SOTIN, B.S., otv.red.; BUTOMO, N.N., red.izd-va; NIKIFOROVSKIY, V.A., red.izd-va; KASHINA, P.S., tekhn.red.

[Outline of the history of radio engineering] Ocherki istorii radiotekhniki. Moskva, 1960. 446 p. (MIRA 13:11)

1. Akademiya nauk SSSR. Institut istorii yestestvoznaniya i tekhniki.
(Radio)

SOTIN, B.S. (Moskva)

Henry Cavendish; on the 150th anniversary of his death.
Fiz. v shkole 20 no.2:17-18 Mr-Ap '60. (MIRA 14:5)
(Cavendish, Henry)

SOTIN, B.S.

Work of G.V.Rikhman on electricity. Trudy Inst. ist. est. i tekh. 44:3-42 '62. (MIRA 18:3)

SOT'IN, V.A.

35474. Perforatsiya aorty. Vracheb. delo, 1949, No. 11, stb. 1035-38

Letopis' Zhurnal'nykh Statey, Vol. 48, Moskva, 1949

REVA, A.D.; SOTINA, L.V.

Studies on lipid concentration in various regions of the lumber enlargement of the spinal cord. Biokhimiia 25 no.2:285-287 Mr-Ap '60. (MIRA 14:5)

1. Kafedra fiziologii i biokhimii Dnepropetrovskogo universitota.
(SPINAL CORD) (LIPID METABOLISM)

L 25942-66 EWT(d)/EWP(l) IJP(c) BB/GG

ACC NR: AP6015703 SOURCE CODE: UR/0413/66/000/009/0104/0104

INVENTOR: Sotina, N. M.

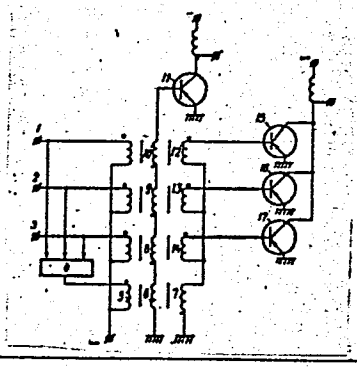
ORG: none

TITLE: Majority logic element. Class 42, No. 181385

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 9, 1966, 104

TOPIC TAGS: logic element, computer circuit

ABSTRACT: The majority logic element shown in the figure consists of input transformers, an OR gate, transistor amplifiers, and a transformer which serves as a



1-3 - inputs; 4 - OR gate; 5-7 - threshold transformer windings; 8-10 - secondary windings of the input transformers; 11 - amplifier; 12-14 - third windings of the input transformers; 15-17 - amplifiers.

Card 1/2

UDC: 681.142.07

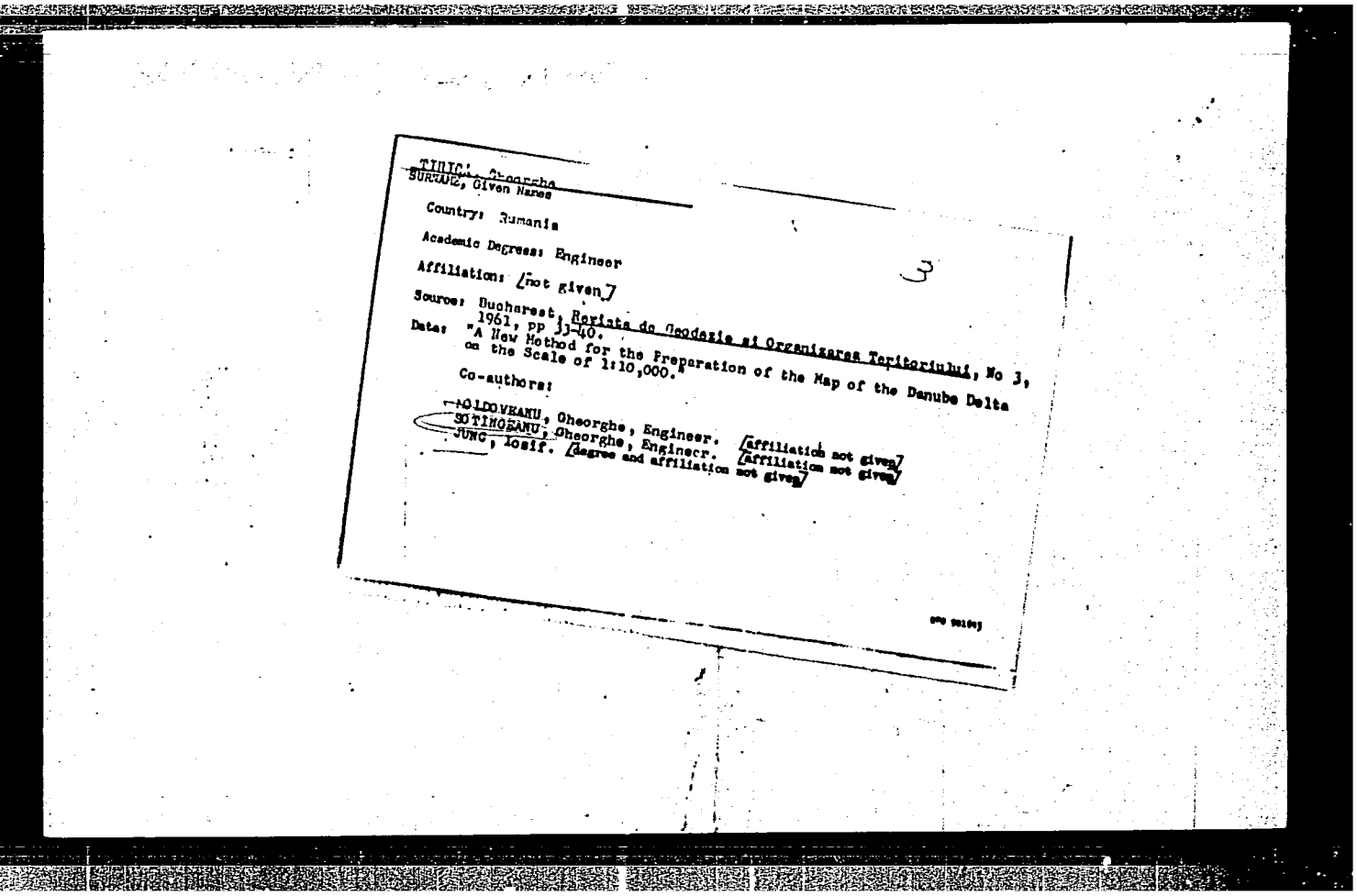
L 25942-66

ACC NR: AP6015703 O

threshold element. The reliability of the circuit is increased by connecting the OR gate output to the threshold transformer primary winding. One secondary winding of this transformer is connected in a series (in the direction of flux opposition) with the series connection of three secondaries of the input transformers which drive the base of a transistor amplifier. The other secondary winding of the threshold transformer is connected in a series (in the direction of flux opposition) with the parallel combination of three secondary windings of the input transformers. Each of these three windings supplies the input to a transistor OR gate as shown. Orig. art. has: 1 figure. [BD]

SUB CODE: 09/ SUBM DATE: 28Jun62/ ATD PRESS: 4256

Card 2/2 FW



TIRIC, Gheorghe
SURNAME, Given Names

Country: Rumania

Academic Degrees: Engineer

Affiliation: [not given]

Source: Bucharest, Revista de Geodezie si Organizarea Teritoriului, No 3, 1961, pp 33-40.

