

GOLUB, D.M.; AMVROS'YEV, A.P.; LEONTYUK, A.S.; NOVIKOV, I.I.; ORLOVA, B.L.;  
KHEYMAN, F.B.

Data on the formation of new afferent pathways in the urinary bladder  
and large intestine. Arkh. anat. gist.i embr. 38 no.1:3-19 Ja '60.  
(MIRA 13:7)

1. Kafedra anatomii cheloveka (zav. - prof.D.M.Golub) Minskogo  
meditsinskogo instituta i laboratorii morfologii Instituta fiziologii  
Akademii nauk BSSR. Adres avtorov: Minsk, Universitetskaya ul., 2,  
Meditsinskiy institut. Kafedra anatomii cheloveka.  
(BLADDER--INNERVATION) (INTESTINES--INNERVATION)

ORLOVA, B.L.; MORZON, M.A.

Innervation of the longitudinal spine ligaments. Vop. morf.  
perif. nerv. sist. no. 6:46-57'63. (MIRA 16:10)  
(INTERVERTEBRAL DISK — INNERVATION)

GOLUB, E.M., akademik; AMELI SYEV, A.I.; GAYKO, L.A.; IBITSKIY,  
A.S.; LEONTIUK, L.A.; MOFHOVI, V.A.; LOLEKO, I.I.;  
O.LOVA, B.L.; FRUKOFIUK, V.A.; SAVCHELKO, I.Ye.;  
KHEYNMAI, F.B.

[Formation of new nervous and vascular tracts in the  
organs of the small pelvis] Obrazovanie novykh nervnykh  
i sosudistykh putei organov malogo taza. Iod red. D.I.  
Goluba. Minsk, 1974. 198 p. (MIRA 18:2)

1. Akademiya navuk BSSR, Minsk. Instytut Fiziolohii.
2. Akademiya nauk Belorusskoy SSR (for Golub).

ORLOVA, D.

For you, children! Zdorov'e 1 no.8:24 Ag '55

(MIRA 9:5)

(MOSCOW--CHILDREN--HOSPITALS AND ASYLUMS)

ORLOVA, D.

A family. Zdorov'e 1 no.12:9-11 D '55. (MIRA 9:2)  
(BALASHOV FAMILY)

ORLOVA, D.

This is the way a child grows. Zdorov'e 2 no.6:23-24 Je '56.  
(INFANTS--CARE AND HYGIENE) (MLRA 9:8)

ORLOVA, D.

Pediatrician. Zdorov'e 2 no.7:7-8 J1 '56.

(SPBRANSKII, GEORGII NESTEROVICH, 1873- )

(MLRA 9:8)

ORLOVA, D.

Nervous children. Zdorov'e 2 no.10:30 0 '56.  
(CHILDREN--DISEASES) (TEMPERAMENT)

(MLRA 9:11)



ORLOVA, D.

Boarding school. Zdorov'e 2 no.11:16-17 N '56.  
(BOARDING SCHOOLS)

(MLRA 10:1)

ORLOVA, D.

Bread. Zdorov'e 3 no.1:6-8 Ja '57.  
(BREAD)

(MLBA 10:2)

ORLOVA, D.

Why did I do it? Zdorov'e 3 no.2:27-28 P '57.  
(ABORTION) (MOTION-PICTURE PLAYS)

(MLBA 10:3)

ORLOVA, D.

Saving the heart. Zdorov's 3 no.7:8 J1 '57.  
(HEART--SURGERY)

(MLRA 10:8)

ORLOVA, D.S.

AUTHOR: Orlova, D.S.

25-11-15/28

TITLE: Happiness, Health, Life (Schast'ye, zdorov'ye, zhizn')

PERIODICAL: Nauka i Zhizn', 1957, # 11, pp 33-37 (USSR)

ABSTRACT: This article deals with the efforts of Soviet scientists to control epidemic diseases, such as small pox, diseases caused by parasitic worms, malaria, etc. Good results were achieved in this field, malaria, for example, was completely eliminated due to the efforts made by leading Soviet scientists P.G.Sergiyev, P.S.Dzhaparidze, P.P.Popov, N.P.Rukhadze, and others. Today there are 2,780,000 medical scientists and 225 scientific research institutes for medicine in the Soviet Union. In the next 10-15 years attempts will be made to liquidate mosquito fever, the "leishmanose" type skin disease, trachoma and venereal diseases. In February 1957 the USSR Minister of Health, M.D.Kovrigina announced that tuberculosis as a wide-spread mass disease will be eliminated within the next 15-20 years.  
There are six sketches.

AVAILABLE: Library of Congress

Card 1/1

ORLOVA, D.

ORLOVA, D.

Meat. Zdorov'e 4 no.1:20-22 Ja '58.  
(MEAT)

(MIRA 11:2)

ORLOVA, D.

Preparing for life. Zdorov'e 4 no.5:2-3 My '58.  
(MATERNAL AND INFANT WELFARE)

(MIRA 11:4)

AUTHOR: Orlova, D.S. SOV/25-58-12-10/40

TITLE: Toil - the Source of Health (Trud - istochnik zdorov'ya)

PERIODICAL: Nauka i zhizn', 1958, Nr 12, pp 28-32 (USSR)

ABSTRACT: After severely criticizing the labor conditions of the pre-revolutionary epoch, the author gives a detailed account of the improvements made by the communists. Hundreds of physicians now guard the health of workers, reducing illness and diseases by preventive measures. The physicians assigned to the various factories and mines study working conditions on the job. They can order the shut-down of installations if work conditions are detrimental to the health of the laborers. Mine workers in the Soviet Union enjoy the shortest work day - 6 hours. Treatments with ultra-violet rays are available to all workers employed below the ground. A group of Soviet scientist-special-

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Toil - the Source of Health

SOV/25-58-12-10/40

ists studied the physiological reactions of conveyer belts on workers. As a result of these studies, the operation of conveyer belts was adjusted to the peculiarities of the nature of men. There are 4 drawings.

Card 2/2

ORLOVA, D.

Love which leads to harm. Zdorov'ie 5 no.4:16-17 Ap '59.

