PAPINA, A.I.

A single method should be used to calculate costs in the manufacture of glass. Stek. i ker. 23 no.1:10-13 Ja '66. (MIRA 19:1)

1. Leningradskiy finansovo-ekonomicheskiy institut.

KAMAY, Gil'm; TSIVUNIN, V.S.; PAPINA, L.A.

Some esters of ethyl-α-bromovinylphosphinic acid. Trudy KKHTI no.30:11-17 '62. (MIRA 16:10)

PAPINA, R.

Transient reply of a transistor to weak signals or to conditions of commutation. Studii cerc fiz 13 no.5:799-833 '62.

1. Institutul de fizica atomica, Bucuresti.

KLEMENT'YEV, S.D.; PAPINAKO, I.G., red.; PASTER, V.A., tekhn. red.

[Automatic telephone exchange] Avtomaticheskaia telefonnaia stantsiia. Moskva, Gos. izd-vo lit-ry po voprosam sviazi i radio, 1951. 78 p. (MIRA 15:2)
(Telephone, Automatic)

PAPINAKO, I. G.

GLADKIY, M.I.; TSIKLIN, D.B.; BRONSHTEYN, L.A., redaktor, kandidat tekhnicheskikh nauk; PAPINAKO, I.G., redaktorp MOROZOVA, T.M. tekhnicheskiy redaktor.

[Operation and planning of automobile transportation within the communications system] Eksploatatsiia i planirovanie avtomobil'nogo transporta v khoziaistve sviazi. Pod red. L.A.Bronshteina. Moskva, Gos.izd-vo lit-ry po voprosam sviazi i radio, 1951. 198 p. (MLRA 8:11)
(Transportation,Automotive) (Communication and traffic)

BELIKOV, Boris Stepanovich; VARSHAVSKIY, Boris Georgiyevich; GUSEV, Simon Stepanovich; KOROBOV, Yuriy Mikhailovich; PAPERNOV, Lev Zakharovich; PETROVSKIY, Stepan Ignat'yevich, [deceased]; YAKUSHEV,M.I., redaktor; PAPINAKO,I.G., redaktor; LEDNEVA, N.V., tekhnicheskiy redaktor

[Postal and telegraph agent] Pochtovo-telegrafnyi agent. Moskva, Gos.izd-vo lit-ry po voprosam sviazi i radio, 1955. 254 p. (MLRA 9:4)
(Postal service) (Telegraph)

FAYBGLUZ, Platon Petrovich; PAPINAKO,I.G., redaktor; SOKOLOVA,R.Ya., tekhnicheskiy redaktor

[Technical work standards in communications] Tekhnicheskoe normirovanie truda v khoziaistve sviazi. Izd.3-e. Moskva, Gos.izd-vo lit-ry po voprosam sviazi i radio, 1955. 214 p. (MIRA 9:1)
(Telecommunication)

PAPINAKO, I.G.

There should be no complaints about one's work. Vest. sviazi 25 no.3:21-22 Mr '65. (MIRA 18:5)

1. Zamestitel' nachal'nika otdela organizatsii Glavnogo pochtovogo upravleniya Ministerstva svyazi SSSR.

VISHNEVSKIY, Aleksandr Appolinar'yevich, doktor ekon. nauk, prof.;
KRUPYANSKIY, Fedor Yur'yevich, kand. ekon. nauk, dots.;
PAPINAKO, I.G., red.

[Organization and planning of postal communications] Organizatsiia i planirovanie pochtovoi sviazi. Moskva, Izd-vo "Sviaz'," 1964. 328 p. (MIRA 17:8)

PAPINAKO, I.G.

Agricultural workers should be provided with high quality of service. Vest. sviazi 25 no.8:16-17 Ag '65. (MIRA 18:10)

1. Zamestitel' nachal'nika otdela Glavnogo pochtovogo upravleniya Ministerstva svyazi SSSR.

PAPINASHVILI, K. I. and KLOPOTOVSKIY, B.A.

"The White Lunar Rainbow of 13 October 1948," Priroda, No.9, 1949

Papinashvili K. I.

NAPETVARIDZE, Ye.A.; PAPINASHVILI, K.I.

Synoptic and aerological conditions for peculiar weather phenomena in Transcaucasia and some rules of their forecasting for natural synoptic periods. Trudy Tbil. NIGMI no.2:11-43 '57. (MIRA 11:4)
(Transcaucasia--Weather forecasting)

PAPINASHVILI, K-I

AUTHOR: Khmaladze, G. N. 50-1-25/26

TITLE: The Scientific Session of Tbilisi Scientific Research Institute for Hydrometeorology. (Nauchnaya sessiya Tbilisskogo NIGMI)

PERIODICAL: Meteorologiya i Gidrologiya, 1958, Nr 1, pp. 66-67 (USSR)

ABSTRACT: In May 1957 this institute held its fourth scientific session, where 16 lectures devoted to various branches of the hydrometeorological science were held. Under the conditions of Transcaucasia the problem of the forecast of thunderstorms is of great practical importance, therefore special attention was paid to the lecture by Guniya, S. U. on the method of forecasting thunderstorms under the mountainous conditions of Transcaucasia and the lecture by Shishkin, N. S. (Main Geophysical Observatory) on the topic of the forecast of thunderstorm-processes according to the method of layers. Papinashvili, K. I., Napetvaridze, Ye. A. and Lominadze, V. P. dealt with the problems of the investigation and subdivision of the air- and turbulence-currents above Transcaucasia. Vorontsov, P. A. reported on some peculiarities of the temperature- and wind-conditions above the lake Sevan.

Card 1/2

The Scientific Session of Tbilisi Scientific Research Institute for Hydrometeorology. 50-1-25/26

Kvaratskheliya, I. F., Tsutskiridze, A. Ya. and Kurdiani, I. G. (State University Tbilissi) reported on the results of their works in the field of the aeroclimatic characteristic of the free atmosphere, on the analytical method of the treatment of observations with pilot balloons and distribution of clouds in Georgia.

Chirakadze, G. I. and Gigineyshvili, V. M. explained the scheme of the radiation method of plotting the slipperiness of ice in Transcaucasia and the characteristic of slush and its distribution in Transcaucasia. Khmaladze, G. N., Tsomaya, V. Sh. and Poklepa, V. F. reported on the duration of the vernal-aestival floods in the rivers of Transcaucasia and on the method of their calculation as well as on the method of the determination of the water supplies in the snow according to given records of snow routes.

Tsertsvadze, Sh. I. held a lecture on the method of forecasting the main phenophases of grapes in Georgia,

Svanidze, V. F. - on the characteristic of the agrometeorological conditions of the cultivation of potatoes, various conditions of the cultivation of potatoes, various terms for planting in the low grounds of valleys of East Georgia.

Card 2/2

AVAILABLE: Library of Congress

1. Weather forecasting 2. Meteorology

PAPINASHVILI, K.I.; GIGINEYSHVILI, V.M.; NAPETVARIDZE, Ye.A.

Aerosynoptic conditions for the formation and thawing of the snow cover of the Transcaucasian mountains. Trudy Tbil. NIGMI no.3:22 '58. (MIRA 11:10)

1. Tbilisskiy nauchno-issledovatel'skiy gidrometeorologicheskiy institut.
(Transcaucasia--Snow)

PAPINASHVILI, K. I.

3(7) SOV/50-59-2-24/25

AUTHOR: Khmaladze, G. N.