Date: "A New Method for the Preparation of the Map of the Danube Delta on the Scale of 1:10,000."

Co-authors:

NICOLCOVEANU, Gheorghe, Engineer. [affiliation not given]
SOTIMOEANU, Gheorghe, Engineer. [affiliation not given]
JUNG, Iosif. [degree and affiliation not given]

SOTIRESCU, N.

Sotirescu, N. Electricitatea industriala (de) N. Sotirescu (si) V.Ciocionica. Ed. 2. (Bucuresti) Editura Tehnica, 1952. (Electricity and electric measurements. Vol. 1. Electritity in industry. Vol. 2. Electrical machines, transformers, and batteries. Vol. 3. Electrical distribution, lighting, and electirity in automobiles)

SO: Monthly List of East European Accessions, LC, Vol. 3, No. 1, Jan. 1954, Uncl.

KREYNDLER, A.; KRIGEL', E.; STOYKA, E.; SOTIRESKU, N. [Sotirescu, N.]

Investigation of short-latency responses evoked by acoustic stimuli from somesthetic or visual zone of unanesthetized cats. Fiziol. zhur. 49 no.12:1391-1399 D '63.
(MIRA 17:12)

1. Institut nevrologii im. I.P. Pavlova Akademii Rumynskoy Narodnoy Respubliki, Bukharest.

SOTIRIADI, K. A.

2

Brief mineralogical-petrographic characteristics of the Upper Cretaceous and the Paleogenic deposits of Kaesan-Tau. L. N. Vertunov and K. A. Sotiriadi. *Trudy Srednеaziat. Gosudarst. Univ. im. V. I. Lenina Geol. Nauki* 68, No. 6, 31–8(1955).—A report of a microscopic study of mineralogical compn. of sediments of deposits studied. Thirty-eight mineral types were observed by studies of polished sections and of immersion prepns. Brief descriptions of most of them are given. — Gladys S. Macy

DIKENSHTEYN, G.Kh.; ZHUKOVSKIY, L.G.; IL'IN, V.D.; KAYESH, Yu.V.; GRACHEV, G.I.; SOTIRIADI, K.A.

Basic features of the geology of the Bukhara-Khiva oil- and gas-bearing area. Trudy VNIGNI no.30:3-22 '61. (MIRA 14:9)
(Uzbekistan--Petroleum geology) (Uzbekistan--Gas, Natural--Geology)

DIKENSHTEYN, G.Kh.; ZHUKOVSKIY, L.G.; IL'IN, V.D.; KAYESH, Yu.V.; PETROV, I.V.; SOTIRIADI, K.A.

Geology and the oil and gas potentials of the Gazli field. Trudy VNIGNI no.30:38-63 '61. (MIRA 14:9)
(Gazli region--Petroleum geology) (Gazli region--Gas, Natural--Geology)

ALIYEV, I.M.; BELYAKOVA, G.M.; DIKENSHTEYN, G.Kh.; ZHUKOVSKIY, L.G.; IL'IN, V.D.; KAYESH, Yu.V.; LEVINA, Ye.Ye.; SOTIRIADI, K.A.; KHON, A.V.

Some results of the study of the geology of the Neogene and Quaternary movements of closed areas of western Uzbekistan using the method of geological mapping of the Pre-Neogene surface. Trudy VNIGNI no.30:64-72 '61. (MIRA 14:9)
(Uzbekistan--Geology, Structural)

SOTIRIADI, K.A.; NURTAYEV, S.N.

Jurassic carbonate formations in southwestern spurs of the Gissar Range and Bukhara-Karshi area. Trudy GNIGNI no.35:27-35 '61. (MIRA 16:7)

(Gissar Range--Rocks, Carbonate)
(Uzbekistan--Rocks, Carbonate)

Arturu, E.

ARTUR, E.
Surname (in caps); Given names

9

Country: Rumania

Academic Degrees: -Dr.-

Affiliation: Institute of Pathology and Animal Hygiene (Institutul de Patologie si Igiena Animala)

Source: Bucharest, Probleme Zootehnice si Veterinare, No 8, Aug 1961, pp 41-52.

Data: "Investigations of Certain Foci of Leptospirosis in Sheep."

Co-authors:

NICOLAESCU, Al., Veterinarian, Institute of Pathology and Animal Hygiene.
LIULIU, C., -Dr.-, Institute of Pathology and Animal Hygiene.
PANAESCU, Gh., Veterinarian, Institute of Pathology and Animal Hygiene.
[illegible], A., Institute of Pathology and Animal Hygiene.
RUCANU, V., Veterinarian, State Agricultural Farm (Gospodaria Agricola de Stat), Rimnicu Sarat, Plauesti Regiune.
PUIULESCU, D., Veterinarian, Circumscription of Cogeleac (Circumscriptia Cogeleac), Dobrogea Regiune.

SOTIRIU, V.

A phenomenon of "physiological induction" produced in tomatoes by means of an increased concentration of CO_2. Studii cerc biol veget 12 no.2:197-216 '60. (EEAI 9:11)
(Tomatoes) (Carbon dioxide)

BRAD, I.; LASZLO, Iulia; VALUTA, G.; SOTIRIU, V.

Contributions for establishing some biochemical and physiological indexes of the frost resistance of fall cereals. Studii cerc biol veget 13 no.2:233-241 '61. (EEAI 10:11/12)

1. Comunicare prezentata de N. Salageanu membru corespondent al Academici R.P.R.

(Plants)

SOTIROV, Angel; RUSKOV, Tsvia

Comparative studies of some domestic and foreign mulberry varieties. Selskostop nauka 2 no.10:1259-1264 '63.

SOTIROV, Ap.

Prognosis of the rising of waters in spring. Khidro i meteorolog no.1:59-68 '60. (EEAI 10:1)
(Water) (Spring)

SOTIROV, Apostol

Some results from the latest experimental study abroad on the hydrologic role of forests. Khidro i meteorolog no.1:60-62 '61. (KEAI 10:7

(Forests and forestry) (Hydrology)

STANEV, Sv.; SOTIROV, Ap., inzh.

Snow accumulation in the Rila Mountains, and the spring influx in the Iskur reservoir. Khidrotekh i melior 6 no.10:311-313 '61.

SOTIROV, Ap.

Hydrologic role of the turf of the Vitosha Mountains. Khidro i meteorolog no.2:23-26 '60. (EEAI 10:1)
(Bulgaria--Water) (Bulgaria--Soils)
(Bulgaria--Mountains)

SOTIROV, A.

An attempt to calculate the water supply in the snow covering the water-collecting basin of Beli Iskur Dam and for forecasting the probable flow into the dam for 1960. Khidro i meteorolog no.6:34-40 '60. (EEAI 10:6)

(Bulgaria--Water)

SOTIROV, Ap., inzh.

Use of the data supplied by the rain-gauge stations, and of those on snow reserves for forecasting the water inflow into Alpine reservoirs. Priroda Bulg 10 no.5:59-62 S-O '61.

STANEV, Sv.; SOTIROV, Ap.

Scientific communication of an expedition for the study of snow reserves in the catchment vasin of the Beli Iskur Dam, March 30-June 6, 1962. Khidro i meteorolog no.4:56-58 '62.

STANEV, Sv.; SOTIROV, Ap.