(MIRA 12:4)

(CHILDREN--CARE AND HYGIENE)

ORLOVA, D., prof., geroy sotsialisticheskogo truda

For the sake of life. Zdorov'e 5 no.6:7-8 Je '59.

(MIRA 12:11)

(DAVYDOVSKII, IPPOLIT VASIL'EVICH, 1887-)

(ANATOMY, PATHOLOGICAL)

ORLOVA, D.

Joy of creative work. Zdorov'e 5 no.9:7-8 S '59.

(MIRA 12:11)

(ZDRODOVSKII, PAVEL FELIKSOVICH)  
(RICKETTSIAL DISEASES)

ORLOVA, D.

Day nursery and kindergarten together. Zdorov'e 5 no.12:16-17  
D '59. (MIRA 13:4)  
(CHILDREN--CARE AND HYGIENE)

ORLOVA, D.

Our friend, the doctor. Zderov's 6 no.6:6-8 Je '60.

(MIRA 13:?)

(CHEBOTAREVA, ALEKSANDRA IVANOVNA)

ORLOVA, D.

Diphtheria must vanish! Zdorov'e 6 no.7:16-17 Je '60. (MIRA 13:7)

(DIPHTHERIA)

ORLOVA, D.; SAN'KO, G.

Nationwide matter. Zdorov'ie 6 no.10:25 0 '60.  
(CHILDREN—CARE AND HYGIENE)

(MIRA 13:9)



ORLOVA, D.S.

Hygiene is the medicine of tomorrow. Nauka i zhizn' 27 no.4:53-57  
Ap '60. (MIRA 14:5)

(Hygiene)

ORLOVA, D.

Human brain. Zdorov'e 7 no. 2:4-6 F '61.  
(BRAIN)

(MIRA 14:2)

ORLOVA, D.

Ray of hope. Zdorov'e 7 no.8:7-8 Ag '61. (MIRA 14:9)  
(HEPATOLENTICULAR DEGENERATION)

ORLOVA, D.

Yesterday, today, tomorrow. Zdorov'e 8 no. 1, 28-29 Ja '62.  
(MIRA 15:3)

(CHILDREN—CARE AND HYGIENE)  
(WOMEN—HEALTH AND HYGIENE)

ORLOVA, D.

Triumph of life. Zdorov'e 8 no.3:6-8 Mr '62. (MIRA 15:4)  
(HOSPITALS, GYNECOLOGIC AND OBSTETRIC)  
(INFANTS (PREMATURE))

ZAGOREVSKIY, V.A.; ZYKOV, D.A.; ORLOVA, E.K.

Some derivatives of gallic acid. Zhur. ob. khim. 30 no.9:3103-3104  
S '60. (MIRA 13:9)

1. Institut farmakologii khimioterapii Akademii meditsinskikh nauk  
SSSR.

(Gallic acid)

ZAGOREVSKIY, V.A.; ZYKOV, D.A.; ORLOVA, E.K.

Synthesis of substituted 2-chromonecarboxylic acids and their esters. Zhur. ob. khim. 30 no.12:3894-3898 P '60. (MIRA 13:12)

1. Institut farmakologii i khimioterapii Akademii meditsinskikh nauk SSSR.

(Chromonecarboxylic acid)

ZAGOREVSKIY, V.A.; ZYKOV, D.A.; ORLOVA, E.K.

Conversion of 2-chromonecarboxylic acids to 4-chlorocumarins.  
Zhur. ob. khim. 31 no. 2:568-574 F '61. (MIRA 14:2)

1. Institut farmakologii i khimioteranii AMN.  
(Chromonecarboxylic acid) (Coumarin)



ZAGOREVSKIY, V.A.; ORLOVA, E.K.

Effect of additions on the rate of conversion of  
chromone-2-carboxylic acids to 4,4-dichlorochromene-2-carboxyl  
chlorides. Zhur.ob.khim. 33 no.6:1857-1859 Je '63. (MIRA 16:7)

1. Institut farmakologii i khimioterapii AMN SSSR.  
(Benzopyranone) (Benzopyrancarboxylic acid)

ZAGOREVSKIY, V.A.; ZYKOV, D.A.; ORLOVA, E.K.

Interaction of ~~chromene~~-2-carboxylic acid derivatives with amines.  
Zhur.ob.khim. 34 no.2:539-543 F '64. (MIRA 17:3)

Institut farmakologii i khimioterapii AMN SSSR.

ZAGOREVSKIY, V. A.; TSVETKOVA, I. D.; ORLOVA, E. S.

Series of pyran, its analogs and related compounds. Part 11.  
Interaction of the derivatives of 4,4-dichlorochromene-2,6-  
dicarboxylic acid with aromatic amines. Zhur. ob. Khim. 31  
no.6:1911-1917 Je '64. (MIRA 17 17)  
1. Institut farmakologii i khimioterapii AMN SSSR.

ZAGOREVSKIY, V.A.; TSVETKOVA, I.D.; ORLOVA, E.K.

Interaction of 4,4-dichlorochromen-2-carboxylic acid derivatives  
with cyanoacetic ester. Zhur. ob.khim. 34 no. 5:1685-1686  
My '64. (MIRA 17:7)

1. Institut farmakologii i khimioterapii AMN SSSR.

ZAGOREVSKIY, V.A.; TSVETKOVA, I.D.; OHLOVA, E.K., ZYKOV, D.A.

Rare case of a direct formation of imines in the chromone series. Zhur. org. khim. 1 no.8:1517-1518 Ag '65.

(MIRA 18:11)

1. Institut farmakologii i khimioterapii AMN SSSR.

L 30365-66 EWI(m)/EWP(t)/ETI IJP(c) JD/HW/JG/WB/GD

ACC NR: AT6012379

SOURCE CODE: UR/0000/65/000/000/0119/0124

AUTHORS: Orlova, F. A.; Shkatova, N. A.

59  
6+1

ORG: none

TITLE: A study of the corrosion and electrochemical behavior of titanium and its alloys in solutions of perchloric acid

SOURCE: Soveshchaniye po metallokhimii, metallovedeniyu i primeneniyu titana i yego splavov, 6th. Novyye issledovaniya titanovykh splavov (New research on titanium alloys); trudy soveshchaniya. Moscow, Izd-vo Nauka, 1965, 119-124.