TITLE: Scientific Meeting at the Tbilisi Scientific Research Institute of Hydrometeorology (Nauchnaya sessiya v Tbilisskom nauchno-issledovatel'skom gidrometeorologicheskom institute)

PERIODICAL: Meteorologiya i gidrologiya, 1959, Nr 2, pp 7o - 71 (USSR)

ABSTRACT: In May 1958 the Tbilisskiy nauchno-issledovatel'skiy gidrometeorologicheskiy institut (Tbilisi Hydrometeorological Scientific Research Institute) held a meeting in which the following representatives participated: Representatives of the Tsentral'nyy institut prognozov (Central Forecasting Institute), Glavnaya geofizicheskaya observatoriya (Main Geophysical Observatory), and the local administrations of the hydrometeorological services of the Transcaucasian Republics. On the occasion of the fifth anniversary of the Tbilisi NIGMI the director of the Institute V. P. Lominadze held a speech commemorating the event. Kh. P. Pogosyan (TsIP) spoke on the character of temperature distribution and the circulation of the atmosphere above the Antarctica. K. I. Papinashvili and Ye. A. Napetvaridze spoke on the characteristics of the

Card 1/3

circulation processes above Transcaucasia. M. A. Zakhashvili reported on the typification of synoptical processes carried out by him. R. I. Nozadze read two papers on theoretical questions of dynamic meteorology. V. M. Gigineishvili and V. P. Lominadze spoke on the present state of the fight against hail. F. T. Kharchilava spoke on the great amounts of precipitation on East Georgia, I. T. Bartishvili on meteorological visibility in cloudbursts, Ye. A. Polyakova (GGO) on the meteorological visibility in the case of precipitation and fog, G. I. Chirakadze on the precipitation in Georgia in the course of 24 hours, E. V. Sukhishvili on the wind energy reserves of Georgia, Sh. V. Mosidze on the radiation and heat balances in the alpine zone of the Kazbegi, Ye. R. Dvali on the radioactivity of the atmosphere in Tbilisi and Dusheti, Ya. A. Tsutskiridze on the albedo of different natural surfaces, Sh. G. Gavasheli (UGMS of the Gruzinskaya SSR) on the ground temperature conditions in Tbilisi, V. Sh. Tsomaya on the method developed by him for forecasting the number of days with ice mash, V. F. Pok-

lepa on a method for the calculation of the volume of rain water supply in floods, G. F. Pastukhova (UGMS of the Azerbaydzhanskaya SSR) on the use of indices of the atmospheric circulation in hydrological forecasts. The representative of the UGMS of the Armyanskaya SSR M. V. Shaginyan reported on the characteristics of the formation of the water supply for spring floods on the rivers of Armenia. A. A. Pogosyan (UGMS of the Armyanskaya SSR) pointed to the special role of the snow cover of the belt between 1800 and 2400 m in the formation of the water supply for spring floods on the rivers of Armenia. V. F. Svanidze spoke on the method of forecasting easily accessible humidity in the soil below grain cultures. N. P. Stolypin and Sh. I. Tsertsvadze spoke on the periods set for the opening of vineyards in Transcaucasia. O. M. Kandelaki, L. A. Enfiadzhyan (UGMS of the Armyanskaya SSR), and N. S. Chernysh spoke on the microclimatic conditions of the Lambalinskiy massif in the Armyanskaya SSR. In all, 27 papers were read.

NAPETVARIDZE, Ye.A.; Papinashvili, K.I.

Characteristics of processes of atmospheric circulation causing the formation of large seasonal air temperature anomalies in Transcaucasia and their forecasting. Trudy Tbil.NIGMI no.5: 28-41 '59. (MIRA 13:6)
(Transcaucasia--Atmospheric temperature)

SOV/[illegible]

3(7)

AUTHORS: Papinashvili, K. I. Khmaladze, G. N.

TITLE: At the Tbilisi Hydrometeorological Scientific Research Institute

PERIODICAL: Meteorologiya i gidrologiya [illegible] No [illegible], p 36 (USSR)

ABSTRACT: The Tbilisskiy nauchno issledovatel'skiy gidrometeorologicheskiy institut (Tbilisi Hydrometeorological Scientific Research Institute) held a scientific meeting in May [illegible] which dealt with the tasks outlined by the resolutions [illegible] XXII Congress of the Soviet Communist Party. 40 lectures were delivered on various current problems of meteorology and hydrology. V. P. Lominadze, Director of the Institute, reported on the principal tasks to be mastered by the Institute in [illegible]. The meeting was attended by scientific representatives of Gruziya, Azerbaydzhan, Armenia, Moscow, Leningrad and other cities.

Card 1/1

PAPINASHVILI, K.I.

Characteristics of forecasting the circulation and weather for 3-7 days in Transcaucasia. Trudy TbilNIGMI no.17:3-30 '65. (MIRA 18:11)

ACC NR: AT7004232 SOURCE CODE: UR/3061/66/000/022/0003/0011

AUTHOR: Papinashvili, K. I.

ORG: none

TITLE: Some atmospheric properties of natural synoptic seasons in the Transcaucasus

SOURCE: Tiflis. Zakavkazskiy nauchno-issledovatel skiy gidrometeorologicheskiy institut. Trudy, no. 22, 1966. Voprosy gidrometeorologii (Problems of hydrometeorology), 3-11

TOPIC TAGS: atmospheric property, synoptic meteorology / Eurasia

ABSTRACT: The author analyzes the statistical relationships and principles governing atmospheric processes of Eurasia, obtained as a result of investigations of anomalous natural synoptic seasons in the Transcaucasus. Orig. art. has: 6 tables. [NT]
[Author's abstract]

SUB CODE: 04/SUBM DATE: none/

Card 1/1

PAPINASHVILI, K.I.

3(1) P 2 PHASE I BOOK EXPLOITATION SOV/3099

Tbilisi. Nauchno-issledovatel'skiy gidrometeorologicheskiy institut

Trudy, Vyp. 4 (Transactions of the Tbilisi Hydro Meteorological Scientific Research Institute, No. 4) Leningrad, Gidrometeoizdat, 1959. 178 p. 1,500 copies printed.

Additional Sponsoring Agency: USSR. Soviet Ministrov. Glavnoye upravleniye gidrometeorologicheskoy sluzhby.

Ed. (Title page): V. P. Lominadze; Ed. (Inside book): V. D. Pisarevskaya; Tech. Ed.: N. V. Volkov.

PURPOSE: This book is intended for meteorologists and hydrologists.

COVERAGE: This is a collection of 12 articles on jet streams and turbulent currents, the analysis of the effect of orography on changes in atmospheric pressure, the characteristics of the temperature regime in the free atmosphere, the development of methods of forecasting storms, low cloud ceilings, fogs, water discharges, spring floods and various other hydrometeorological phenomena in the Transcaucasia area. Of particular interest are articles on visibility conditions around Transcaucasian airports the aerosynoptic

Card 1/4

conditions causing air bumpiness in the area. References accompany each article.

TABLE OF CONTENTS:

Papinashvili, K. I. Distribution of Jet Streams in the Atmosphere Over Transcaucasia 3

Guniya, S. U. Methods of Forecasting Storms in the Mountainous Regions of Transcaucasia 18

Nozadze, R. I. The Problem of Evaluating the Effect of Orography in Forecasting Atmospheric Pressure 38

Napetvaridze, Ye. A. Range of Horizontal Visibility in Principal Airport Areas of Transcaucasia and the Causes of Its Diminution 54

Nepetvaridze, Ye. A. Forecasting Fogs in Principal Airport Areas in Transcaucasia 71

Kvaratskheliya, I. F. Characteristics of the Temperature Regime and Local Atmospheric Circulation Over Sukhumi 93

Lominadze, V. P., and Ye. A. Napetvaridze. Aerosynoptic Conditions in Turbulent Currents in the Atmosphere Which Cause Aircraft Bumpiness on the Sukhumi - Tbilisi - Yerevan Run 112

Chirakadze, G. I. Map of Regional Glazing for Transcaucasia 124

Khmaladze, G. N. Method of Measuring and Computing the Discharge of Water in Mountain Rivers 153

Poklepa, V. F. Establishing Annual Hydrological Seasonal Boundaries for Mountain Rivers 162

Tsomaya, V. Sh. Methods of Forecasting Spring Floods in the Rivers of Georgia on the Basis of Preceding Hydrometeorological Factors 168

Tsertsvadze, Sh. I., N. P. Stolypin. Agroclimatic Characteristics for the Cultivation of Corn in Transcaucasia 172

PAPINASHVILI, K.I.

Distribution of jet streams in the atmosphere over the territory of Transcaucasia. Trudy Tbil.NIGMI no.4:3-17 '59. (MIRA 13:4)
(Transcaucasia--Jet stream)

PAPINASHVILI, K.I.

Characteristics of synoptic processes and their effect on weather phenomena in Tiflis. Trudy Tbil.NIGMI no.6:42-68 '59.
(MIRA 13:5)

(Tiflis region--Meteorology)

PAPINASHVILI, K.I.

State of studies on the developmental characteristics of synoptic processes and weather in Transcaucasia and adjacent regions. Trudy Tbil. NIGMI no.7:3-25 '60. (MIRA 14:8)
(Transcaucasia--Meteorological research)

GIGINEYSHVILI, V.M.; NAPETVARIDZE, Ye.A.; PAPINASHVILI, K.I.

Atmospheric processes as a factor affecting glacier fluctuations in the Greater Caucasus. Trudy Tbil.NIGMI no.8:3-9 '61. (MIRA 15:3)

(Caucasus—Glaciers)

PAPINASHVILI, K.I.

