel'skogo institut chernoy metallurgii im. I.P. Bardina. Predstavleno akademikom G.V. Kurdyumovym.
(Creep of metals) (Iron silicide crystals)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

L 14298-63 EWF(q)/EWT(m)/BDS AFFTC/ASD JD

ACCESSION NR: AP3000105 S/0126/63/015/004/0612/0615

AUTHORS: Kugayenko, O. N.; Rozenberg, V. M.; Shalimova, A. V.

58
57

TITLE: Influence of initial substructure on the process of creep 18

SOURCE: Fizika metallov i metallovedeniye, v. 15, no. 4, 1963, 612-615

TOPIC TAGS: creep, substructure change

ABSTRACT: Changes in the artificially produced substructure of iron silicide polycrystals (3.4% Si) have been studied by the dislocation etching method. The results obtained were compared to those of a sample annealed at 1200C and practically free of substructure. The substructural variations have been evaluated quantitatively. A load of 1.5 kg/Sq mm applied to more highly developed substructures (greater degree of deformation) resulted in a smaller deformation during the creep. However, under the action of a 2.5 kg/Sq mm load the annealed sample and those with an induced substructure behaved almost identically. During the creep process an ever-increasing number of subboundaries was formed in the annealed sample. The opposite was true for samples with established initial substructures, in which the number of subboundaries diminished to the number in the annealed sample. The authors conclude that the substructure formed during creep does not

Card 1/2

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

L 14298-63

ACCESSION NR: AP3000105

depend on the initial substructure. When the substructures of different samples become alike their creep velocities become equal. The results obtained with the 2.5 kg/Sq mm load show that under sufficiently high loads the subboundaries either cease to be an obstacle to deformation, or that the initial substructure changes too rapidly (approaching that of the annealed sample) for its effect to be detected. The time interval required for reaching the point of failure is different in different samples. This is explained by the effect of the initial substructure. Orig. art. has: 5 figures.

ASSOCIATION: Institut metallofiziki TsNIIChM (TsNIIChM Institute of Physical Metallurgy)

SUBMITTED: 16Jul62 DATE ACQ: 12Jun63 ENCL: 00

SUB CODE: ML NO REF SOV: 004 OTHER: 001

Card 2/2

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

ROZENBERG, V.M.

KURDYUMOV, G.V., akademik; ENTIN, R.I., doktor tekhn.nauk; ROZENBERG, V.M., kand.tekhn.nauk

Relation of the kinetics of weakening during the aging process to the composition of the hardening phase. Probl. metalloved. i fiz. met. no.4:360-376 '55. (MIRA 11:4)
(Metals--Hardening) (Crystal lattides)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

ROZENBERG, V. M.

615.12
.36

TEORIYA PLASTICHESKIKH DEFORMATSIY METALLOV; MEDHANIKA KONECHNOGO FORMOIZMENENIYA (THEORY OF THE PLASTIC DEFORMATION OF METALS, BY) G. A. SMIRNOV-ALYAYEV I V. M. ROZENBERG. MOSKVA, MASHGIZ, 1956. 366 p. ILLUS., DIAGRS., TABLES. "LITERATURA": p. 364-365.

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

ROZENBERG, V. M.

Category : USSR/Solid State Physics . Mechanical Properties of Crystals and Crystalline Compounds E-9

Abs Jour : Ref Zhur - Fizika, No 3, 1957, No 6813

Author : Kurdyumov, G.V., Kaminskiy, E.Z., Rozenberg, V.M.

Title : Influence of Internal Structure of the Austenite Grain on the Strength with Increasing Temperature

Orig Pub : Dokl. AN SSSR, 1956, 107, No 1, 85-87

Abstract : A study was made of the influence of the intragranular structure of austenite on the strength at 700°, as a function of the speed of the formation. Various structures were received by phase hardening (direct and reverse martensitic transformation) and heating at various temperatures above the temperature of the end of the reverse martensitic transformation. It was established that the presence of a thin submicroscopic inhomogeneity in the structure of the grains, due to the large number of intragranular separation surfaces, leads to an increase in the resistance to deformation at high deformation speed and to a reduction in the resistance to deformation at speeds causing failure after 100

Card : 1/2

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

ROZENBERG, V.M.