TOPIC TAGS: FABRICATED STRUCTURAL METAL, titanium, titanium alloy, corrosion resistance, electrochemical analysis, temperature, abrasive, perchloric acid / AT3 titanium alloy, AT6 titanium alloy, AT8 titanium alloy

ABSTRACT: The results are given of a study of the corrosion and electrochemical behavior of a number of metal structural materials in solutions of perchloric acid as a function of its concentration, temperature, and solid-phase concentration. Chromium, chromium-nickel-molybdenum, chromium-nickel steel, nickel and its alloys with chromium and molybdenum, aluminum and Duralumin, lead, niobium, titanium, and AT3, AT6, and AT8 titanium alloys were tested. The acid concentration ranged from

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ACC NR: AT6012379

20 to 72%, and the temperature varied from 0 to +90C. An increase in the oxidizing properties of  $\text{HClO}_4$  solutions (when temperature and concentration are increased) promotes passivation of titanium and its alloys. The titanium potential increased from 0.12 to 0.82 V (see Fig. 1). The abrasive action of the solid phase on the electrochemical behavior of titanium and its alloys AT3 and AT6 is a function of the oxidizing properties of the  $\text{HClO}_4$  solution, the hardness of the metals studied, and the amount of erosional reagents.

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ACC NR: AT6012379

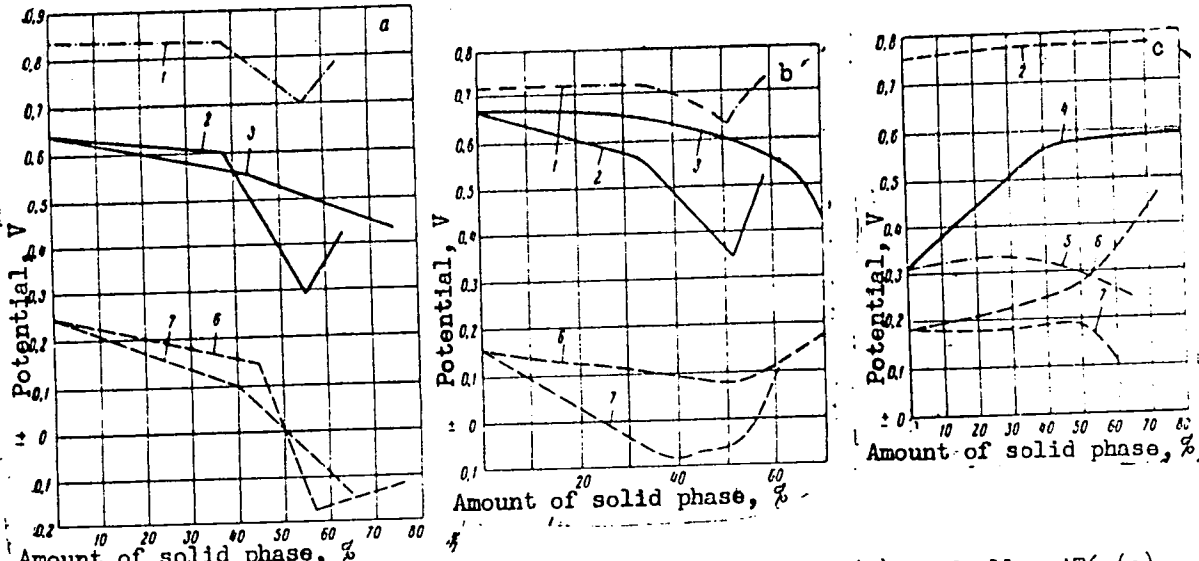


Fig. 1. Steady-state potential of titanium (a), Al<sub>3</sub> alloy (b), and alloy AT6 (c) versus type and amount of solid phase in perchloric acid solutions: 1 - 72% HClO<sub>4</sub>, 90C, glass; 2 - 72% HClO<sub>4</sub>, 20C, glass; 3 - 73% HClO<sub>4</sub>, 20C sand; 4 - 57% HClO<sub>4</sub>, 20C, sand; 5 - 57%, 20C, glass; 6 - 20% HClO<sub>4</sub>, 20C, sand; 7 - 20% HClO<sub>4</sub>, 20C, glass. Orig. art. has 7 figures.  
 Card 3/3 SUB CODE: 11/ SUBM DATE: 02Dec65/ ORIG REF: 002/ OTH REF: 001



ORLOVA, F.A.; PUMANOVA, T.A.

Corrosion resistance and the electrochemical behavior of titanium and its alloys in mineral acid solutions in the presence of the oxidizing agents. Titan i ego splavy no.10.179-187 '63. (MIRA 17:1)

ACCESSION NR: AT4007039

S/2598/63/000/010/0179/0187

AUTHOR: Orlova, F. A.; Tumanova, T. A.

TITLE: Corrosion resistance and electrochemical behavior of titanium and titanium alloys in solutions of inorganic acids in the presence of oxidizers

SOURCE: AN SSSR. Institut metallurgii. Titan i yego splavy\*, no. 10, 1963. Issledovaniya titanovy\*kh splavov, 179-187

TOPIC TAGS: titanium, titanium alloy, titanium alloy corrosion, titanium alloy electrochemical behavior, titanium tantalum alloy, titanium palladium alloy, titanium niobium alloy, titanium molybdenum alloy

ABSTRACT: Many organic syntheses involve chlorination in HCl solutions or nitration in H<sub>2</sub>SO<sub>4</sub> solutions, which may be highly corrosive. The authors therefore investigated the corrosion resistance and electrochemical behavior of VT-1 Ti and its alloys containing 0.1-0.2% Pd, 20% Mo, 35% Nb or 20% Ta in solutions of HCl (10-33%) and H<sub>2</sub>SO<sub>4</sub> (10-40%) in the presence of molecular chlorine, nitric acid and molecular oxygen. The corrosion resistance was determined by both electromechanical and gravimetric methods at 20, 60 and 90C. The tabulated data show that passivation of VT-1 Ti was produced only by Cl<sub>2</sub>