Heavy precipitation in eastern Georgia and aerosynoptic conditions of their origin. Trudy Tbil. NIGMI no.10:101-112 '62. (MIRA 16:11)

MARGOLIN, L.N.; NAKAROVA; PAPINASHVILI, K.I.; PASHKOV, Yu.S.; POPOV, I.V.; SKOROPUMOV, D.Ye.

Brief news. Meteor. i gidrol. no.10:63-64 O '63. (MIRA 16:11)

S/169/62/000/011/040/077
D228/D307

AUTHOR: Papinashvili, K.I.

TITLE: Abundant precipitation in East Georgia and the aero-synoptic conditions of its origin

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 11, 1962, 68, abstract 11B379 (Tr. Tbilissk. n.-i. gidrometeorol. in-ta, no. 10, 1962, 101-112)

TEXT: Observations at 53 stations in East Georgia were used to study copious precipitation (> 30 mm), the period of observation (1937-1959) being uniform. The yearly average of days with abundant precipitation varies from 0.4 to 8.4. The highest frequency is observed on southwesterly exposed slopes of the central part of the Glavnyy Kavkazskiy Range and in the valley of the R. Alazani, where the topography promotes convergence and the forced rise of air-masses. The summer frequency maximum for abundant precipitation stems from intensified convection and from the increase in the air moisture-content and the frequency of wave processes in southern

Card 1/2

... an anti-
...orth, and cyclones
... Abstracter's note: Complete tran-
slation /

PAPINASHVILI, K.I.;LOMINADZE, V.P., red.; VAYTSMAN, A.I., red.; NIKOLAYEVA, G.S., tekhn.red.

[Atmospheric processes in Transcaucasia and their connection with large-scale circulation processes above Eurasia] Atmosfernye protsessy v Zakavkaz'e i ikh sviaz' s makrotsirkuliatsionnymi protsessami nad Evraziei. Leningrad, Gidrometeoizdat, 1963. 183 p. (MIRA 16:8)
(Eurasia--Atmosphere) (Transcaucasia--Atmosphere)

L 2114-66 EWT(1)/FCC GW

ACCESSION NR: AT5021762 UR/3061/65/000/017/0003/0030

AUTHOR: Papinashvili, K. I.

TITLE: Features of forecasting circulation and weather for 3-7 days for Transcaucasia

SOURCE: Tiflis. Zakavkazskiy nauchno-issledovatel'skiy gidrometeorologicheskiy institut. Trudy, no. 17 (23), 1965. Atmosfernaya tsirkulyatsiya i gidrometeorologicheskiy rezhim Zakavkaz'ya (Atmospheric circulation and hydrometeorological conditions of Transcaucasia), 3-30

TOPIC TAGS: weather forecasting, long range weather forecasting, atmospheric circulation, synoptic meteorology

ABSTRACT: The views of Ye. A. Napetvaridze and K. I. Papinashvili (Sinoptiko-aerologicheskiye usloviya osobykh yavleniy pogody v Zakavkaz'ye i nekotoryye pravila ikh prognozirovaniya na yestestvennyy sinopticheskiy period. Trudy TbilNIGMI, No. 2, 1957) and of others on forecasting methods for Transcaucasia for a natural synoptic period are summarized. The work was performed to provide the forecaster with scientific rules of weather forecasting for a natural synoptic period. The characteristics of the evolution of macrocirculation processes within

Card 1/2

L 2114-66

ACCESSION NR: AT5021762

3

periods and the conditions of their changes when periods change are determined to explain the basic features of atmospheric circulation during natural synoptic periods. The work deals with the forecasting of the development of atmospheric processes toward a trend, the current synoptic period, and the entire following synoptic period. It also deals with the synoptic-aerological conditions and their forecasting for periods of drought, of heavy precipitation, of sharp temperature drops, and of strong winds, on the basis of analyzing macrocirculation schemes for various periods of years. Orig. art. has: 12 maps, 2 formulas, and 4 tables.

ASSOCIATION: Zakavkazskiy nauchno-issledovatel'skiy gidrometeorologicheskiy institut, Tiflis (Transcaucasian Scientific Research Hydrometeorological Institute)

44155

SUBMITTED: 00 ENCL: 00 SUB CODE: ES

NO REF SOV: 007 OTHER: 000

Card 2/2

PAPINASHVILI, L. I.

28961 PAPINASHVILI, K. I. Belaya Lunnaya Raduga (Zap, Truziya, 13 Okt, 1948 G) Priroda, 1949, No 9, S 60

SO: Letopis' Zhurnal'nykh Statey, Vol. 39, Moskva, 1949

GONGADZE, D.N., PAPINASHVILI, L.K.

Calculating the impact of an avalanche on an immovable obstacle.
Soob.AN Gruz.SSR 16 no.6:437-442 '55. (MLRA 9:2)

1.Akademiya nauk Gruzinskoy SSR, Institut geofiziki, Tbilisi.
Predstavlene deystvitel'nym chlenom Akademii K.S.Zavriyevym.
(Impact) (Avalanches)

PAPINAKO, I. G.

FAYNGLUZ, P.P.; PAPINAKO, I.G., redaktor; SOKOLOVA, R.Ya., redaktor.

[Technical work standards in communications] Tekhnicheskoe normirovanie v khoziaistve sviazi. Moskva, Gos. izd-vo lit-ry po voprosam sviazi i radio, 1953. 267 p. (MLRA 7:1)
(Telecommunications) (Postal service)

KUTUZOV, L.G.; RYSIN, V.I., inzh.; SHIRKEVICH, N.S., inzh.; KUZNETSOV, N.D., inzh.; FILIMONTSEV, I.S., inzh.; PAPINOVA, O.I., inzh.; KHOLODKOV, N.Ye., inzh.; ASTAFUROV, O.A.; SASS, K.Z.; SASIN, A.S.; SAFAROVA, Ye.S. [deceased]

Exchange of practices by the enterprises of economic councils. Torf. prom. 40 no.7:34-38 '63. (MIRA 17:1)

1. Gusevskoye torfopredpriyatiye Verkhne-Volzhskogo soveta narodnogo khozyaystva (for Kutuzov). 2. Torfopredpriyatiye Vasilevichi II Belorusskogo soveta narodnogo khozyaystva (for Shirkevich, Filimontsev, Papinova, Kholodkov). [illegible]yavskiy lesnoy khimicheskiy kombinat Gor'kovskoy obl. (for Kuznetsov). 4. Fornosovskiy torfobriketnyy zavod Leningradskogo gosudarstvennogo tresta torfyanoy promyshlennosti (for Sass).

PAPIR, A. N.

USSR/Electricity - Generators, Reversible Hydroelectric Power Stations Jun 50

"Reversible Hydroelectric Power Units in a Power System," V. P. Gur'yev, Cand Tech Sci, A. N. Papir, Engr

"Elek Stants" No 6, pp 14-17

Proposes use of hydroelectric power stations capable of storing power. Some of these would be included in each power system. Suggests these stations be equipped with reversible units, i. e., hydraulic machines capable of alternate operation as generators or motors. Discusses characteristics of reversible units and concludes their installation in new hydroelectric power stations is economically sound.

PA 162T17

PAPIR, A.N., mladshiy nauchnyy sotrudnik

Characteristics of a propeller pump in subsurface operation. Trudy LPI no.2:143-150 '54. (MLRA 8:8)
(Pumping machinery)

PAPIR, A.N.

Some problems pertaining to the calculation of a jet motor. Trudy LPI no.187:58-72 '56. (MIRA 13:6)
(Hydraulic machinery)

PAPIR, A.N.

Investigating the operation of an integrated hydroturbine unit when the overflow is directed through the elbow of the draft tube. Trudy LPI no.187:44-53 '56. (MIRA 13:6)
(Hydraulic turbines)

SOV/124-58-3-2953

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 3, p 58 (USSR)

AUTHOR: Papir, A. N.

TITLE: Some Questions on the Design Calculation of a Water Jet Propulsor (Nekotoryye voprosy rascheta vodometnogo dvizhitelya)

PERIODICAL: Tr. Leningr. politekhn. in-ta, 1956, Nr 187, pp 58-72

ABSTRACT: An attempt is made to establish, dependent upon the horse power of a propulsor and the characteristics of the pump, a selection of propulsor parameters ensuring the best thrust performance of the propulsor as well as the cavitation free operation of the pump.

V. N. Gusev

Card 1/1

PAPIR, A.N.

Design of a jet propeller on the basis of the standard pump and testing results of the experimental vessel. Trudy LPI no.193:94-107 '58. (MIRA 12:2)
(Ships--Testing) (Hydraulics)

PAPIR, A.N., inzh.