SUBJECT USSR / PHYSICS CARD 1 / 2 PA - 1245

AUTHOR KUDRJUMOV, G.V., KAMINSKIJ, E.Z., ROZENBERG, V.M.

TITLE The Influence exercised by the Interior Structure of the Austenite Grain on Strength at Increased Temperature.

PERIODICAL Dokl. Akad. Nauk, 109, fasc.1, 85-87 (1956)
Publ. 7 / 1956 reviewed 9 / 1956

In the present work a solid solution on an iron base containing about 29% nickel and 1% titanium is examined. The direct martensite transformation of this alloy takes place below room temperature, but the inverse transformation ceases at 640°. The samples were homogenized for 8 hours at 1000° after melting and forging. After the aforementioned treatment the samples had austenite structure, and their state depends on working temperature. The endurance strength was tested at 700° in an argon atmosphere by tension. As a result, the dependence of endurance strength on the connected tension and on the temperature during preliminary treatment is obtained, and herefrom also the tensions necessary for a fracture of the sample after 100 hours. Furthermore, short tests of breaking strength were carried out at 700°, on which occasion the following results were obtained: The higher the temperature of annealing after the martensite transformation, the lower is the strength limit and the larger the endurance limit of stress, i.e. the tension necessary to bring about a fracture after 100 hours.
X-ray examination supplied information concerning the state of the crystals

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

Dokl.Akad.Nauk, 109, fasc.1, 85-87 (1956) CARD 2 / 2 PA - 1245

of the γ-solid solution after corresponding treatment. Some X-ray pictures taken with manganese radiation are attached; they permit a qualitative description of the state of the crystal lattice of the austenite after an inverse martensite transformation and following heating. The broadening of the lines in a radial direction is due to tensions of the 2. kind, and to the reduction of the domains of the coherent scattering of X-ray radiation. The description of the interference spot in azimuthal direction indicates a mutual(?) or opposite (?) rotation of these domains. These states of the crystals (grain) of the solid solution are conserved up to very high temperatures and recrystallization begins only at 1000°. After annealing at 1100° and 1200° reflections of new recrystallized grains become noticeable. Each austenite grain is a total of small domains with a proper crystal lattice, and this lattice is interrupted at the boundaries of the grain. The higher the annealing temperature after the inverse martensite transformation, the more completely will the destructions of the crystal lattice be removed, and the more will the strength of the solid solution be reduced. At high temperatures and low tensions a treatment that removes (or increases) defects of the lattice will increase (or deteriorate) resistance against plastic deformation.

INSTITUTION: Institute for Metallurgy and Physics of Metals of the Central Scientific Research Institute for Iron Metallurgy

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

SOV/137-58-9-19054

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 9, p 131 (USSR)

AUTHOR: Rozenberg, V.M.

TITLE: Calculations for the Operations of Bending Shell Halves in Dies (Raschet operatsiy gibki poluobechayek v shtampakh)

PERIODICAL: V sb.: Inzhenern. metody rascheta tekhnol. protsessov obrabotki metallov davleniyem. Moscow-Leningrad, Mashgiz, 1957, pp 133-148

ABSTRACT: A design of dies for the bending of large shell halves without "crimping" is proposed. The stress-strain state of the blank is examined. An analysis of the position of the neutral surface within the sheet, and of shell half forging parameters is presented. A formula for calculation of required force is adduced. A.M.

1. Cylindrical shells--Processing

Card 1/1

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

KAMINSKIY, E.Z.; ROZENBERG, V.M.

Investigating heat resistance in solid solutions. Issl. po zahropr. splav. 2:34-43 '57. (MIRA 11:2)
(Solutions, Solid)
(Heat-resistant alloys)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

SOV/137-58-8-17733

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 8, p 220 (USSR)

AUTHORS: Kaminskiy, E. Z., Rozenberg, V. M., Travina, N. T.