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ACCESSION NR: AT4007039

or HNO<sub>3</sub>, not by oxygen, especially at higher temperatures. Curves in HCl and H<sub>2</sub>SO<sub>4</sub> solutions were similar. As shown in Fig. 1 of the Enclosure, temperature has a significant effect on the electrochemical potential of Ti, and hence on its corrosion. Thus, saturation with chlorine maintained positive potentials at 20-90C in 10-12% HCl or 10-20% H<sub>2</sub>SO<sub>4</sub>, and at 20-60C in 18% HCl or 40% H<sub>2</sub>SO<sub>4</sub>, but only at 20C in 33% HCl. Both the potential and the corrosion rate were also found to be dependent on the amount of Cl<sub>2</sub> added. As shown in Fig. 2 of the Enclosure, HNO<sub>3</sub> had a similar effect on corrosion and electrochemical potential; thus, in 18% HCl at 90C, passivation was produced by 0.5-1.0% HNO<sub>3</sub>, and high positive potentials appeared only at HNO<sub>3</sub> concentrations above 10%. When alloy corrosion was studied in 18% HCl saturated with Cl<sub>2</sub> in cooperation with the Gosudarstvennyy nauchno-issledovatel'skiy institut redkikh metallov (State Scientific Research Institute for Rare Metals), only the alloy with 20% Ta showed corrosion resistance up to 90C. The other alloys all showed corrosion rates comparable to that of unalloyed Ti, even though the electrochemical potential of alloys with Pd and Mo also remained positive (see Fig. 3 in the Enclosure). The reason for this discrepancy may be non-uniform distribution of the alloying element. Orig. art. has: 2 tables and 7 figures.

ASSOCIATION: Institut metallurgii AN SSSR (Metallurgical Institute, AN SSSR)

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Card

ACCESSION NR: AT4007039

SUBMITTED: 00

SUB CODE: MM

NO REF SOV: 003

ENCL: 03

OTHER: 004

Cord 3/6

ACCESSION NR: AT4007039

ENCLOSURE: 01

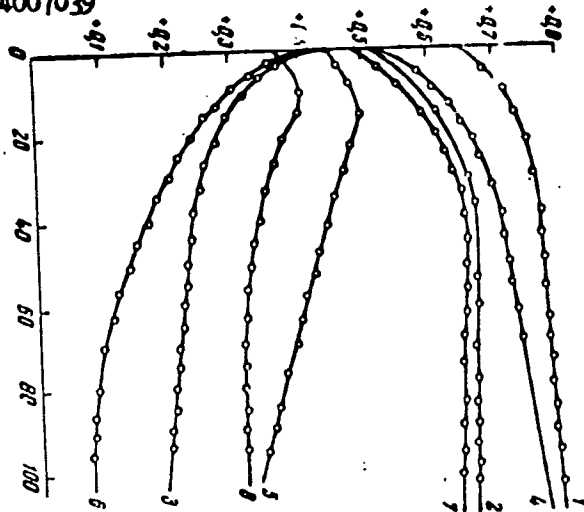


Fig. 1. Effect of temperature on the electrochemical behavior of titanium in  $H_2SO_4$  solutions containing  $Cl_2$ . 1 - 10%  $H_2SO_4$  at 20C; 2 - 10%  $H_2SO_4$  at 60C; 3 - 10%  $H_2SO_4$  at 90C; 4 - 20%  $H_2SO_4$  at 20C; 5 - 20%  $H_2SO_4$  at 60C; 6 - 20%  $H_2SO_4$  at 90C; 7 - 40%  $H_2SO_4$  at 20C; 8 - 40%  $H_2SO_4$  at 60C. Ordinate = potential in volts; abscissa = duration in hrs.

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ACCESSION NR: AT4007039

ENCLOSURE: 02

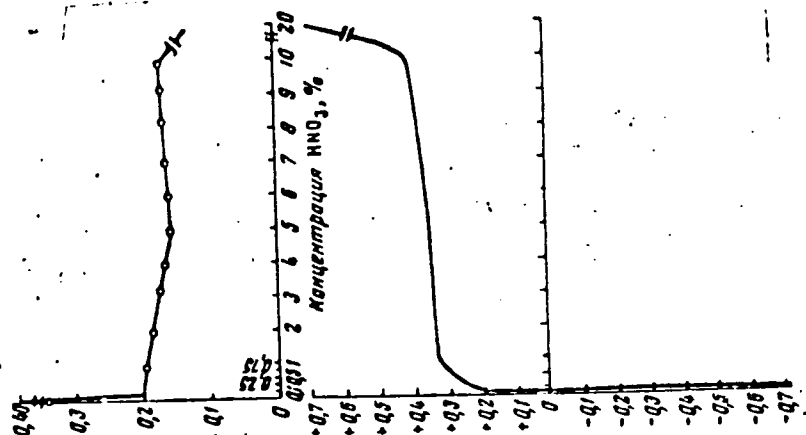


Fig. 2. Corrosion and electrochemical behavior of Ti in 18% HCl in relation to the nitric acid content (at 90C). Upper ordinate = corrosion rate in g/m<sup>2</sup>/hr.; lower ordinate = potential in volts; abscissa = HNO<sub>3</sub> concentration in %.

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ACCESSION NR: AT4007039

ENCLOSURE: 03

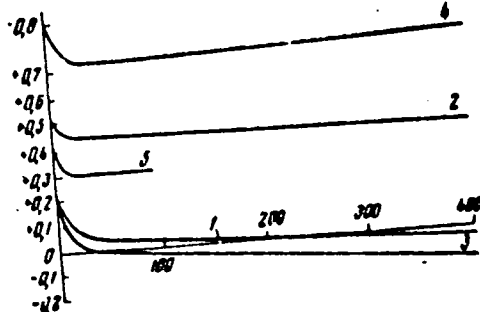


Fig. 3. Effect of alloying elements on the electrochemical behavior of Ti in 18% HCl solution: 1 - titanium VT-1; 2 - Ti + 20% Ta; 3 - Ti + 35% Nb; 4 - Ti + 0.1% Pd; 5 - Ti + 20% Mo. Ordinate = potential in volts; abscissa = time in hrs.

Card 6/6

ORLOVA G.

SAVEL'YEVA, Ye.; MONASTYREVA, M.; ORLOVA, G.; KUZHYEV, A.; FUFLYGINA, T.; LASKINA, V.;  
KOVALEVAYA, Ye. V.