Investigating axial pumps operating in free flow circulation systems. Energomashinostroenie 6 no.8:14-17 Ag '60. (MIRA 14:9)

(Pumping machinery)

S/143/61/000/011/009/009
D203/D302

AUTHOR: Papir, A. N., Engineer

TITLE: The effect of blade density of an axial-flow pump working wheel on its energetic and cavitational properties

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Energetika, no. 11, 1961, 111 - 119

TEXT: The author derives a formula for relative loss of specific energy in the blades of the working wheel. He concludes that the loss depends on the distance between blades and that the decisive factor is the peripheral velocity of flow w_u depending on the speed of rotation n. Taking $c_x = ac_y^2 + bc_y + c_1$ [Abstractor's note: c_x not defined], c_y being the coefficient of lift force, one obtains a relation between 1/t and n_I [Abstractor's note: not defined], t being the peripheral distance between blades and

Card 1/2

PAPIR, A.N., inzh.

Effect of the density and cross section of the rotor wheel of an axial compressor on its mechanical and power characteristics. Izv. vys. ucheb. zav.; energ. 4 no.11:111-119 N '61. (MIRA 14:12)

1. Leningradskiy politekhnicheskiy institut imeni M.I.Kalinina. Predstavlena kafedroy gidravlicheskikh mashin.
(Compressors)

PAPIR, A. N.

Development of an axial-flow pump with minimum resistance under free-flow conditions. Trudy LPI no.215:159-172 '61.
(MIRA 14:11)

(Marine pumps)

PAPIR, A.N., kand.tekhn.nauk, dotsent.

Slit cavitation in an axial-flow pump. Energomashinostroenie 10 no.1:38-40 Ja '64. (MIRA 17:4)

PAPIR, A.N.

Effect of hydraulic losses on the cavitation characteristics of reversing hydraulic machines. Trudy LPI no.246:53-56 '65.

Relationships of the power characteristics of reversing hydraulic units. Ibid.:57-63 (MIRA 18:6)

PAPIR, Abram Nutovich; PEVZNER, B.M., retsenzent; YEROMITSKAYA, Ye.Ye., red.

[Axial-flow pumps for water-jet propellers] Osevye nasosy vodometnykh dvizhitelei; osnovy teorii i rascheta. Leningrad, Sudostroenie, 1965. 250 p. (MIRA 18:()

PAPIRNY, JIHOCESKE

(2)

Treatment of black liquor soap obtained in the manufacture of cellulosic material by the sulphate or soda process. Jihoceské Papirny, N.P. (Inventor: K. S. Nitsche) (B.P. 702,821, 16.4.49. Czechosl., 16.4.48).—The black liquor soap or tall oil soap is treated by adding (before, during, or after the known acid hydrolysis) alkali or alkaline earth water-sol. salts which are insol. in the tall oil (NaCl, Na_2SO_4); separating a mud (which forms an intermediate layer between the tall oil and the salt-containing bottom layer); separately working the tall oil and bottom layers; removing mineral acid from the mud by neutralisation, and drying, comminuting and moulding the mud product (mixed with fillers). In typical examples 1000 kg. of tall oil soap is heated to temp. > the b.p. under atm. pressure with water 100 kg. 150 kg. of Na_2SO_4 are slowly added after or simultaneously with blowing CO_2 through the liquid. The necessary amount of H_2SO_4 is added slowly while air is blown through the liquid. Stirring or blowing is continued for some time and the liquor left to stand. ~600 kg. of fatty acid or tall oil is obtained, and a mud layer forms under the fatty acid layer. The mud layer contains Na_2SO_4 solution (which may be used for salting out fresh tall oil soap or for the sulphate or soda process) and the mud itself serves for making moulded articles. Thus 100 kg. of the mud is heated with water 500 kg., neutralised (with Na_2CO_3), and treated with a conc. aq. solution of 10—20 kg. of $Al_2(SO_4)_3$, the resulting mixture being freed from water, dried, mixed with fillers, ground, and moulded at increased temp.

H. L. WHITEHEAD.

PAPIROV, I.

Orientation crystallization. Zhur. fiz. khim. 32 no.[illegible] 523-25[illegible]. [illegible]
0 '64.

PAPIROV, I.I., TIKHINSKIY, G.F.

Dependence of condensation coefficients on temperature. Fiz. met. i metalloved. 11 no. 1:155-157 Ja '61. (MIRA 14:2)

1. Fiziko-tekhnicheskiy institut AN USSR.
(Condensation)

AMONENKO, V.M.; KRUGLYKH, A.A.; PAPIROV, I.I.

Preparing high-purity zinc and the method of its control. Fiz. met. i metalloved. 11 no. 4:633-635 Ap '61. (MIRA 14:5)

1. Fiziko-tekhnicheskiy institut AN USSR.
(Zinc—Analysis) (Vacuum metallurgy)

18.1215 2808,1555, 1418 25927 S/126/61/012/001/009/020
E021/E406

AUTHORS: Amonenko, V.M., Papirov, I.I., Tikhinskiy, G.F. and Finkel', V.A.

TITLE: Orientated growth of beryllium precipitates on oriented and on isotropic bases

PERIODICAL: Fizika metallov i metallovedeniye, 1961, Vol.12, No.1, pp.73-77

TEXT: The plasticity of beryllium can be increased by preparing it with a preferred orientation. A preferred orientation can sometimes be obtained by condensing the metal onto a base with a preferred orientation or by changing the angle between the direction of the molecular stream and the normal to the base. In the present work, the structure of beryllium precipitates prepared by the condensation of vapour in vacuo on a textured base of various metals, and also the variation of structure with the angle of inclination of the molecular stream to the base, were investigated. The method of precipitation used was described earlier (Ref.10: FMM, 1960, 10, 4, 581). Beryllium of 99.987% purity (discounting oxygen) was vaporized in a resistance furnace with a BeO crucible. The rate of evaporation was about 0.2 g/cm^2 hr, the condensation

surface temperature 300 to 350°C. The precipitate was annealed for 1 hour at 700 to 750°C. Precipitation was carried out in a vacuum of (1 - 5) x 10^{-6} mm Hg. Rolled sheets of Mo, Ta, Ni, Cu, Ti and armco Fe were used as a base. The texture of the condensed beryllium was investigated by X-ray methods. Some of the photographs obtained are shown in the paper (of a layer condensed on a molybdenum base, on nickel, and on an amorphous base). Fig.2 shows the orientation of the crystals on the same bases. The results are given in the table. Epitaxial growth was observed in several cases with precipitates up to 500 μ thick. The best plastic properties of beryllium were obtained by condensation in the [211] direction on a molybdenum base, and on a neutral base. The orientation of beryllium condensed on a nickel base is unfavourable for plastic deformation. There are 2 figures, 1 table and 16 references: 9 Soviet and 7 non-Soviet. The four most recent references to English language publications read as follows: Newman R.C. Proc.Phys.Soc., 1956, B69, (4), 432;
James J.A. Trans. Faraday Soc., 1955, 51, 833;
Finch G.I., Sun C.H. Trans. Faraday Soc., 1936, 32, 852;
Burgers W.G., Dippel C. J.Physica, 1934, 1, 549.

25917 S/126/61/012/001/009/020
Orientated growth of beryllium ... E021/E406

ASSOCIATION: Fiziko-tekhnicheskiy institut AN UkrSSR
(Physicotechnical Institute AS UkrSSR)

SUBMITTED: November 9, 1960 (initially)
January 11, 1961 (after revision)

Card 3/5

89950

S/126/61/011/001/018/019
E032/E314

18.7530

AUTHORS: Papirov, I.I. and Tikhinskiy, G.F.