TITLE: A Study of the Kinetics of Recrystallization of Cr-Ni-Co Alloys (Izucheniye kinetiki rekristallizatsii khromo-nikel'-kobal'tovykh splavov)

PERIODICAL: V sb.: Issled. po zharoprochn. splavam. Vol 2, Moscow, AN SSSR, 1957, pp 181-185

ABSTRACT: Investigations performed dealt with the influence of the composition of Cr-Ni-Co alloys on the temperature of recrystallization (R). Tests were carried out on three series of alloys (A) in which the ratio of the Co-Ni content (expressed in atom %) was 3:7, 1:1, and 7:3. Certain A with this base were supplemented by Ti, Al, W, Mo, Fe, and C. After smelting in a high-frequency induction furnace, the A were subjected to cold rolling with a degree of reduction of ~73%. However, owing to considerable difficulties in rolling, certain A were deformed only by approximately 20%. Specimens for X-ray analysis were prepared from strips of the rolled material. The X-ray studies demonstrated that all ternary Cr-Ni-Co

Card 1/2

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

SOV/137-58-8-17733

A Study of the Kinetics of Recrystallization of Cr-Ni-Co Alloys

alloys belonged in the category of a homogeneous solid solution. For the purpose of studying the kinetics of R, specimens were subjected to annealing at temperatures of 450-900°C for various periods of time. The R temperatures were determined by X-ray means, namely, by the appearance of separate dots on the diffraction patterns. For every series of A the temperature corresponding to the onset of R is shown to increase with increasing concentrations of Cr, whereas the ratio of Ni and Co manifests itself differently at different concentrations of Cr. In the case of an A containing 10% Cr, the R temperature is practically independent of the Ni-Co ratio. At a 20% Cr content, highest R temperature is observed in the A with a Co-Ni ratio of 1:1; the next lower R temperature is exhibited by the A with a Co-Ni ratio of 7:3, followed by the A with a Co-Ni ratio of 3:7. At a 30% Cr content, the alloys with Co-Ni ratios of 3:7 and 7:3 exhibit an identical R temperature which is somewhat higher than that of the A with a 1:1 Co-Ni ratio. It has been established that alloys containing additions of W and Mo, either separately or concurrently, exhibit higher R temperatures than alloys containing no such additives. Addition of Ti and Al also increases the temperature of the onset of R. Addition of Fe in amounts of 5-10% exerts practically no influence on the R temperature of Cr-Ni-Co alloys. 1. Chromium-cobalt-nickel alloys--Crystallization 2. Chromium-cobalt-nickel alloys--X-ray analysis 3. Chromium-cobalt-nickel alloys--Temperature factors 4. Chromium-cobalt-nickel alloys--Test results L. G.

Card 2/2

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

ROZENBERG, V.M.

Studying nickel behavior in solid solutions of titanium in nickel at high temperatures and low rates of deformation. Issl. po zharopr. splav. 3:206-216 '58. (MIRA 11:11)
(Nickel-titanium alloys--Metallography)
(Metals at high temperature) (Deformations (Mechanics))

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

SOV/137-58-9-19841

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 9, p 248 (USSR)

AUTHOR: Rozenberg, V.M.

TITLE: Changes in Specific Heat Occurring During Continuous Heating of a Nickel-chromium Alloy Containing Titanium and Aluminum (Izmeneniye teployemkosti nikel'khromovogo splava, soderzhashchego titan i alyuminiy, pri nepreryvnom nagreve)

PERIODICAL: Sb. tr. In-t metalloved. i fiz. metallov Tsentr. n.-i. in-ta chernoy metallurgii, 1958, Vol 5, pp 272-276

ABSTRACT: Measurements of true specific heat, C_p, under conditions of continuous heating were performed by means of a differential electrical calorimeter on specimens of the KhN80T alloy which had been tempered at 1080°C and subjected to tempering and aging at a temperature of 750°. The C_p of an aged alloy increases as a linear function up to a temperature of ~600°, after which the rate of its increase becomes greater. At temperatures under 590° the C_p of a tempered alloy coincides with the C_p of an aged alloy; the appearance of extremal C_p values, a number of which is observed during further increases in temperature (at 640, 680, 720, and 780°), is attributable to

Card 1/2

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

SOV/137-58-9-19841

Changes in Specific Heat Occurring During Continuous Heating (cont.)

changes in the structure of the alloy under investigation; such changes are established in works of other authors and are confirmed in the present paper. Bibliography: 7 references.