Forecast regarding the spring inflow into the reservoir Iskur.
Trud Inst khidro meteor no.12:17-44 '62.

SOTIROV, Ap.

Prognosis of the spring influx of the Iskur River into the Iskur Dam. Khidro i meteorolog no.3:36-43 '62.

SOTIROV, Ap.

Role of snowdrifts in feeding the rivers springing from the Rila Mountains. Khidro i meteorolog no.6:53-55 '62.

STANEV, Sv.; SOTIROV, Ap.

Forecasting the inflow of the Iskur reservoir. Khidrotekh i melior 7 no.8:254-255 '62.

BLUSKOVA, D.; SOTIROV, Ap.

International Symposium on Humidity and Moisture. Khidro i meteorolog 13 no. 1:40-41 '64.

SOTIROV, Ap.; MANDADZHIEV, D.

Use of the trip snow-measuring photographs for the needs of short-term hydrologic forecasts. Khidro i meteorolog 13 no.5:58-62 '64.

SOTIROV, B.

Sotirov, B. Uchebnik po tekhnologiia na kovachestvoto za V kurs na tekhnikumite po mekhanotekhnika mashinostroitelen otdel. Sofiya (Narodna prosveta) 1952. 280 p. (Technology of forging: A textbook for the 5th course in the technical schools of mechanics)

SO: Monthly List of East European Accessions, L. C. Vol. 3 No. 1 Jan '54 Uncl.

SOTIROV, B.

A case of osteopoikilosis. Suvrem. med., Sofia 8 no.8:100-103 1957.

1. Iz rentgenovoto otdelenie na Okruzhnata bolnitsa - gr. Burgas.
Gl. lekar: Zh. Siakolov.
(OSTEOSCLEROSIS, case reports
osteopoikilosis)

SOTIROV, B.

Incidence of diaphragmatic hernia and its roentgenodiagnosis. Suvrem. med., Sofia 9 no.5:63-68 1958.

1. Iz Rentgenovoto otdelenia na Okruzhnata bolnitsa v gr. Burgas (G. lekar: Zh. Siakolov).
(HERNIA, DIAPHRAGMATIC, diagnosis,
x-ray (Bul))

SOTIROV,B.; BORADZHIEV,Z.

Observations on fluorine osteosis resulting from drinking fluorine water. Suvrem. med., Sofia 11 no.2:97-105 '60.

1. Iz rentgenovoto otdelenie na Okpuzhnata bolnitsa - gr. Burgas, Gl. sekar: Zh. Siakolov.
(FLUORINE toxicol.)

KHARALAMPIEV, G., inzh.; SOTIROV, B., inzh.; IZMIRLIEV, G., inzh.;

Mathematical statistical studies of electric-furnace slag in the Georgi Dimitrov Copper-Producing Combine.
Min delo 18 no.8:20-27 Ag '63.

1. NIITsVETMET.

SHTILLIANOV, G., inzh; SOTIROV, D., inzh

Study of the strains and deformations in the main cobblestone road floors. Godishnik Inzh stroit inst 16 no.1:141-154 '64.

SOTIROV, Dimitur, inzh.

Selection of minimal horizontal radii for high-speed automobile roads. Stroitelstvo 20 no. 6: 25-28 N-D '63.

SOTIROV, Dimitur, inzh.

Centering of carrying poles at the mounting of rope lines.
Tekhnika Bulg 13 no. 3:33-34 '64.

SOTIROV, G.

SOTIROV, G. Planning short-term loans on cooperative farms. p. 18.

Vol. 11, no. 5, May 1956
KOOPERATIVNO ZEMEDELIE
AGRICULTURE
Sofiia, Bulgaria

SO: East European Accession, Vol. 6, No. 3, March 1957

SOTIROV, G.

SOTIROV, G. Money advancing must be guaranteed. p.8.

Vol. 11, no. 8, Aug. 1956
KOOPERATIVNO ZEMEDELIE
AGRICULTURE
Sofiia, Bulgaria

SO: East European Accession, Vol. 6, No. 3, March 1957

SOTIROV, G.

Correct preservation of the resources of some funds. p. 13.
(KOOPERATIVNO ZEMEDELIE, No. 7 July 1957, Sofia, Bulgaria.)

SO: Monthly List of East European Accessions (EEAL) LC, VOL. 6, no. 12, December 1957 Uncl.

SOTIROV, G.

"Concerning installment for loans for production needs"

Otchetnost I Kontrol V Selskoto Stopanstvo. Sofiia, Bulgaria. Vol. 3, no. 8, 1958

Monthly list of East European Accessions (EEAI), LC, Vol. 8, No. 6, Jun 59, Unclas

MIKHAILOV, Konstantin, inzh.; VELKOV, Asen; SOTIROV, Ivan

Indexes of power economy and tariffs with respect to electric and heat energy. Izv Inst energ BAN 1:109-154 '61.

1. Chlen na Redaktsionnata kolegiia, "Izvestiia na Instituta po energetika" (for Mikhailov).

RASHEEV, Georgi, dots. inzh.; MIKHAILOV, K.; DOBREV, V.; SOTIROV, Iv.; STATEV, N.; GUGOV, P.; TSVETKOV, V.

Conditions for the economic distribution of electric and thermal loads in the power system of Bulgaria. Izv Inst energ BAN 2:227-303 '62.

1. Chlen na Redaktsionnata kolegiia i otgovoren redaktor, "Izvestiia na Instituta po energetika" (for Rasheev).

MIKHAILOV, Konstantin, inzh.; MIKHAILEV, Kol'o; SOTIROV, Ivan

The power and economic effectiveness of the accelerated electrification of railroads and everyday needs. Izv Inst energ BAN 3:143-178 '62.

1. Chlen na Redaktsionnata kolegiia, "Izvestiia na Instituta po energetika" (for Mikhailov).

SOTIROV, Ivan, inzh.

Prospective determination of the annual usability of electric-power stations. Elektroenergiia 13 no.7:2-5 Jl '62.

1. Institut po energetika pri Bulgarskata akademiia na naukite.

MIKHAILOV, K., inzh.; VELCHEV, St., inzh.; STANEV, St., arkh.; TSVETKOV, V., inzh.; VELKOV, As., ikon.; GUDEVA, Zh., inzh.; SOTIROV, Iv., inzh.; TSONEV, D., inzh.; KHRISTOVA, S., inzh.; RAIKOV, Il., inzh.; KOSTADINOV, V., inzh.

Current problems of urban electrical engineering. Elektroenergiia 16 no.1:3-7 Ja '65.

BOTIROV, N.

Foreign body in the esophagus simulating esophageal cancer. Khirurgiia (Sofiia) 18 no.4:494-497 '65.

1. Katedra po ushni, nosni i gurleni bolesti, Vissh meditsinski institut, Sofiia (rukovoditel - prof. G. Iankov).

MENTESHEV, M.; SOTIROV, St.

Nonlinear resistance of silicon carbide. Mat i fiz Bulg 6 no.2:10-20 Mr-Ap '63.

SOTIROV, St., inzh.; MENTESHEV, M., inzh;

Semiconductor resistances with nonlinear voltampere characteristics. Mashinostroene 12 no.8:28-31 Ag '63.

1. NIIEP (for Sotirov).
2. MGI (for Menteshev).

MITEVA, V., inzh.; SOTIROV, T., inzh.