TITLE: On the Temperature Dependence of the Condensation Coefficient

PERIODICAL: Fizika metallov i metallovedeniye, 1961, Vol. 11, No. 1, pp. 155 - 156

TEXT: It is well known that the condensation coefficient α of a substance on a given base, which is defined as the fraction of "condensed" molecules, depends on the temperature of the base, the nature of the surface, the thickness of the deposit and the energy of the incident particles. It has been shown experimentally (Knudsen and Weyssenhoff - Ref. 1 and Devienne - Ref. 2) that the condensation coefficient may vary from 0 to 1 in a certain temperature interval. The magnitude of this temperature interval depends on the nature of the deposited material and for certain materials may reach a few hundreds of degrees. The above authors have assumed that the condensation coefficient α decreases monotonically with decreasing temperature. However, in a number of cases,

Card 1/5

S/126/61/011/001/018/019
E032/E314

On the Temperature Dependence ...

the temperature dependence of α may be more complex. It is well known that when vapours of metals are condensed on an amorphous base, certain preferred orientations appear in the condensate (Dixit - Ref. 3, Herbstein - Ref. 4 and Bruck - Ref. 5). These orientations are such that the plane with the maximum reticular density is parallel to the base. A change in the temperature of the target leads to a change in the orientation in such a way that at higher temperatures planes with lower reticular density will become parallel to the base. On the other hand, it is known that the condensation coefficient on planes with different packing density is different (Rideal and Wiggins - Ref. 6). In this connection, the authors consider the results of Walter (Ref. 7) who has measured the condensation coefficient for mercury deposited on a nickel base. Walter has found that the condensation coefficient has a minimum between -85 and -95 °C. He has explained this minimum by assuming

On the Temperature Dependence .....

that the re-evaporation of mercury atoms from mercury crystals is more intensive than the re-evaporation from nickel crystals. The present authors used the Dixit formula (Ref. 3)

$$T = \frac{\varepsilon T_{melt}}{d} \qquad (1)$$

(where T_{melt} is the melting point of the condensate, ^{o}K,
ε is the atomic radius and
d is the distance between the orientated planes)

to show that in the case of mercury and in the above temperature region two orientations are possible, namely:
a) the (100) plane with d = 2.77 parallel to the base at about -100 °C; b) the (110) plane with d = 2.55 parallel to the base at -70 °C. It follows that for

Card 3/5

S/126/61/011/001/018/019
E032/E314

On the Temperature Dependence ....

condensation temperatures between the critical (-77 °C) and -85 °C, the plane (110) continues to be parallel to the base and α increases from 0 to 1. At -85 °C, the (110) orientation begins to appear and the minimum at -95 °C is due to the predominance of the latter orientation. Further increase in α is due purely to a temperature effect. From this point of view, the dependence of the condensation coefficient on time (Ref. 7) becomes understandable. For short times of condensation, when a large fraction of the nickel surface is still available, the minimum on the α versus T curve is not observed. For long times, on the other hand, the minimum is smoothed out as a result of the orientation effects associated with increasing thickness of the layer.

Card 4/5

89950

S/126/61/011/001/018/019
E032/E314

On the Temperature Dependence ....

There are 1 figure and 7 non-Soviet references.

ASSOCIATION: Fiziko-tekhnicheskiy institut AN UkrSSR (Physicotechnical Institute of the AS Ukrainian SSR)

SUBMITTED: August 15, 1960

Card 5/5

S/126/61/011/004/021/023
E021/E435

5.2200 1043, 1087, 1273

AUTHORS: Amonenko, V.M., Kruglykh, A.A. and Papirov, I.I.

TITLE: Preparation of Zinc of High Purity and a Method of its Control

PERIODICAL: Fizika metallov i metallovedeniye, 1961, Vol.11, No.4, pp.633-635

TEXT: The method of purification used was vacuum distillation and condensation of the vapours on a surface with a temperature gradient (Ref.6). The apparatus is shown in the figure: 1 coupling, 2 quartz tube, 3 condenser, 4 heating sections, 5 baffles, 6 crucible and 7 thermocouple. Zinc of 99.98% purity was used as the initial material. One kg was placed in a crucible and 70 to 95% of it vapourized. The purest zinc was always obtained in the middle zone of the condenser. When a shorter condenser was used, the degree of purification decreased. The purest zinc was obtained by vapourizing at 460°C when a purity of 99.99997% was obtained. 40% of the original charge could be obtained with this purity. Repeated distillation did not give a further improvement in purity. The control of the purity was carried out by the method of measuring the residual resistance,

Card 1/3

21371
S/126/61/011/004/021/023
E021/E435

Preparation of Zinc ...

using a low-ohmic condenser and a high sensitivity galvanometer (B.N.Aleksandrov, I.G.D'yakov and one of the authors, I.I.Papirov carried out these measurements in the Kriogennaya laboratoriya (Cryogenic Laboratory) of the Institute . The ratio of the resistance at 4.2°K to the resistance at room temperature of the obtained sample was compared with the same ratio for zinc of known purity. Thus an estimate of the total impurity in the zinc was obtained. Acknowledgments are expressed to B.G.Lazarev for his advice. There are 1 figure and 11 references: 7 Soviet and 4 non-Soviet.

ASSOCIATION: Fiziko-tekhnicheskiy institut AN UkrSSR
(Physicotechnical Institute AS UkrSSR)

Card 2/3

Preparation of Zinc ...

S/126/61/011/004/021/023
E021/E435

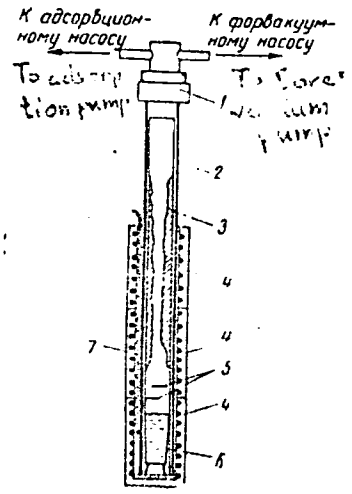


Figure.

Card 3/3

AMONENKO, V.M.; PAPIROV, I.I.; TIKHINSKIY, G.F.; FINKEL', V.A.

Oriented growth of beryllium precipitates on textured [redacted] isotropic base layers. Fiz. met. i metalloved. 12 no.1:73-77 Jl '61. (MIRA 14:8)

1. Fiziko-tekhnicheskiy institut AN USSR.
(Beryllium crystals--Growth)

S/126/62/013/006/013/018
E021/E192

AUTHORS: Amonenko, V.M., Papirov, I.I., Tikhinskiy, G.F., and Finkel', V.A.

TITLE: Investigation of whisker crystals of beryllium. I. Preparation of whisker crystals and determination of their orientation.

PERIODICAL: Fizika metallov i metallovedeniye, v.13, no.6, 1962, 928-930

TEXT: Single crystal beryllium whiskers were prepared by evaporation in vacuo and condensation of the vapour on a cylindrical column of molybdenum sheet. Distilled beryllium of purity 99.99% (neglecting oxygen and carbon) was used. The vaporising temperatures were 1365-1600 °C and the condensing temperatures 770-950 °C. The rate of evaporation varied from 0.4 to 0.9 g/cm^2.hour, and the rate of growth of the whiskers from 0.01 to 0.07 g/cm^2.hour. The majority of the crystals had a diameter of several tenths of a micron and a length of several millimetres. X-ray investigations (by rotating the sample in the D-S camera) showed that the whiskers were single crystals.

Card 1/2

There was some splitting of reflections indicating plastic deformation in the process of removal from the condensate. The directions of growth of the crystals investigated were [221], [331], and [111]. Thus the growth does not occur in the direction of closest packing.
There are 2 figures and 1 table.

ASSOCIATION: Fiziko-tekhnicheskiy institut AN USSR
(Physicotechnical Institute, AS Ukr.SSR)

SUBMITTED: December 2, 1961

PAPIROV, I.I.; PALATNIK, L.S.

Oriented growth of metal and ionic crystals. Kristallografiia 7 no.2:286-290 Mr-Ap '62. (MIRA 15:4)

1. Khar'kovskiy politekhnicheskiy institut imeni Lenina.
(Metal crystals--Growth) (Ionic crystals--Growth)

AMONENKO, V.M.; PAPIROV, I.I.; TIKHINSKIY, G.F.; FINKEL', V.A.

Studying filiform beryllium crystals. Part 1: Obtaining filiform crystals and determining their orientation. Fiz. met. i metalloved. 13 no.6:928-930 Je '62. (MIRA 15:7)

1. Fiziko-tekhnicheskiy institut AN USSR.
(Beryllium crystals)

PAPIROV, I.I.

Heatable detachable seals and valves in superhigh vacuum apparatus; survey. Prib. i tekh. eksp. 7 no.2:5-15 Mr-Ap '62. (MIRA 15:5)

1. Fiziko-tekhnicheskiy institut AN USSR.
(Vacuum apparatus)

PAPIROV, I.I.; TIKHINSKIY, G.F.; FINKEL', V.A.

Phase transformation in Be-8 at.- % Ni alloys, without diffusion. Fiz.met.i metalloved. 15 no.3:462-465 Mr '63. (MIRA 16:4)

1. Fiziko-tekhnicheskiy institut AN UkrSSR.
(Beryllium-nickel alloys--Metallography)
(Phase rule and equilibrium)

S/126/63/015/003/018/025
E193/E183

AUTHORS: Papirov I.I., Tikhinskiy G.F., and Finkel', V.A.