L.V.

1. Chromium-nickel alloys--Specific heat 2. Chromium-nickel alloys--Temperature factors 3. Aluminum--Metallurgical effects 4. Titanium--Metallurgical effects

Card 2/2

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

SOV/137-58-7-15689

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 7, p 254 (USSR)

AUTHORS: Kaminskiy, E. Z., Rozenberg, V. M., Travina, N. T.

TITLE: Effect of Alloying Elements on the Kinetics of the Recrystallization of Nickel and Nickel-chrome-cobalt Alloys (Vliyaniye legiruyushchikh elementov na kinetiku rekristallizatsii nikelya, nikel' khromokobal' tovykh splavov)

PERIODICAL: Sb. tr. In-t metalloved. i fiz. metallov Tsentr. n.-i. in-ta chernoy metallurgii, 1958, Vol 5, pp 503-513

ABSTRACT: An X-ray determination was made of the temperature at which recrystallization begins during treatment, $t_{b.r.}$, of the nickel-base alloys, Ni-Co, Ni-Cr, and Ni-Cr-Co with additions of Fe, Al, Mo, W, and Ti (blank space left in Russian original, Transl. Ed. Note) rolled and annealed at 400-950°C during 1-10 hrs. Graphs of the relationship of the time of recrystallization to the annealing temperature and the composition of the alloys are adduced. For binary alloys it is indicated that Fe and Al have no effect on $t_{b.r.}$; Co lowers $t_{b.r.}$; up to 2 atom % Cr lowers $t_{b.r.}$; higher Cr concentrations increase $t_{b.r.}$; Mo, W, and Ti

Card 1/2

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

SOV/137-58-7-15689

Effect of Alloying Elements on the Kinetics (cont.)

increase the $t_{b.r.}$ of Ni. In the case of ternary and more complex alloys the relationship of $t_{b.r.}$ to the composition of the alloys becomes more complicated.

A. B.

1. Nickel alloys--Crystallization 2. Alloys--Metallurgical effects
3. Nickel alloys--Heat treatment 4. Nickel alloys--X-ray analysis

Card 2/2

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

SOV/137-58-7-15707

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 7, p 257 (USSR)

AUTHORS: Noscva, G.I., Rozenberg, V.M.

TITLE: Study of the Effect of Structural Modification Related to Recrystallization on Creep Characteristics (Izucheniye vliyaniya izmeneniya struktury, svyazannogo s rekristallizatsiyey, na polzuchest')

PERIODICAL: Sb. tr. In-t metalloved. i fiz. metallov Tsentr. n.-i. in-ta chernoy metallurgii, 1958, Vol 5, pp 514-521

ABSTRACT: Results of the study of the effect of structural modification produced by a preliminary deformation equal to 90% on the creep (C) in bending at 560-700°C are described. The investigation was conducted on solid solutions of Fe-Ni-Cr-Co in deformed and annealed states with a variable content of Co from 0 to 20 weight %. In addition to measurement of the rate of C, a study of the kinetics of recovery was carried out (by the variation in the width of X-ray lines) and also the kinetics of recrystallization. It is determined that at relatively low temperatures ($\leq$ 600°) the structure is the main factor determining the behavior of solid solutions during slow plastic

Card 1/2

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

SOV/137-58-7-15707

Study of the Effect of Structural Modification (cont.)

deformation. At relatively high temperatures, at which a structure affording a high degree of strength cannot exist, the chemical composition of the solid solution becomes the main factor that determines the strength of the interatomic bonds in the crystalline lattice. Meanwhile, the conservation of a structure affording a high degree of strength at elevated temperatures also depends on the strength of the interatomic bonds. The rate of C in specimens hardened by cold deformation and without preliminary stabilization is sharply increased in the range of temperatures of crystallization. Also, the area with a steady rate of C is displaced towards longer periods of time. It is indicated that during the simultaneous action of temperature and stresses a weakening of previously strained specimens occurs more extensively than under the action of temperature alone. Bibliography: 6 references.