The Hall effect and its application in modern measurement techniques. Mashinostroene 11 no.5:24-28 My '62.

1. NIIEP.

SOTIKOV, V.; PAVLOV, D.

SOTIKOV, V.; PAVLOV, D. Swelling of mine rocks and supporting them with anchor bolts. p. 39.

Vol. 10, (i. e. 11) No. 4, July/Aug. 1956.
MINNO DELO
TECHNOLOGY
Sofiia, Bulgaria

So: East European Accession, Vol. 6, No. 3, March 1957.

SOTIROV, V.

"Special methods for making shafts in mines and their application in Bulgaria."

MINNO DELO, Sofiia, Bulgaria, Vol. 14, No. 1, Jan./Feb. 1959.

Monthly list of EAST EUROPEAN ACCESSIONS (EEAI), Library of Congress, Vol. 8, No. 8, August, 1959.

Unclassified.

IANAKIEV, A., inzh.; DOBREV, D.; SOTIROV, Vl.

Economic importance of fast heading for the development of the Gorbuso State Mining Enterprise. Min delo 17 no.8:3-4 Ag '62.

1. Durzhavno minno predpriiatie "Gorbuso".

PESIC, Radoslav; SOTIROVIC, Rista

Cervical rib. Srpski arh. celok. lek. 88 no.12:1259-1264 D '60.

1. I hirurska klinika Medicinskog fakulteta Univerziteta u Beogradu. Upravnik: prof. dr Bogdan Kosanovic.

(RIBS abnorm)

GLIDZIC, V.; SOTIROVIC, R.

A case of giant hydronephrosis. Acta chir. iugosl. 9 no.3/4:283-287 '62.

1: I hirurska klinika Medicinskog fakulteta u Beogradu (Upravnik prof. dr B. Kosanovic).

(NO SUBJECT HEADINGS)

5

SOTIROVSKI, S.

Contribution to the knowledge of mountain pastures in Galicnik. p. 13.
(Socijalisticko Zemjodelstvo, Vol. 8, no. 12, Dec. 1956.)

SO: Monthly List of East European Accessions (EEAL) LC, Vol. 6, no. 7, July 1957. Uncl.

SOTKIEWICZ, A.

Protection of mining machine parts by enameling. Wiadomgorn 12 no.7/8:253 Jl-Ag '61.

SOTKIEWICZ, Adam, mgr. inz.

A contribution to the history of Polish metallurgy.
Wiad hut 17 no. 10:305-308 O'61.

L 23087-66 EWT(1)/EWA(h) GG

ACC NR: AP6011204 SOURCE CODE: UR/0413/66/000/006/0038/0038

INVENTOR: Vaulin, A. M.; Kholodilov, N. N.; Sotkov, V. Ya.; Putchkov, Ye. V.

ORG: none

TITLE: Coaxial shf switch. Class 21, No. 179804

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 6, 1966, 38

TOPIC TAGS: electronic switch, switching circuit, high power switch, SHF

ABSTRACT: An Author Certificate has been issued for a coaxial shf switch. To increase the decoupling between the channels, the switch is provided with a rotating metal shield in the form of an open cylinder. The shield screens the side channels and is actuated by a Γ-shaped conductor. The shield is spring mounted, and its external surface is polished and coated with a highly wear-resistant metal, e.g., palladium. [KM]
Orig. art. has: 1 figure.

SUB CODE: 09/ SUBM DATE: 13Jul64/ ATD PRESS: 4234

Card 1/1

SOTLAR, M.

Photometric analysis of steel; from laboratory practice in the Jesenice Ironworks. p. 1274

TEHNIKA, Beograd, Vol 10, No. 9, 1955

SO: EEAL, Vol5, No. 7, July 1956

GOTLAR, T.

Photometric determinations in siderotechnical laboratories. p. 260.
(NOVA PROIZVODNJA, Vol. 5, No. 3/4, Sept. 1954. Ljubljana, Yugoslavia)

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 4, No. 4, Apr 1955, Uncl.

L 34918-66 T/EWP(t)/ETI IJP(c) WE/JD

ACC NR: AP6026580 SOURCE CODE: CZ/0057/65/000/008/0315/0319

AUTHOR: Sotkovsky, Milan (Engineer); Kapicova, Svatava (Engineer); Tatak, Vaclav

ORG: [Kapicova] Metallurgical Project, Ostrava (Hutni projekt); [Tatak] VZKG, Ostrava

TITLE: Use of various kinds of additive fuels in blast furnaces

SOURCE: Hutnik, no. 8, 1965, 315-319

TOPIC TAGS: fuel oil, coal, fuel additive, blast furnace, coke, industrial management, gas fuel

ABSTRACT: Fuels introduced with blast air into the furnace allow savings of coke which is in short supply. The authors studied the use of fuel oil, coal, oil and oxygen, and coal and oxygen in quantities of 20 - 60 kg of oil per ton of pig iron, 60 to 100 of oil with oxygen, 50 to 250 of coal, and 100 to 250 of coal with oxygen. The best results were obtained with 40 kg of oil and with 145 kg of coal. The price structure was that applying in Czechoslovakia in 1964. (Oil at 0.30 Kcs/ kg, coal 0.2833 Kcs per kg). Changes in the price structure would cause changes in the found optimum quantities. Orig. art. has: 8 figures and 2 tables. [JPRS]

SUB CODE: 21, 13, 05 / SUBM DATE: none / ORIG REF: 001 / OTH REF: 006

Card 1/1

0916, 2275

PRAVDIC, Velimir; SOTMAN, S.

Electrokinetic studies in disperse systems. Pt.8. Croat chem acta 35 no.3:247-254 '63.

1. Institute "Ruder Boskovic", Zagreb, Croatia, Yugoslavia.

SOV/180-59-3-27/43

AUTHORS: Osipov, K.A. and Sotnichenko, A.L. (Moscow)

TITLE: Values of the Activation Energy of Creep and Fracture for Aluminium During Tension

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Metallurgiya i toplivo, 1959, Nr 3, pp 139-141(USSR)

ABSTRACT: Previous work is briefly discussed. The present work was carried out on 99.99% Al after rolling at room temperature. Testing took place in vacuo (10^{-4} mm Hg) and at temperatures of up to 550°C. The specimen was 80 mm long with a gauge length of 22 mm and diameter 3 mm. The results confirm the relationship:

$$\tau = \tau_0 \exp(\Delta H_1/RT)$$

where τ is time to fracture, τ_0 is a constant, ΔH_1 is the activation energy of the process, and R and T have the usual meanings. Fig 1 shows the straight line graphs obtained for log time against inverse temperature for different stresses. Fig 2 shows the relationship between ΔH_1 and the applied stress. The curve is not linear and ΔH_1 approaches a limiting value, believed to be 7.2 k cal/g atom (the theoretically

Card 1/2

Values of the Activation Energy of Creep and Fracture for Aluminium During Tension

calculated value). The facts support the theories of Osipov (Ref 9 to 12). There are 2 figures and 13 references, 6 of which are Soviet, 6 English and 1 German.

ASSOCIATION: Institut metallurgii AN SSSR (Metallurgical Institute, Academy of Sciences, USSR)

SUBMITTED: December 4, 1958

Card 2/2

SOTNICHENKO, A.L.