TITLE: Diffusionless phase transformations in the Be - 8 at.% nickel alloy

PERIODICAL: Fizika metallov i metallovedeniye, v.15, no.3, 1963, 462-465

TEXT: X-ray diffraction analysis, metallographic examination and microhardness measurements were used to study the phase transformation taking place in the Be - 8 at.% nickel alloy at fast rates of cooling. The tests were carried out either on solid test pieces quenched in various media from the β-phase range, or on specimens obtained by melting a thin strip by a current pulse and cooling the resultant droplets in nitrogen; the particle size of the droplets varied from a few microns to 1 - 2 mm.
Conclusions. 1) The diffusionless decomposition of the β-phase cannot be completely suppressed by quenching in water or other liquid media at room temperature. 2) Rapid cooling of small droplets of the molten alloy coming in contact with a copper plate at -196 °C results in the alloy undergoing diffusionless $\beta \rightarrow \alpha$

Card 1/2

Diffusionless phase transformation...

transformation accompanied by a considerable increase in hardness. 3) The metastable solid solution formed by ultra-rapid cooling is decomposed by 2 hours' treatment at 600 °C; the transformation is accompanied by the precipitation of an intermetallic compound $Be_{21}Ni_5$. 4) Specimens with various structures were found to have the following microhardness (kg/mm^2): α-solid solution of nickel in Be at the equilibrium concentration (at room temperature), 373 - 383; γ-phase ($Be_{21}Ni_5$), 1214 - 1290; the eutectoid before quenching, 635 - 716; α-solid solution of Ni and Be after quenching, 946 - 1008; an alloy quenched and aged for 2 hours at 600 °C, 635 - 716.

There are 2 figures and 1 table.

ASSOCIATION: Fiziko-tekhnicheskiy institut AN USSR
(Physicotechnical Institute, AS UkrSSR)

SUBMITTED: August 9, 1962 (initially),
September 15, 1962 (after revision).

Card 2/2

L 17700-65 EWT(m)/EWP(w)/EWA(d)/EWP(t)/EWP(b) IJP(c)/ASD(m)-3 JD/JG

ACCESSION NR: AP4042048 S/0126/64/017/006/0892/0897

AUTHOR: Vasyutinskiy, B. M.; Kartmazov, G. N.; Papirov, I. I. B

TITLE: Surface structure and properties of acicular crystals of chromium 27

SOURCE: Fizika metallov i metallovedeniye, v. 17, no. 6, 1964, 892-897

TOPIC TAGS: acicular crystal, whisker surface structure, chromium strength, growth mechanism, chromium

ABSTRACT: Pointing out that the formation and growth of acicular crystals is far more complex than indicated by earlier investigators, the authors discuss surface structure, strength characteristics, and growth mechanism of Cr crystals with a maximum cross section of 20×10^{-6} mm^2 produced by vacuum condensation. Examination under a standard optical microscope showed that crystals grow in steps; the mean height of individual steps varied from 1700 to 2300 A. The growth begins at the basal face and proceeds toward the apex. Under

Card 1/3

L 17700-65

ACCESSION NR: AP4042048

an electron microscope stepped and complex profiles as well as smooth surface regions were also identified. Failure in tensile tests occurred by a cleavage and was not preceded by conspicuous plastic deformation. Investigations showed that the thicker crystals had a lower strength. The strength reached 590 kg/mm^2 in crystals with macroscopic growth steps. Since appreciable strength was observed in crystals both with a smooth surface and with growth steps, the authors assume that the latter are not formed as a result of dislocation. The discontinuation of axial growth is attributed to the mechanism of the development of steps on the lateral face. Apparently, with each new layer that forms at the basal face and reaches the apex, the supply of crystallizing substance to the mobile whisker end is reduced by the diffusion of particles toward the step of the next layer. This was corroborated by the fact that thin crystals possess a smaller number of growth steps than thick specimens formed under analogous conditions. Moreover, the same crystal may be rather smooth near the apex and rough in the thicker portion. The changes in the axial growth under conditions of temperature control were caused by the changes in the growth mechanism. The contribution of A. A. Chernov is gratefully acknowledged. Orig. art. has: 4 figures, 2 formulas, and 1 table.

Card 2/3

L 17700-65

ACCESSION NR: AP4042048

ASSOCIATION: Fiziko-tekhnicheskiy institut AN UkrSSR (Physicotechnical Institute, AN UkrSSR)

SUBMITTED: 03Jul63 ENCL: 00 SUB CODE: SS, IC

NO REF SOV: 005 OTHER: 010

Card 3/3

VASYUTINSKIY, B.M.; KARTMAZOV, G.N.; PAPIROV, I.I.

Surface structure and the properties of acicular chromium crystals. Fiz. met. i metalloved. 17 no.6:892-897 Je '64. (MIRA 17:8)

1. Fiziko-tekhnicheskiy institut AN UkrSSR.

PAPIROV, I.I.; TIKHINSKIY, G.F.

Thermal etching of beryllium crystals. Kristallografiia 9 no.3:444-447 My-Je '64. (MIRA 17:6)

1. Fiziko-tekhnicheskiy institut AN UkrSSR.

PAPIROV, I.I.; TIKHINSKIY, G.F.; FINKEL', V.A.

Hardening of Be-Ni alloys. Fiz. met. i metalloved. 17 no.4: 613-614 Ap '64. (MIRA 17:8)

1. Fiziko-tekhnicheskiy institut AN UkrSSR.

PAPIROV, I.I.; TIKHINSKIY, G.F.

Berylium crystallization on a condensing column. Kristallografiia 9 no.2:310-314 Mr-Ap'64. (MIRA 17:5)

1. Khar'kovskiy fiziko-tekhnicheskiy institut.

S/0126/64/017/004/0613/0614

ACCESSION NR: AP4034060

AUTHORS: Papirov, I. I.; Tikhinskiy, G. F.; Finkel', V. A.

TITLE: On the problem of hardening of Be Ni alloy

SOURCE: Fizika metallov i metallovedeniye, v. 17, no. 4, 1964, 613-614

TOPIC TAGS: hardening, annealing, beryllium, nickel, radiographic apparatus RKD 57, alpha beryllium line, beta beryllium line, hypoeutectic alloy

ABSTRACT: The purpose of this work was to study the hardening process in Be-Ni alloy at high rates of cooling. Minute specimens produced by contact arc discharges were cooled on the inside walls of a copper container of 80-mm diameter, rotating at a speed of 2500 rpm. Hardening of the specimens took place over a thickness of 10 μ, with the cooling rate of 10^6 degrees/sec. Radiographic analysis was performed with an equipment of the type RKD-57. The radiogram of the hardened specimen was to be characterized by the absence of the α-Be line and the change in relative intensity of the line of the γ phase, but the absence of the α-Be line was observed only in the smallest specimens constituting about 25% of the total number. Tempering was done at temperatures of 100-400C and the exposure time at these temperatures was one hour. Radiograms of specimens tempered at temperatures

Card 1/2

ACCESSION NR: AP4034060

below 300C could not be distinguished from those of hardened specimens, but radiograms of specimens tempered at above 340C showed α-Be lines. Hardening of pure Be and of intermetallic compounds did not cause any change in the form of the radiogram. Experiments with hypoeutectic alloys with 5-20% Ni contained the α-Be line. Orig. art. has: 1 photograph.

ASSOCIATION: Fiziko-tekhnicheskiy institut, AN SSSR (Physico-technical Institute, AN SSSR)

SUBMITTED: 01Aug63 ENCL: 00

SUB CODE: MM NO REF SOV: 001 OTHER: 001

Card 2/2

PAPIROV, I.I.

Aging of beryllium. Atom. energ. 19 no.2:144-153 Ag '65. (MIRA 18:9)

AZHAZHA, V.M.; D'YAKOV, I.G.; PAPIROV, I.I.; TIKHINSKIY, G.F.

Change in the properties of beryllium due to aging. Atom. energ. 19 no.3:269-272 S '65. (MIRA 18:9)

L 4075-66 EWP(e)/EWT(m)/EWP(t)/EWP(k)/EWP(z)/EWP(b) LJP(c) JD/JG

ACC NR: AP5023768 SOURCE CODE: UR/0089/65/019/003/0269/0272

AUTHOR: Azhazha, V. M.; D'yakov, I. G.; Papirov, I. I.; Tikhinskiy, G. F.