Effect of factors of external environment on the course of rheumatism in children. *Pediatrics*, Moskva no. 4:40-41 July-Aug 1953. (CIML 25:1)

1. Sixth course students under the supervision of Docent Ye. V. Kovaleva.
2. Of the Scientific Student Circle of the Department of Children's Diseases (Head of Department -- Prof. Yu. F. Dombrovskaya, Corresponding Member AMS USSR) of First Moscow Order of Lenin Medical Institute.



SHKLYAR, S.; ORLOVA, G.

Does fire blight of fruit trees occur in the U.S.S.R.?

Zashch. rast. ot vred. i bol. 10 no.8:47-48 '65.

(MIRA 18:11)

1. Moskovskoye otdeleniye Vsesoyuznogo instituta sel'-skokhozyaystvennoy mikrobiologii i Tsentral'naya laboratoriya po karantinu rasteniy Ministerstva sel'skogo khozyaystva SSSR.

ORLOVA, G.A.

In the Czechoslovak People's Republic. Det. khor. igr.  
no.1:67-70 '55. (MLRA 10:2)

1. Nachal'nik Upravleniya khudozhestvennykh promyslov i  
proisvodstva igrushek Tsentropromsoвета.  
(Czechoslovakia--Toys)

ORLOVA, G.A. [Orlova, H.A.]; CHERKASOVA, L.I.; SHESTERIKOVA, O.I.; SERGEYEVA, N.M.; TARASOVA, M.Kh.; KARUNSKIY, V.G. [Karuns'kiy, V.H.]; MISHINA, Z.D.; LEBEDEVA, T.V.; ROZDYALOVSKIY, B.V. [Rozdialovs'kiy, B.V.]; DUMSHITS, L.S.; ZAYTSEV, A.B., glavnyy red.; SERGHEYEV, N., otv. za vypusk; SERGHEYEV, M.F., red.; BERGER, F., tekhn.red.

[Economy of Volyn' Province; a statistical manual] Narodne gospodarstvo Volyns'koi oblasti; statystychnyi zbirnyk. L'viv, Dershatatvydav, 1958. 211 p. (MIRA 12:12)

1. Volyn' (Province) Statystychno upravlinnia. 2. Statisticheskoye upravleniye Volynskoy oblasti (for all, except Sergeyev, N., Sergeyev, M.F.) 3. Nachal'nik Statisticheskogo upravleniya Volynskoy oblasti (for Zaytsev).

(Volyn' Province--Statistics)

ORLOVA, G.A., kand. tekhn. nauk

Study of seashores of the U.S.S.R.; conference at the Institute  
of Oceanography. Vest. AN SSSR 34 no.7:106-107 JI '64  
(MIRA 17:8)

ORLOVA, G.A.

Experiments in studying the slope transformation through erosion  
and the sand transport along the shore. Trudy Okean.kom. 8:235-  
239 '61. (MIRA 14'5)

1. Institut okeanologii AN SSSR.  
(Coast changes)

ORLOVA, G. A.,

"Application of the luminoforescence method to the quantitative determination of sand shifting"

Report to be submitted for the 13th General Assembly, Intl. Union of Geodesy and Geophysics (IUGG), Berkeley Calif., 19-31 Aug 63

ORLOVA, G.A.

Studies of ocean and sea coasts. Izv. AN SSSR. Ser. geog.  
no.6:134-136 N-D '63. (MIRA 17:1)

ORLOVA, G.A.

Experience in the determination of the amount of sand sediments  
heaving along the coast. Okeanologiya 3 no.5:924-929 '63.  
(MIRA 16:11)

1. Institut okeanologii AN SSSR.



KOMLEV, A.M.; ORLOVA, G.A.

Minimum flow of rivers of the Gornyy Altai and its variation  
over a period of many years. Izv. Alt. otd. Geog. ob-va SSSR  
no.5:74-75 '65. (MIRA 18:12)

1. Sibirskiy nauchno-issledovatel'skiy institut energetiki.

ACC NR: AT7001794

(N)

SOURCE CODE: UR/0000/66/000/000/0038/0103

AUTHOR: Aybulatov, N. A.; Dolotov, Yu. S.; Orlova, G. A.; Yurkevich, M. G.

ORG: none

TITLE: Some dynamic features of a shallow sandy coast

SOURCE: AN SSSR. Okeanograficheskaya komissiya. Issledovaniya gidrodinamicheskikh i morfodinamicheskikh protsessov beregovoy zony morya (Studies of hydrodynamic and morphodynamic processes of the shoreline). Moscow, Izd-vo Nauka, 1966, 38-103

TOPIC TAGS: ocean dynamics, oceanographic equipment, geomorphology

ABSTRACT: From 1962 to 1964 the Institute of Oceanology AN SSSR investigated the hydrodynamics of shallow coastal areas in the Baltic Sea to determine the nature of surface wave transformation during different disturbance stages, to measure the angle of an approaching wave and to study the distribution of wave pressures and speeds in relation to an underwater slope. Investigations were carried out with the use of wave pressure recorders, wave recorders, wave velocity recorders, current meters, turbidity measuring equipment, labelled sands, and sediment cores. Study data show that wind is the primary cause of most disturbances. The specific energy of a wave sharply increases as it approaches the shore; the maximal values of wave height and specific energy are observed during the stability phase of a disturbance. In analyzing

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ACC NR: AT7001794

hydrodynamic processes in coastal areas it is necessary first to identify the disturbance phases and to consider all changes within the limits of the phase. The active zone of shifting sediments extends to depths of 10 m. The intensity of sediment exchanges between separate parts of an underwater slope is determined by the intensity of corresponding water exchanges. Change of coast contour, amount of sedimentation, and sediment composition is determined: first, by the relationship of factors responsible for the nature, direction, and intensity of material shifting; second, by the duration of a disturbance, particularly the length of each phase; and, third, by the availability of materials in the area under study and adjoining areas. Orig. art. has: 18 figures and 8 tables.

SUB CODE: 08/ SUBM DATE: 17Apr66/ ORIG REF: 050/ OTH REF: 010

Card 2/2

ASEYFVA, I.I.; MIKHAILOVA, E.A.; ORLOVA, G.G.