Multiple specimen vacuum apparatus for testing metals for creep and durability. Issl.po zharopr.splav. 4:367-371 '59.
(MIRA 13:5)

(Metals--Testing) (Vacuum apparatus)

86062

18.8200 1418, 1045, 1454 S/180/60/000/005/003/033
109210 E111/E135

AUTHOR: Sotnichenko, A.L. (Moscow)

TITLE: Testing Metals for Creep and Long-Time Strength in a Vacuum at Constant Stress

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Metallurgiya i toplivo, 1960, No. 5, pp.47-51

TEXT: The author recalls that the atmosphere in which creep and long-time strength tests are carried out can affect the results, and also that such tests are more fruitful if constant stress, rather than constant load, is applied. He describes his new machine, type ВПН-2 (VPN-S2) (Fig. 1), with a vacuum of 10^{-4} mm Hg in the working chamber. Each of six specimens is loaded separately and is automatically kept at constant stress by a mechanical device (Ref. 4) which suitably reduces the load as elongation proceeds. Fig. 2 shows elongation as a function of time for 99.96% Fe iron, type У8 (U8) steel and 99.97% Ti titanium (middle, bottom and top graphs, respectively). The respective temperatures are 580, 700 and 600 °C, and stresses 10, 8 and 6 kg/mm^2. Curves 1 relate to tests with constant load in air, 2 in vacuum, and 3 in vacuum and with constant stress.

Card 1/2

86062

S/180/60/000/005/003/033
E111/E135

Testing Metals for Creep and Long-Time Strength in a Vacuum at Constant Stress

The great creep-increasing influence of atmosphere is further illustrated in curves 1 and 3 (air and vacuum, respectively) of Fig. 3 for titanium at 600 °C and constant stress of 10 kg/mm^2; curve 2 is for a stress of 6 kg/mm^2. In all the experiments only vacuum results show a well-developed region of stable creep. The work was carried out under the direction of K.A. Osipov.

There are 3 figures and 4 Soviet references.

SUBMITTED: April 5, 1960

Card 2/2

18.8200 1467, 1041

86075
S/180/60/000/005/016/033
E193/E183

AUTHORS: Osipov, K.A., and Sotnichenko, A.L. (Moscow)

TITLE: The Stress-Dependence of the Activation Energy for Creep of α-Titanium

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Metallurgiya i toplivo, 1960, No.5, pp.146-148

TEXT: Activation energy for creep appears in all basic equations describing the kinetics of this process. However, these equations could be used only if the activation energy within a given temperature interval were independent of other parameters, or if the laws governing its variation were known. The applied stress is one of the factors which may affect the magnitude of the activation energy for creep, and since contradictory conclusions have been reached by various workers regarding the relationship between these two variables, the present investigation was undertaken to obtain more experimental evidence. Creep curves were constructed for α-titanium (99.97% purity), tested in vacuum at various temperatures between 18 and 600 °C, under the applied stress in the 10-35 kg/mm^2 range. The test pieces

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The Stress-Dependence of the Activation Energy for Creep of α-Titanium

(gauge length 22 mm, diameter 3 mm), prepared from cast and forged material, were subjected to preliminary vacuum annealing at 800 °C for 100 h. Tests, in which the applied stress of 20-35 kg/mm^2 had been used, were carried out in a narrow temperature range (18-190 °C) so as to minimize the risk of the activation energy being affected by temperature. From the experimental creep curves the rate, ε (%/min) of steady creep was determined and graphs ln ε versus $1/T$, where T is the absolute temperature, were plotted. All these graphs were straight lines, those obtained for stresses of 25, 30 and 35 kg/mm^2 being practically parallel to each other. Contrary to the findings of some other workers, the extrapolated ln ε versus $1/T$ graphs did not intersect at one point. The relationship between ln ε and the applied stress, σ, was hyperbolic for the test temperature of 50 °C ($\varepsilon = A s H \gamma \sigma$), and tended to become linear ($\varepsilon = C e \gamma \sigma$) at 250 °C. The activation energy, ΔH, for creep at each of the

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applied stresses used in the present investigation, was calculated from the slope of the $\ln \varepsilon$ versus $1/T$ graphs. With σ increasing from 10 to 25 kg/mm^2, ΔH decreased at a gradually diminishing rate and reached constant value of 11.55 kcal/g-atom at the stress of 25 kg/mm^2.

Acknowledgements are made to V.A. Tverezovskiy, who participated in this work.

There are 3 figures, 1 table and 5 Soviet references.

SUBMITTED: April 5, 1960

Card 3/3

81102

S/032/60/026/06/30/044
B010/B016

18.8200

AUTHOR: Sotnichenko, A. L.

TITLE: Device for Testing the Creep Strength of Metals in Vacuo

PERIODICAL: Zavodskaya laboratoriya, 1960, Vol. 26, No. 6, pp. 760-762

TEXT: A device of the ВПН-С2 (VPN-S2) type is described which permits the testing of the creep strength in vacuo (10^{-5} torr), or inert gas atmosphere up to 1600°C simultaneously on 6 samples. The tests can be performed with constant load and with tension automatically kept constant at the cross-sectional area of the sample. Experiments on the device described were carried out under the supervision of K. A. Osipov, Doctor of Technical Sciences. The samples are vertically fixed in the holders of the device (Fig. 1) and may be loaded one by one. The maximum load is 600 kg. The deformation of the sample is automatically recorded. It may be seen from the circuit diagram (Fig. 2) that an electronic ЭПД (EPD)-12 potentiometer is provided to maintain the voltage for heating the sample, a РВН (RVN)-20 rotary pump for the water cooling, a ЦВЛ (TsVL)-100

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OSIPOV, K.A.; SOTNICHENKO, A.L.

Limiting activation energy values of the steady creep of α-Fe and α-Ti under tensile stress in vacu. Dokl.AN SSSR 134 no.2: 333-336 S '60. (MIRA 13:9)

1. Institut metallurgii im. A.A. Baykova Akademii nauk SSSR. Predstavleno akad. G.V. Kurdyumovym.
(Creep of metals) (Iron) (Titanium)

30902
S/180/61/000/005/012/018
E193/E383

10.7300 1418

AUTHORS: Osipov, K.A. and Sotnichenko, A.L. (Moscow)

TITLE: Creep of iodide zirconium in vacuum under a constant stress

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye tekhnicheskikh nauk. Metallurgiya i toplivo. no. 5, 1961, pp. 83 -85

TEXT: In continuation of their earlier work (Ref. 1 - DAN SSSR, 1960, v. 134, no. 2; Ref. 2 - Filial VINITI AN SSSR - Peredovoy proizvodstvennyy i nauchno-tekhnicheskiy opyt, 1959, No. P-59-68/6 and Ref. 3 - Problems of the theory of high-temperature strength of metals and alloys. Pub. by AN SSSR, 1960) the present authors studied creep of zirconium tested in vacuum (10^{-5} mm Hg) at temperatures between 18 and 500 °C (i.e. in the α-Zr range) under a constant stress ranging from 10 - 30 kg/mm^2. Typical creep curves are shown in Fig. 1, where the strain (ε, %) is plotted against time (τ, hours), graphs a, б, в and г relating, respectively, to tests carried out

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Creep of iodide zirconium ....