ORG: none

TITLE: Change in beryllium properties during aging

SOURCE: Atomnaya energiya, v. 19, no. 3, 1965, 269-272

TOPIC TAGS: beryllium, beryllium powder, beryllium property, beryllium heat treatment

ABSTRACT: The effect of aging on the mechanical properties of beryllium at elevated temperatures and the relationship between the mechanical properties and electrical resistance of aged beryllium have been studied. Hot-compacted commercial-grade (99.64%) beryllium specimens with a density of 1.844 g/cm^3, a tensile strength of 23 and 13 to 13.5 kg/mm^2 and an elongation of 1 and 10.5% at 20 and 600C, respectively, were homogenized at 1100C for 15 min, cooled to 800C at a rate of 100C per min, to 600C at a rate of 20C per min, and to room temperature at a rate of 5C per min, and then aged at 700, 750, 800, and 850C for 4, 40, or 100 hr. It was found that aging increases the ductility of beryllium, especially at high temperatures (see Fig. 1). The tensile strength of aged specimens was 16—17 kg/mm^2 at 400C and 13—14 kg/mm^2 at 600C; it decreased to 11.4—11.8 kg/mm^2 for specimens aged at 800—850C. Yield strength for all tested specimens varied in the range 8.5—9.5 kg/mm^2, but dropped to 7.8 kg/mm^2 after aging at 700C for 100 hr. Curves showing the dependence of elongation and elec-

Card 1/2 UDC: 546.45

L 4075-66

ACC NR: AP5023768

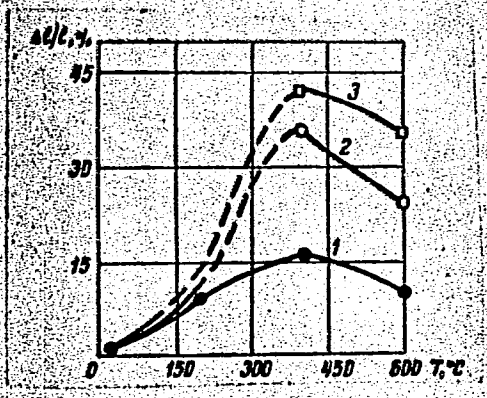


Fig. 1. Temperature dependence of beryllium (1) homogenized, (2) aged at 750C for 40 hr, and (3) aged at 700C for 100 hr.

trical resistance on aging time are similar; resistance decreases proportionally to the increase in elongation. Orig. art. has: 6 figures and 1 table. [AZ]

SUB CODE: MM,AS/SUBM DATE: 25Aug64/ ORIG REF: 003/ OTH REF: 000/ ATD PRESS: 4128

BVK

Card 2/2

L 56070-65 EWT(m)/EWP(w)/EWA(d)/T/EWP(t)/EWP(k)/EWP(b)/EWA(c) Pf-4
ACCESSION NR: AP5013815 IJP(c) JD/EW/JG UR/0126/65/019/005/0788/0790
539.292; 548.0 : 537

AUTHOR: D'yakov, I. G.; Papirov, I. I.; Tikhinskiy, G. F.

TITLE: Residual electrical resistance of beryllium

SOURCE: Fizika metallov i metallovedeniye, v. 19, no. 5, 1965, 788-790

TOPIC TAGS: residual resistance, beryllium purity, vacuum annealing, cryostat, chemical purity, beryllium foil, beryllium distillate, vacuum cast beryllium / M21/4 galvanometer, PPTN-1 potentiometer

ABSTRACT: Although some information on measurements of the residual resistance of beryllium is available in the literature, no correlation has yet been established between the purity of this metal and its residual resistance. To remedy this gap, the authors determined the residual resistance of beryllium of different degrees of purity. The measurements were performed in a cryostat by the compensation method with the aid of a M21/4 galvanometer and a PPTN-1 potentiometer. Measurement sensitivity was approximately 10^{-8} volt. Different types of beryllium (all polycrystalline, average grain size 20 to 200 μ) were measured: foil, distillate, vacuum-cast rolled, pressed,

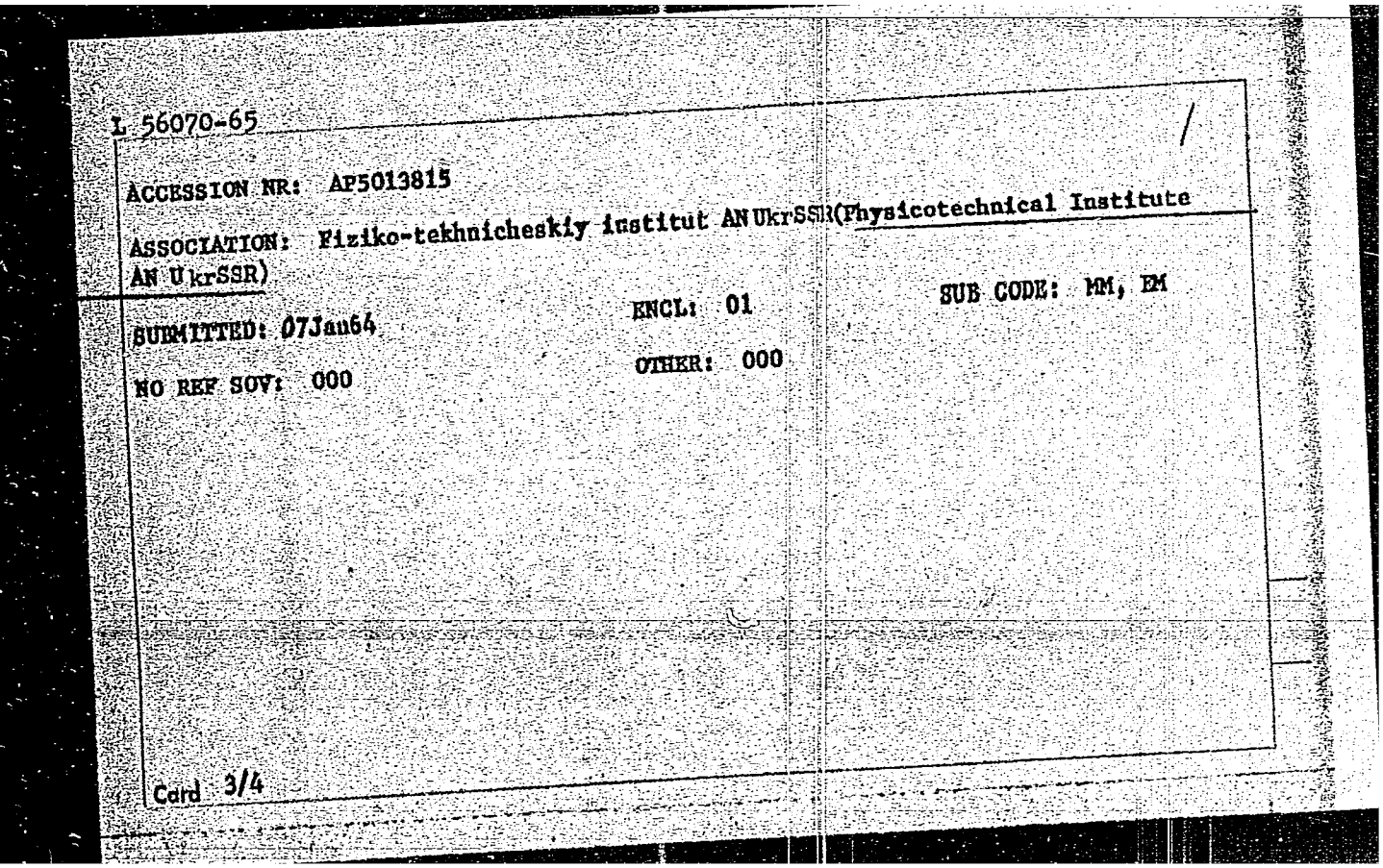
Card 1/4

L 56073-65

ACCESSION NR: AP5013815

extruded, zone-refined. The measurements were performed at a temperature of 4.2°K. Prior to this, all specimens were vacuum-annealed (10^{-5} mm Hg) at 1000°C for 1 hr, with subsequent slow cooling. Such uniform heat treatment of all specimens was needed for a better comparability of results, since the authors found that variations in the regimes of preliminary annealing lead to a change in the state of impurities, which adversely affects residual resistance. The purity of the metal was determined according to its relative residual resistance $\delta = \rho_0/\rho_{room}$, where ρ_{room} is resistance at room temperature. The use of δ makes it possible to dispense with measuring the dimensions of the specimens. On the basis of tabulated findings on the δ of the different types of beryllium, δ was plotted as a function of the chemical purity of the investigated specimens (see figure). Moreover, it was found that as the purity of Be increases, δ may begin to be affected by the size and orientation of the grains. The data presented indicate that the method of determining purity by measuring residual resistance is extremely precise and sensitive, as well as quick. Preliminary investigations showed that for maximally pure beryllium this may be done at the boiling point of oxygen (20.4°K) and for commercially pure -- even at the boiling point of nitrogen (77.4°K).
Orig. art. has: 1 figure, 1 table.