1. Metals--Mechanical properties 2. Metals--Structural analysis L. G.
3. X-ray analysis--Applications

Card 2/2

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

SOV/137-58-7-15690

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 7, p 254 (USSR)

AUTHORS: Gorelik, S. S., Rozenberg, V. M., Rokhlin, L. L.

TITLE: Effect of Some Soluble and Insoluble Additives Upon the Recrystallization of Nickel (Vliyaniye nekotorykh rastvorimykh i nerastvorimykh primesey na rekristallizatsiyu nikelya)

PERIODICAL: Sb. tr. In-t metalloved. i fiz. metallov Tsentr. n.-i. in-ta chernoy metallurgii, 1958, Nr 5, pp 522-527

ABSTRACT: The time of the beginning of recrystallization τ_n was determined by the X-ray method, and the energy of activation of the beginning of recrystallization Q_n was calculated for pure and technical Ni 60% reduced by cold rolling and annealed at 290-600°C and also for its alloys with 2-3.5% Ti and 0.4% C. A very strong effect of the degree of purity of the Ni upon τ_n and Q_n is noted, also a considerable increase of surface energy due to the impurities. It is indicated than an addition of 2-3% Ti to technical Ni produces a certain increase in τ_n. The presence of coagulated carbides in one of the alloys decreased somewhat the effect of Ti on τ_n. The peculiarities of recrystallization of such alloys are explained by an increase

Card 1/2

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

SOV/137-58-7-15690

Effect of Some Soluble and Insoluble Additives (cont.)

within them of the forces of interatomic reaction upon the introduction of Ti and the appearance of deformations in the crystalline lattice upon the coagulation of the carbides.

A. B.

1. Nickel alloys--Crystallization 2. Nickel alloys--X-ray analysis
3. Alloys--Metallurgical effects

Card 2/2

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

AUTHORS: Nosova, G. I. and Rozenberg, V. M. SOV/126-6-2-19/34

TITLE: Study of the Influence of Preliminary Deformation in the Cold State on Creep (Izucheniye vliyaniya predvaritel'noy khlodnoy deformatsii na polzuchest')

PERIODICAL: Fizika Metallov i Metallovedeniye, 1958, Vol 6, Nr 2, pp 321-325 (USSR)

ABSTRACT: In this paper the results are described of studying the influence of changes in the structure obtained as a result of preliminary deformation on the creep at elevated temperatures. The experiments were effected on solid solutions of iron-nickel-chromium-cobalt with variable cobalt contents and the following compositions:

No.	C	Mn	Ni	Cr	Co	Fe
213	0.035	0.19	41.76	14.00	0	rest
214	0.035	0.52	40.23	14.23	10	"
215	0.035	0.79	40.28	14.19	20	"

The experiments consisted of determining creep in bending tests. Results obtained in such tests are fully satisfactory for characterising qualitatively the

Card 1/3

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7

SOV/126-6-2-19,34

Study of the Influence of Preliminary Deformation in the Cold State on Creep

properties of the material. The thus obtained data were considered only as relative values and no conclusions were made on the absolute magnitudes of the high temperature strength. The solid solutions were investigated in the deformed and in the annealed states; the degree of preliminary deformation amounted to 90%. In addition to measuring the creep speed, the kinetics of relaxation (widening of the X-ray lines) and the kinetics of recrystallisation of these alloys were studied and the results of the creep tests for the temperatures 560 to 700°C are entered in Table 2, p 322. The results, which are graphed and tabulated, lead to the following conclusions:

1. At relatively low temperatures (below 600°C) the basic factor determining the behaviour of Fe-Ni-Cr solid solutions during slow plastic deformation is the structure. At relatively high temperatures at which the structure which would ensure a high strength cannot be maintained the basic factor will be the chemical composition of the solid solution, which determines the strength of the

Card 2/3

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445610012-7"