under a stress of 10, 20, 30 and 25 kg/mm^2, the test temperature being indicated by each curve. The rate, $\dot{\varepsilon}$, of steady-state creep was calculated from these curves and it was found that the $\ln \dot{\varepsilon}$ versus 1/T relationship was linear for any stress within the range employed in the present investigation and that, contrary to some published reports, extrapolated $\ln \dot{\varepsilon}$ versus 1/T graphs did not intersect at one point. In Fig. 3, $\ln \dot{\varepsilon}$ is plotted against the applied stress (σ, kg/mm^2), Curves 1 (circles) and 2(triangles) relating to tests at 100 and 500 °C, respectively. Finally, in Fig. 4, the activation energy (ΔH, kcal/g.atom) for steady-state creep of iodide zirconium is plotted against the applied stress (σ, kg/mm^2), the broken line indicating the calculated limiting value of ΔH. It will be seen that, starting from σ = 25 kg/mm^2, ΔH remains constant at a level almost identical with the theoretical value obtained in the previous work (Ref. 3). The close agreement between the experimental and theoretical magnitude of ΔH was taken to

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indicate that the structure of Zr is changed during plastic deformation from close-packed hexagonal to a body-centered cubic. It was postulated also that this transformation might be preceded by the formation of stacking faults in the hexagonal lattice, which changes first to face-centered cubic and becomes body-centered cubic during the subsequent shear.
There are 4 figures and 4 references: 3 Soviet-bloc and 1 non-Soviet-bloc. The English-language reference mentioned is: Ref. 4 - E.J. Rapperport - Acta metallurgica, 1959, 7, no. 4, p. 254.

SUBMITTED: March 3, 1961

4

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33182
S/180/61/000/006/016/020
E193/E383

10.7300 1413

AUTHORS: Ivanov, V.I., Osipov, K.A. and Sotnichenko, A.L. (Moscow)

TITLE: A study of the kinetics of the process of creep and recovery

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye tekhnicheskikh nauk. Metallurgiya i toplivo, no.6, 1961, 137-143

TEXT: The object of the present investigation was to study the relationship between the activation energy for creep of α-iron and the applied stress as well as the relationship between the activation energy for recovery of this metal and the degree of plastic deformation. Technical purity (99.76%) iron, preliminarily annealed in vacuum (10 hours at 700°C followed by 50 hours at 450°C), was used in creep tests carried out in vacuum (10^{-4} mm Hg) at 250 - 500°C under a constant stress ranging from 10-35 kg/mm^2. The ln $\dot{\varepsilon}$ versus 1/T relationship, where $\dot{\varepsilon}$ is the rate of creep and T - temperature, was linear over the entire range of the applied

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A study of the kinetics ... S/180/61/000/006/016/020
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stresses studied. The variation of the activation energy for steady creep (ΔH) is demonstrated in Fig.2, where ΔH (kcal/g atom) is plotted against the applied stress σ (kg/mm^2). It will be seen that the limiting value of ΔH = 20 kcal/g·atom was attained at $\sigma \geq 30$ kg/mm^2. At $\sigma > 35$ kg/mm^2 fracture of the specimens took place in a very short time. The process of recovery was studied on both technical and high-purity iron (99.67 and 99.99%, respectively). The experimental wire specimens, 0.6 and 1.5 mm in diameter, preliminarily annealed in vacuum (3 hours at 800°C) were deformed plastically at room temperature to 80, 84, 94 and 98% reduction in area. The kinetics of recovery were studied by measurements of the thermo-emf of plastically-deformed against annealed material, which were taken immediately after deformation and during subsequent isothermal treatment at various temperatures. The value of $(1 - e/e_o)$, where e_o and e denote the specific thermo-emf ($\mu V/^\circ C$)

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A study of the kinetics ....

before and after isothermal annealing, respectively, was taken as the measure of the degree of recovery attained. The results obtained for high-purity specimens, deformed to 94% reduction, are reproduced in Fig. 3, where $(1 - e/e_o)$ is plotted against time (τ, sec) at temperatures indicated by each curve. This relationship can be described by

$$1 - \frac{e}{e_o} = a + b \ln \tau$$

where a and b are temperature-dependent constants. In the next series of experiments the temperature dependence of $(1 - e/e_o)$ was determined. The results are reproduced in Fig. 4, where $(1 - e/e_o)$ is plotted against temperature (^oC) of the isothermal treatment of technical and high-purity iron (graphs a and b, respectively); Curves 1 - 4 in graphs a relate to specimens held at the temperature for

A study of the kinetics ....

1 800, 180, 30 and 2.5 sec, respectively, Curves 1 - 5 in graphs 5 relating to a holding time of 3 600, 900, 180, 60 and 30 sec, respectively. These data were used to determine the activation energy for recovery of the metals studied. To this end, the temperatures T at which various degrees of recovery could be attained after various times τ were determined from curves in Fig. 4. These were used to construct curves reproduced in Fig. 5, where $\ln \tau$ (τ, sec) is plotted against $\frac{1}{T} = 10^4$, the numbers given by each curve indicating the value of $(1 - e/e_o)$, graphs a and 5 relating to technical and high-purity specimens, respectively. Since all the curves reproduced in Fig. 5 were straight lines, it was possible to calculate the activation energy , ΔH , for recovery, from:

$$\ln \tau = A \exp [\Delta H/RT] \qquad (2)$$

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where R is the gas constant, and
T is the temperature of the isothermal treatment (^{o}K).
The results are reproduced in Fig. 6, where ΔH (kcal/g.atom) is plotted against $(1 - e/e_o)$, the circles (1) and triangles (2) relating, respectively, to high-purity and technical-grade iron. It will be seen that the activation energy for recovery is at its minimum at low values of $(1 - e/e_o)$, remaining practically constant up to $(1 - e/e_o) = 0.3$ and then increasing rapidly to reach $\Delta H = 47.6$ kcal/g.atom at $(1 - e/e_o) = 0.8$. Similar results were obtained for material deformed to 98% reduction, which indicated that ΔH would not decrease even for more heavily deformed material. In the last series of experiments the effect of elastic deformation on the kinetics of recovery was studied. To this end $(1 - e/e_o)$ was determined for high-purity specimens deformed to 94% reduction, which were stressed in the elastic range during the isothermal annealing. The results are reproduced in Fig. 7,

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where $(1 - e/e_o)$ is plotted against the duration of treatment (τ, sec) at temperatures indicated by each curve. Comparison of isotherms reproduced in Figs. 2 and 7 shows that the elastic strain superimposed on plastic deformation brings about a significant increase in the rate of recovery only when $(1 - e/e_o)$ exceeds 0.3. The results of calculation showed that for $(1 - e/e_o) = 0.2$, 0.3 or 0.4, the value of ΔH was 12.3, 14.0 and 18.2 kcal/g.atom, respectively, the corresponding value for specimens not stressed elastically being 12.2, 14.7 and 22.8 kcal/g.atom. This indicates that elastic deformation does not affect the limiting (minimum) value of ΔH. It was inferred from the results obtained that the activation energy for recovery is a function of several states of the crystal lattice, which vary not only with the degree of preliminary deformation but also with the degree of recovery attained. The dependence of the activation energy on the degree of recovery can be attributed to the following factors:

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1) the presence in a deformed metal of volumes with different density of defects of various types;
2) variation of the density and distribution of defects during isothermal treatment;
3) different stability of different types of defects;
4) dependence of the activation energy for recovery on the nature of the defects and their density in elemental volumes in which they migrate.
There are 7 figures, 1 table and 11 references: 7 Soviet-bloc and 4 non-Soviet-bloc. The two English-language references quoted are: Ref. 3: H. Bross and A. Seeger - The Physics and Chemistry of Solids, 1958, v.4, no. 3, 161;
Ref. 8: Silcock, J.M., Acta metallurgica, 1959, v.7, no. 5.