Card 2/4



L 56070-65

ACCESSION NR: AP5013815

ASSOCIATION: Fiziko-tekhnicheskiy institut AN UkrSSR(Physicotechnical Institute AN UkrSSR)

SUBMITTED: 07Jan64 ENCL: 01 SUB CODE: MM, EM

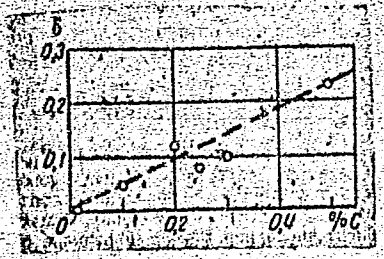
NO REF SOV: 000 OTHER: 000

Card 3/4

T 56070-65

ACCESSION NR: AP5013815

ENCLOSURE: 01



Estimated relation of residual resistance δ to chemical purity of beryllium

Card 4/4

L 14683-66 EWT(m)/EWP(w)/T/EWP(t)/EWP(b) IJP(c) JD/JG/DM
ACC NR: AP6008255 SOURCE CODE: UR/0089/65/019/002/0144/0153

AUTHOR: Papirov, I. I.

71
B

ORG: none

TITLE: Beryllium aging 55 21 B

SOURCE: Atomnaya energiya, v. 19, no. 2, 1965, 144-153

TOPIC TAGS: beryllium, metal aging, plasticity, metal heat treatment, metal physical property, solid mechanical property, electric resistance

ABSTRACT: A review is given of the data on improving beryllium plasticity at 400 to 600°C. Thermal treatment of beryllium results in separation of impurities from the saturated solution which in turn changes metal properties, specifically plasticity, hardness, creep, and electric resistance. Descriptions are given of the mechanism of beryllium aging and means for increasing beryllium plasticity at high temperatures. Orig. art. has: 8 figures.

SUB CODE: 11 / SUBM DATE: 25Aug64 / ORIG REF: 003 / OTH REF: 019

Card 1/1 BC UDC: 546.45

L 60441-65 EWT(m)/T/EWP(t)/EWP(b) IJP(c) JD/JG

ACCESSION NR: AP5016526 UR/0126/65/019/006/0848/0851
546.45 : 537.311.33

30
B

AUTHOR: D'yakov, I. G.; Papirov, I. I.; Tikhinskiy, G. F.

TITLE: The relationship between remanent resistance and heat treatment in beryllium with various degrees of purity 15 17 16

SOURCE: Fizika metallov i metallovedeniye, v. 19, no. 6, 1965, 848-851

TOPIC TAGS: beryllium, low temperature phenomenon, electric resistance, impurity content, precipitation, physical metallurgy

ABSTRACT: Precipitation of the surplus phase and its growth in Be of varying purity was studied by measuring the remanent resistance at liquid helium temperatures (4.2°K). It was shown that the effective temperature of aging of the metal depends on the quantity of impurities contained. Three series of Be samples were prepared: 99.94%, 99.91% and 99.4% pure remanent. The resistance, defined as $\delta = \rho_{4.2°}/\rho_{293°}$ was measured as a function of time for different aging temperatures (300-900°C). Prior to this, the samples were vacuum annealed at 1100°C for one hour in order to remove residual stresses, and to dissolve the impurities. All of the specimens ex-

Card 1/2

L 60441-65

ACCESSION NR: AP5016526

hibited aging, although the shape and location of the curves depended on the impurity content, and the effective aging temperature increased with rise in impurity content. Even highly pure beryllium (99.95% $\delta = 9 \cdot 10^{-3}$), had a tendency toward aging accompanied by the appearance of regions with increased impurity concentrations. Therefore, this metal may be considered as a weak alloy. Orig. art. has: 4 figures.

ASSOCIATION: none

SUBMITTED: 04May64 ENCL: 00 SUB CODE: MM

NO REF SOV: 000 OTHER: 003

Card 2/2

L 04784-67 EWT(m)/EWP(t)/ETI IJP(c) JD/JG

ACC NR: AP6024471 SOURCE CODE: UR/0181/66/008/007/2092/2097

62
60
13

AUTHOR: Finkel', V. A.; Papirov, I. I.; Tikhinskiy, G. F.

ORG: Physicotechnical Institute AN UkrSSR, Khar'kov (Fiziko-tekhnicheskiy institut AN UkrSSR)

TITLE: Investigation of plastic deformation of single crystals of beryllium during compression

SOURCE: Fizika tverdogo tela, v. 8, no. 7, 1966, 2092-2097

TOPIC TAGS: beryllium, plastic deformation, pressure effect, x ray study, crystal lattice structure

ABSTRACT: The authors describe x-ray structure investigations of the plastic deformation of single crystals of beryllium with different orientations. The plastic deformation was investigated with the aid of a special x-ray camera described elsewhere (Zav. lab. v. 32, 1248, 1966). The x-ray photographs of the sample could be taken both at fixed load, or directly during low-speed loading. The camera makes it possible not only to obtain x-ray photographs of the deformed substance, but also to determine the character of the deformation curve. The x-ray source was of the URS-70K1 type with unfiltered iron radiation. The tests were made on beryllium of technical purity (99%) with three different orientations, and are described in detail.

Card 1/2

L 04784-67

ACC NR: AP6024471

2

The x-ray pictures obtained during different stages of deformation are compared with different sections of the deformation curve and conclusions are drawn concerning the deformation mechanism of the beryllium. The results are also compared in some cases with those obtained by investigating beryllium crystals by ordinary techniques. The relative contributions of slip along the basal planes, prisms of the first kind, and twinning over the plane of the pyramid of the first kind to the deformation are evaluated for each orientation. The authors thank Yu. N. Smirnov and A. S. Izmalkov for help with the work. Orig. art. has: 2 figures

SUB CODE: 20/ SUBM DATE: 11Dec65/ ORIG REF: 003/ OTH REF: 008

Card 2/2

L 29361-66 EWT(m)/T/EWP(t)/ETI IJP(c) WW/JD/JG

ACC NR: AP6017311 (N) SOURCE CODE: UR/0126/66/021/005/0785/0786

AUTHOR: D'yakov, I. G.; Papirov, I. I.; Tikhinskiy, G. F.

ORG: Physicotechnical Institute, AN UkrSSR (Fiziko-tekhnicheskiy institut AN UkrSSR)

TITLE: Aging of beryllium-chromium and beryllium-zirconium alloys

SOURCE: Fizika metallov i metallovedeniye, v. 21, no. 5, 1966, 785-786

TOPIC TAGS: beryllium, beryllium alloy, chromium containing alloy, zirconium containing alloy, aging, alloy aging

ABSTRACT: Beryllium alloys containing 0.3%Cr or 0.3%Zr melted from 99.95%-pure Be, 99.7%-pure Cr and 99.9%-pure iodide Zr were rolled in vacuum at 900C, homogenized at 1050C for 40 min, cooled at a rate of 40 deg/hr, and aged at 500—900C for 1—100 hr. The criterion of aging was the relative residual electrical resistance: $\delta = R_{4.2K}/R_{20C}$. Homogenized Be-0.3%Cr and Be-0.3%Zr alloys had a δ of $(5.4—59)\cdot10^{-2}$ and $(6.3—6.5)\cdot10^{-2}$, respectively. The optimum aging temperatures, corresponding to a minimum δ, were 600 and 625—650C for Be-0.3%Zr and Be-0.3%Cr alloys, respectively. The absolute decrease of δ in aging Be-0.3%Cr alloy was close to the decrease of δ for the initial distilled Be, which indicated a practically complete precipitation of Cr from the

Card 1/2 UDC: 546.3—19'45'76'831 : 620.187

L 29361-66
ACC NR: AP6017311

matrix with aging. In Be-0.3%Zr alloy, zirconium apparently not only completely precipitated from the matrix, but also promoted precipitation of other impurities. Complete segregation of Cr and Zr occurred in 4 hr at 650—700C and in 1 hr at 800C. At temperatures higher than 825C (for Be-Cr alloy) and 850C (for Be-Zr alloy) decomposition of the secondary phases begins, which leads to an increase in the electrical resistance. The solubility limit of Cr in Be-0.3%Cr alloy and of Zr in Be-0.3%Zr alloy is at a temperature above 850 and 900C, respectively. [MS]
Orig. art. has: 1 figure and 1 table.

SUB CODE: 11, 13/ SUBM DATE: 26Jul65/ ORIG REF: 002/ OTH REF: 001
ATD PRESS: 5009

Card 2/2