Biosynthesis of amino acids by actinomycetes isolated in the  
of the Caucasus. Mikrobiologiya 34 (3):24-31 Jan-F 1965. (MIRA 1965)

1. Biologo-pochvennyy fakul'tet Moskovskogo gosudarstvennogo  
universiteta imeni M.V. Lomonosova.

KRYLOVA, Ye.Ya.; ORLOVA, G.L.

New data of the distribution of *Palaeorena eadineris* in the western part of the Black Sea region. Trudy Ob. un. 1962. geol. i geog. nauk no. 1962. 162.

DATA 1962

LEVI, M.I.; SUCHKOV, Yu.G.; ORLOVA, G.H.; GENGASYUK, L.G.; SHKODA, A.M.;  
PEYSANENIS, L.A.; STOGOVA, A.N.; IGUMINA, N.F.; SUKHARNEKOVA, N.A.;  
PAK, C.Y.; MUMINOV, K.K.; DOBKAYA, T.D.; NASSONOV, L.G.; KULUBIA,  
V.I.; MURTAZANOVA, E.S.; STHENIAR, A.I.; LAVRENTYEV, A.F.; MASLOV,  
N.N.; KULOV, G.I.; GOLKOVSEY, G.M.; SAIDARPOV, N.I.; ZALYGIBA, E.I.

Significance of serological methods in the epizootiological study  
of plague in wild rodents. J. sov. epidem. (Arabs) 6:104-107  
'64.

1. Institute of Scientific Research, Moscow on the Non-Communicable  
Asian Institute of Scientific Research, U.S.S.R.

LEVI, M.I.; BASOVA, N.N.; SUCHKOV, Yu.G.; ORLOVA, G.M.; GERASYUK, L.G.  
MOMOT, A.G.

Reaction of passive hemagglutination and reaction of antibody  
neutralization in some infections. Zhur. mikrobiol. epid. i  
immun. 33 no.10:40-45 0'62 (MIRA 17:4)

1. Iz Rostovskogo-na-Donu nauchno-issledovatel'skogo protivochumnogo instituta.

IPAT'YEV, V.V.; ORLOVA, G.M.

Oxidation of 6 per cent chromium steel in air at high  
temperatures. Uch.sap.Len.un. no.175:128-154 '54.  
(Chromium steel)(Oxidation) (MIRA 9:6)



OBLOVA, G.M.

7 27  
Kinetics of Oxidation of Silicon Iron in an Air Atmosphere.  
V. V. Isaf'ev and G. M. Oblava. (Zhur. Priklad. Khim., 1980,  
53, (2), 811-818). The influence of small  
additions of silicon to iron on the velocity of oxidation in air  
of the alloy obtained and the influence of silicon on the  
structure of scale formed were investigated at temperatures  
300, 800, 920, and 1000° C. It was found that the oxidation  
process takes place in an initial and a steady stage. Tempera-  
ture dependence of the velocity constant for the steady stage  
was determined. 1.48% addition of silicon to iron sharply

3  
24E2C  
4E4j

ORLOVA, G.M.

USSR/Corrosion - Protection From Corrosion

J.

Abs Jour : Referat Zhur - Khimiya, No 4, 1957, 14097

Author : Orlova G.M., Ipat'yev V.V.

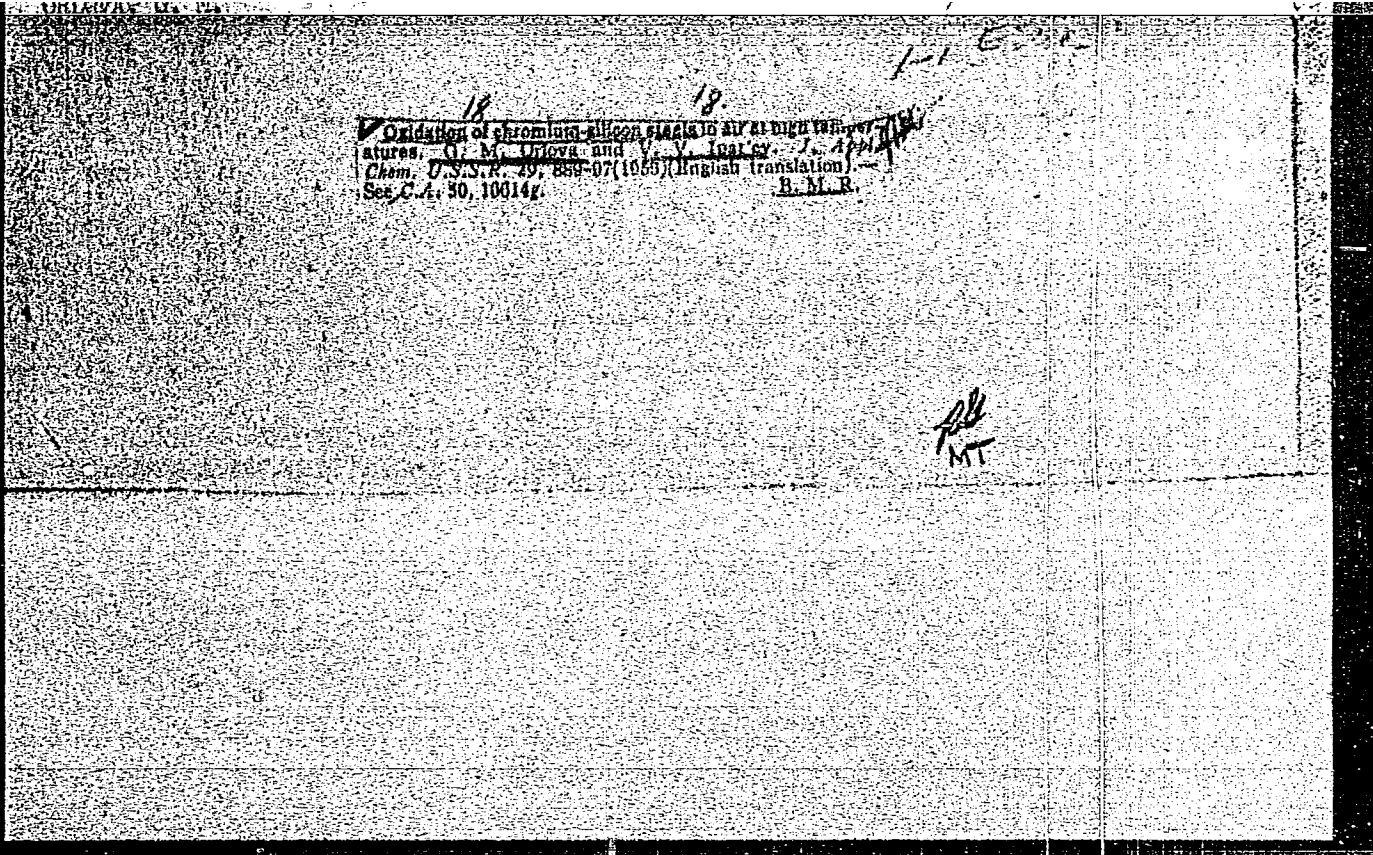
Title : Oxidation of Chromium-Silicon Steels in the Air at High Temperatures