SUBMITTED: January 10, 1961

36517
S/659/61/007/000/004/044
D217/D303

18.8200

AUTHORS: Osipov, K.A., and Sotnichenko, A.L.

TITLE: Investigating the dependence of the energy of activation of creep of α-Fe on stress

SOURCE: Akademiya nauk SSSR. Institut metallurgii. Issledovaniya po zharorpchnym splavam, v. 7, 1961, 29 - 33

TEXT: Using K.A. Osipov's hypothesis (Ref. 3: AN SSSR, 121, no. 4, 1958) on the limiting and alternating values of energy of activation, two limiting values were calculated for α-Fe: $q_{\alpha,\gamma}$ = 11.7 kcal/g atom and q = 22.2 kcal/g atom. The value of q corresponds to the limiting value of the energy of activation of slip in the crystal lattice which will be 'locally melted' at those points where this energy value is reached. It can also be shown that q corresponds to a slip stress of approximately 0.5 μ, i.e. to a stress the value of which is of the same order as Frenkel's theoretical value. Tests were carried out in a ВПН-С2 (VPN-S2) machine in which the creep and long-term strength could be studied in vacuo under a con-

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Investigating the dependence of ...

stant stress. Specimens of cast and forged iron (99.6 %) were given a preliminary anneal in vacuo (1.10^{-4} mm Hg) for 10 hours at 700°C; the temperature was then lowered to 450°C and the specimens were soaked there for 50 hours. The investigations were carried out in the temperature range 250-500°C, in which the modulus of normal elasticity changes very little, whereas at temperatures above 500°C it falls abruptly. The specimens had a total length of 60 mm, a working portion length of 22 mm and a diameter of the working portion of 3 mm. It was found that on increasing the stress from 10 to 30 kg/mm^2, the energy of activation becomes a decreasing curvilinear function of stress, changing from 66 to 20 kcal/g atom. On increasing the stress from 30 to 35 kg/mm, the energy of activation remains constant, i.e. a limiting value of 20 kcal/g atom is obtained. At stresses of above 35 kg/mm^2, the specimens rupture on stressing. The constant value obtained for the energy of activation is on the average 20.3 kcal/g atom, and is considerably greater than the theoretical value of $q_{\alpha,\gamma}$, this being in good agreement with the second theoretical value of q. The great divergence between the theoretical value of $q_{\alpha,\gamma}$ and the experimental value of 20.3 kcal/g

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Investigating the dependence of ...

atom indicates the possibility that the body-centered cubic lattice may transform into a face-centered cubic lattice during plastic tensile deformation. The calculated value of q/atom is close to that of the energy of vacancy formation and has the same order of value as the nuclear energy of dislocations per atomic plane. There are 7 figures, 1 table and 7 references: 5 Soviet-bloc and 2 non-Soviet-bloc. The reference to the English-language publication reads as follows: J.M. Silcox, Acta metallurgica, 7, 5, 1959.

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S/279/63/000/001/020/023
E040/E451

AUTHORS: Osipov, K.A., Sotnichenko, A.L. (Moscow)

TITLE: Effect of oxidizing atmosphere and of stress variation on the creep and long-time strength of iron, titanium and carbon steel

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye tekhnicheskikh nauk. Metallurgiya i gornoye delo. no.1, 1963, 181-186

TEXT: The creep and long-time strength of technically pure iron (99.97%), α-Ti (99.97%) and У-8 (U-8) grade carbon steel were investigated under vacuum and in air under various loading conditions. Before tests, the iron and steel specimens were first annealed under a vacuum of 1×10^{-4} mm Hg for 10 hours at 800°C. Titanium specimens were similarly annealed for 240 hours. An analysis of the creep curves of the specimens tested at 600°C under a stress of 10 kg/mm^2 showed that the time-to-rupture of the titanium specimens tested in vacuum was reduced by about 2.5 times, that of the iron specimens was reduced by nearly 1.5 times and that of the U-8 steel was reduced by nearly 3 times compared with

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Effect of oxidizing ...

the corresponding values obtained in tests in air. Tests were also carried out at various temperatures between 430 and 515°C and the creep curves plotted at several test temperatures under vacuum and in air. A graph is also given of the logarithm of the steady-state creep of all the test specimens. Calculations were made of the creep activation energy under various test conditions employed. An oxidizing atmosphere lowers the steady-state creep activation energy of the U-8 carbon steel by 22 kcal/mol and a further reduction of the creep activation energy by 25 kcal/mol results from an increase of the stress and a decrease of the specimen cross-section area during tests. In the case of the iron specimens the effect of both these factors reduces the steady-state creep activation energy by 26 kcal/mol. On the other hand, an oxidizing atmosphere reduces the creep rate of titanium at temperatures below 600°C and increases it at temperatures exceeding 600°C. There are 4 figures and 3 tables.

SUBMITTED: September 13, 1962

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L 11291-63 EWP(q)/EWT(m)/BDS--AFFTC/ASD--JD

ACCESSION NR: AP3000917 S/0279/63/000/002/0146/0152

AUTHOR: Osipov, K. A., (Moscow); Miroshkina, Ye. M., (Moscow); Sotnichenko, A. L. (Moscow)

TITLE: Investigation of the creep of α- and β-modifications of Ti-Zr alloys

SOURCE: AN SSSR. Izv. otd. tekh. nauk. Metallurgiya i gornoye delo, no. 2, 1963, 146-152

TOPIC TAGS: titanium-zirconium alloys, α-alloys, β-alloys, creep, activation energy, creep mechanism

ABSTRACT: The creep behavior of α- and β-modifications of polycrystalline Ti-Zr alloys in a vacuum of about 1 x 10^{-4} mm Hg under a constant tensile stress has been studied in an effort to determine the mechanism of steady-stage creep. The alloys (25.15, 50.01, and 75.50 at% Zr, 0.006% max N, 0.03% max C and O_2, and 0.03% max Fe) were vacuum-arc melted, forged into rods, annealed for 24 hr at 800C and for 168 hr at 450C (alloy with 50 at% Zr) or at 550C (alloys with 25 and 76 at. % Zr). The α-modification alloys were tested at temperatures from

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ACCESSION NR: AP3000917

20 to 200C under a stress of 30 to 70 kg/mm^2. The activation energy ΔH of the steady-stage creep, determined from ln ε -1/T curves (ε, rate of the steady-stage creep; T, absolute temperature), was found to be constant at stresses higher than 40-50 kg/mm^2 (depending on alloy compositions) and equal to 8100, 6900, and 8000 cal/mol for Zr contents of 25, 50, and 75 at%, respectively. These values are very close to the limiting values of activation energy calculated under the assumption that in α-Ti-Zr alloys the creep-induced activated state of atoms or ions corresponds to that of a local allotropic transformation. This leads to the conclusion that the creep of α-Ti-Zr alloys under high stresses is affected by a mechanism directly associated with a local allotropic transformation. Creep tests of the β-modification of Ti-Zr alloys were carried out under a constant tensile strength of 0.5 kg/mm^2. Analysis of the data obtained shows that the steady-stage creep of the β-modification of Ti-Zr alloys occurs through a mechanism directly associated with melting. Orig. art. has: 2 formulas, 6 figures, and 4 tables.