Orig Pub : Zh. prikl. khimii, 1956, 29, No 6, 819-823

Abstract : Study of the effect of addition of Si in amounts of 1.43, 1.86 and 3.34% to 6% Cr-steel, on kinetics of oxidation in the range of 800-1200° has shown that the curves of dependence of the square of increase in weight upon the duration of oxidation consist of two rectilinear portions: the 1-st portion extends through the origin of coordinates; angle of inclination of 1-st portion is greater than that of the 2-nd portion. The higher the temperature and the lower the Si-content of the steel, the shorter is the 1-st portion. At a temperature above 1100° the 1-st portion is absent and the correlation

Card 1/2

- 7 -



18 19  
Oxidation of chromium-silicon steels in air at high temperatures.  
atures. G. M. Orlova and V. V. Ipatov. *Izv. Akad. Nauk SSSR Ser. Khim. Nauk*  
Chem. U.S.S.R. 49, 859-67 (1965) (English translation).  
Ser. C.A. 50, 10014g. R.M.R.

R.M.R.

5.11.50

SOV/71-40-200/71

AUTHORS: Shechukov, S. A., Borlaev, A. M., Orlova, G. F.

TITLE: Concerning Heats of Solution of Cobalt and Nickel Perchlorates Hexahydrates

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol. 30, No. 7, pp 1053-1054 (USSR)

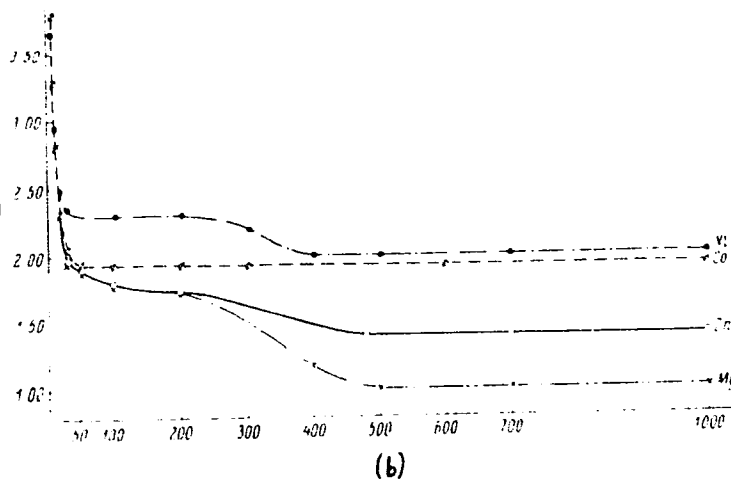
ABSTRACT: Heats of solution of  $Co(ClO_4)_6 \cdot 6H_2O$  and  $Ni(ClO_4)_6 \cdot 6H_2O$  in water, in a wide range of dilutions, were measured by the previously described method (S. S. Shechukov and others, ZhOKh, 36, 207 (1960); S. A. Shechukov and others, ZhOKh, 36, 207 (1960)). The results obtained were compared with the previously published data on heats of solution of Mg and Zn salts. The results are given in the Fig. A. According to their endothermal effects of solution at infinite dilution, the investigated elements form the following series:  $Mg < Zn < Co < Ni$ . There are 1 table; 1 figure; and 4 Soviet references.

Card 1/2

Concerning Heats of Solution of Cobalt  
and Nickel Perchlorates Hexahydrates

(1951)  
SOV/11-40-100/11

Fig. A. Heats of solution of Ni, Co, Zn, and Mg perchlorate hexahydrates, at various dilutions. (a)  $\Delta H_{avg}$  Cal/mole; (b) dilution. (a)



ASSOCIATION: Leningrad State University (Leningradskiy gosudarstvennyy universitet)  
 SUBMITTED: July 11, 1951  
 Card 2/2

SHCHUKAREV, S.A.; ORLOVA, G.M.; BORISOVA, Z.U.

Heats of solution of copper perchlorate hexahydrate in  
water and aqueous solutions of perchloric acid. Zhur.ob.  
khim. 30 no.7:2097-2102 J1 '60. (MIRA 13:7)

1. Leningradskiy gosudarstvennyy universitet.  
(Copper perchlorate) (Heat of solution)  
(Perchloric acid)

30866  
S/054/61/000/004/007/009  
B102/B138

24,7300(1153,1160,1454)

AUTHORS:

Goryunova, N. A., Orlova, G. M., Danilov, A. V., Abramova, A. V., Plechko, R. L., Kozhina, I. I

TITLE:

Some quaternary analogs of germanium

PERIODICAL:

Leningrad. Universitet. Vestnik. Seriya fiziki i khimii. no. 4, 1961, 97 - 101

TEXT: Of the possible quaternary analogs of germanium which form tetrahedral phases, only the system ZnSe-GaAs has so far been investigated. The authors chose the system Cu-Ge-As-Se which has a tetrahedral phase of variable composition in the section  $Cu_2GeSe_3-CuGe_2As_3$ . The presence of this phase was verified and the physical and chemical properties of the phases were studied. 17 alloys from the above section were synthesized by fusion of the components in evacuated quartz ampoules at 750°C. Microstructure of the alloys was determined by means of an ММ-7 (MIM-7) microscope and microhardness with a ПМТ-3 (PMT-3) tester. Thermographic analyses were carried out with normal as well as differential recording. X-ray structural analyses showed that the alloys ranging from ? 0

Card 1/3

30866  
S/054/61/000/004/007/009  
B102/B138

Some quaternary analogs of...