ASSOCIATION: Institut metallurgii im. A. A. Baykova (Institute of Metallurgy)

SUBMITTED: 29Nov62 DATE ACQ: 12Jun63 ENCL: 00

SUB CODE: ML NO REF SOV: 012 OTHER: 002

Card 2/2

ACCESSION NR: AT4013923 S/2659/63/010/000/0027/0031

AUTHOR: Osipov, K. A.; Sotnichenko, A. L.

TITLE: Investigation of the limiting values of creep activation energy for titanium-zirconium alloys

SOURCE: AN SSSR. Institut metallurgii. Issledovaniya po zharoprochny*m splavam, v. 10, 1963, 27-31

TOPIC TAGS: creep, creep activation, creep activation energy, titanium, zirconium, titanium zirconium alloy

ABSTRACT: The author previously proved that for set creep at high loads the activation energies of α-titanium and α-zirconium approach a constant limiting value. The present paper includes information on creep of polycrystalline alloys of the titanium-zirconium type. The samples were tested for creep at 25-200C and loads 08 30-70 kg/mm^2 on a VPN-S_2 machine after being hardened in a vacuum arc furnace. The set creep rate (% deformation/min.) was calculated from the curves obtained. The logarithm of the set creep rate was found to be inversely proportional to the temperature for all values of stress (see Fig. 1 in the Enclosure). Analysis of the results showed that in alloys of the titanium-zirconium type in the α-modification, the nature of the activated state during creep at high

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ACCESSION NR: AT4013923

loads corresponds to a state of "local polymorphic variation." Orig. art. has: 3 figures and 2 tables.

ASSOCIATION: Institut metallurgii AN SSSR (Institute of Metallurgy AN SSSR)

SUBMITTED: 00	DATE ACQ: 27Feb64	ENCL: 01
SUB CODE: MM	NO REF SOV: 005	OTHER: 000

Card 2/3

ENCLOSURE: 01

ACCESSION NR: AT4013923

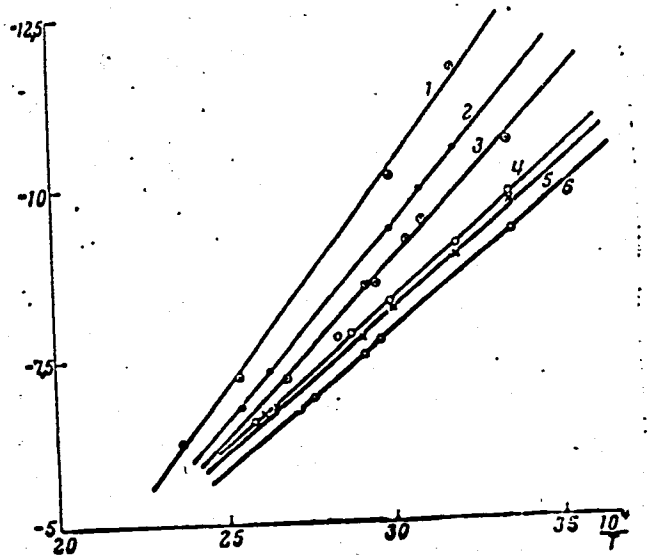

Fig. 1. Relationship between the logarithm of the set creep rate and temperature for the alloy Ti + 25 at % 2r. Stress (in kg/mm^2): 1-40, 2-45, 3-50, 4-60, 5-65, 6-70.

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ACCESSION NR: AT4013935 S/2659/63/010/000/0105/0109

AUTHOR: Osipov, K. A.; Miroshkina, Ye. M.; Sotnichenko, A. L.

TITLE: An investigation of the set creep of the β-modification of titanium-zirconium alloys

SOURCE: AN SSSR. Institut metallurgii. Issledovaniya po zharoprochny*m splavam, v. 10, 1963, 105-109

TOPIC TAGS: titanium, zirconium, creep, β-modification, set creep, titanium zirconium alloy

ABSTRACT: The paper investigates the set creep of β-modifications of titanium-zirconium alloys. These alloys are very interesting theoretically. In the same ways as the α-modifications, they form a continuous row of solid solutions. The chemical composition of the alloys investigated was as follows: nitrogen 0.006%, carbon 0.03%, oxygen 0.03% and iron up to 0.03%. The tests were performed on a machine described by Berlizov. The samples were 20 mm long, having a working part and a diameter of 14 and 2.5 mm, respectively, and were annealed in a vacuum before testing at 1000C for 24 hours. The tensile stress was constant at

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ACCESSION NR: AT4013935

0.5 kg/mm^2. Data are given on the creep rate for various titanium-zirconium alloys. Fig. 1 of the Enclosure shows the creep curves for an alloy of titanium with 25 at.% zirconium at various temperatures. Results of the investigation of the set creep rate showed that, in titanium-zirconium alloys of the β-modification the essence of the activated state corresponds to local fusion. Orig. art. has: 4 figures and 6 tables.

ASSOCIATION: Institut metallurgii AN SSSR (Institute of Metallurgy AN SSSR)

SUBMITTED: 00	DATE ACQ: 27Feb64	ENCL: 01
SUB CODE: MM	NO REF SOV: 002	OTHER: 000

Card 2/3

ACCESSION NR: AT4013935

ENCLOSURE: 01

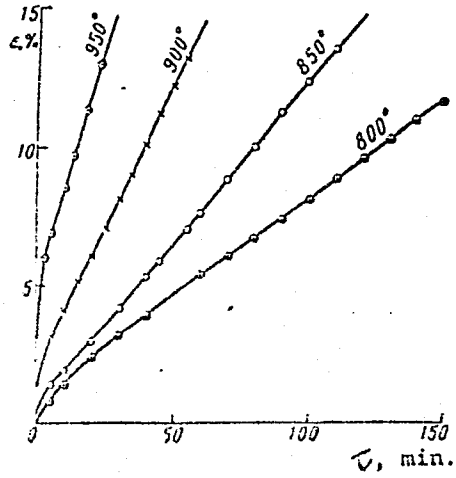

Fig. 1. Creep curves of the alloy Ti + 25 at.% Zr, tested in a vacuum at $\sigma = 0.5$ kg/mm^2.

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ACCESSION NR: AP4040991 S/0279/64/000/003/0161/0162

AUTHOR: Osipov, K. A. (Moscow); Sotnichenko, A. L. (Moscow)

TITLE: On the duration of tests for creep and rupture strength of metals and alloys

SOURCE: AN SSSR. Izvestiya. Metallurgiya i gornoye delo, no. 3, 1964, 161-162

TOPIC TAGS: zirconium creep test, aluminum creep test, titanium zirconium alloy, alloy creep test, creep test duration, creep test, stress rupture test duration, stress rupture test, zirconium, aluminum

ABSTRACT: The effect of the duration of creep tests on the relationship between the rate of secondary stage creep ε and rupture life τ, and the time reciprocal 1/T has been studied in the cases of zirconium iodide vacuum melted alloys of titanium with 50 and 76 at% Zr. and 99.99%-pure aluminum. All tests were conducted in a vacuum of $1 \cdot 10^{-4}$ mmHg under constant stress with a test time from 10 to 1500 hr. The test time for iodide zirconium vacuum annealed at 800C

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