$Cu_2GeSe_3 \cdot CuGe_2As_3$  to  $4.0 Cu_2GeSe_3 \cdot CuGe_2As_3$  were single-phase. The composition  $1.5 Cu_2GeSe_3 \cdot CuGe_2As_3$  contained two phases and  $Cu_2GeSe_3 \cdot 0.4 CuGe_2As_3$  three. The inhomogeneity increased with the As concentration of the composition. All alloys contained a sphalerite-type structure with lattice constant  $a = 5.54 \pm 0.01$  kX. A composition  $m:n = 1.6:1.0 - 4.0:1.0$  gave single-phase alloys; ( $m = Cu_2GeSe_3$ ,  $n = CuGe_2As_3$ ),  $m:n = 1.0:2.0$ ;  $3.0$ ;  $4.0$  contained an additional phase with  $a = 5.20 \pm 0.01$  kX;  $m:n = 5.0:1.0$ ;  $4.5:1.0$ ;  $1.5:1.0$ ;  $1.2:1.0$ ;  $1.0:1.0$  contained, apart from the common one, another sphaleritic phase with  $a = 4.41 \pm 0.01$  kX. The second ZnS-type phase was separated by zone melting of  $Cu_2GeSe_3 \cdot CuGe_2As_3$  with an optimum rate of  $0.5 - 1.5$  cm/hr and 7 - 10 cycles. In the transition from the ternary  $Cu_2GeSe_3$  to the quaternary As-containing system, from 63.3 mole% m + 16.7 mole% n the distorted chalcopyrite lattice is rearranged into the regular ZnS lattice. Lattice parameter and microhardness are not sensitive to composition. The homogeneous region of composition ranges from  $Cu_5Ge_4As_3Se_6$  to

Card 2/3



30866

S/054/61/000/004/007/009  
B1C2/B138

Some quaternary analogs of...

$\text{Cu}_9\text{Ge}_6\text{As}_3\text{Se}_{12}$ . These materials might give a new combination of semicon-  
ductor parameters. There are 1 figure, 5 tables, and 10 references:  
7 Soviet and 3 non-Soviet. The two references to English-language  
publications read as follows: C. H. L. Goodman Nature 179, 828, 1957;  
J. Phys. and Chem. Solids, 6, 36, 1958.

4

Card 3/3

25363  
S/079/61/031/008/001/009  
D215/D304

54120  
AUTHORS:

Myuller, R.L., Orlova, G.M., and Tsuy Tszin'khua

TITLE:

The kinetics of dissolution of indium antimonide in nitric acid

PERIODICAL:

Zhurnal obshchey khimii, 1961, v. 31, no. 8, 2457-2461

TEXT: Whilst there are many data on problems of pickling metals, the only kinetic data published in respect of semiconductors is concerning dissolution of Ge in HNO<sub>3</sub>. Similar methods were applied in the present work. 3 specimens of InSb monocrystals of cylindrical form were used, the HNO<sub>3</sub> being previously freed from N oxides by insufflation of air. The experiments were carried out in a thermostat which maintained the temperature constant to 0.2 C. The velocity of dissolution was calculated by the formula

$$w = \frac{1}{236.5 S} \cdot \frac{\Delta R}{\Delta t} \text{ mol. per cm.}^2 \text{ sec.}$$

Card 1/2

25363

S/079/61/031/008/001/009  
D215/D304

The kinetics of dissolution...

where  $\Delta g$  = wt. loss of specimen (g),  $\Delta t$  = solution time (sec.),  $S$  = specimen surface, 236.5 = molecular wt. InSb. The range of concentration of  $HNO_3$  was 0.97 - 12.37 N, the temperature range 20 - 80 C.

Experiments were made with and without agitation of the solution, the effect of solution mixing rate being studied. Results indicate that in dilute solutions (1 - 2.5N.) of  $HNO_3$ , the rate of the InSb solution is determined by autocatalytic oxidation. In solutions of 7 - 12 N.  $HNO_3$ , the rate is limited by diffusion of  $HNO_3$  to the InSb surface. With 4N.  $HNO_3$ , the effect is intermediate between these two. There are 3 figures, 1 table and 4 references: 1 Soviet-bloc and 3 non-Soviet-bloc. The references to the English-language publications read as follows: R. Maringer, J. appl. phys., 1958, vol. 29, 1261; J. Venables and R. Brondy, ibid., 1025; P. Camp, J. Electrochem. Soc., 1955, vol. 102, 586; M. Cretella and H. Gates, ibid. 1958, vol. 105, 487.

ASSOCIATION: Leningradskiy gosudarstvenny universitet imeni A.A. Zhdanova (Leningrad State University, imeni A.A. Zhdanov)

SUBMITTED: August 19, 1960  
Card 2/2

25364

S/079/61/031/008/002/009  
D215/D304

54120  
AUTHORS:

Myuller, R.L., Orlova, G.M., and Tsui Tszin'khua

TITLE:

The kinetics of dissolution of indium antimonide in solutions of ferric chloride and iodine in hydrochloric acid

PERIODICAL: Zhurnal obshchey khimii, 1961, v. 31, no. 8, 2461-2465

TEXT: Monocrystalline n-InSb specimens of cylindrical shape were dissolved in HCl solutions of  $\text{FeCl}_3$  and I, the solution flask being maintained at a temperature constant to  $0.2^\circ\text{C}$  in a water thermostat. The rate of dissolution was estimated by weight loss of the specimen which averaged 0.01 g. Magnetic mixing was used. Analytically pure hydrated  $\text{FeCl}_3$ , iodine, KI and HCl were used.  $\text{FeCl}_3$  concentration in the solution was determined by the Zimmerman-Reinhardt method, iodine was determined iodometrically and HCl by titration with standard alkali. It is assumed that InSb dissolution in HCl solutions of  $\text{FeCl}_3$  takes place

Card 1/2

25364

S/079/61/031/008/002/009  
D215/D304

The kinetics of ...

according to the equation:  $8\text{Fe}^{3+} + \text{InSb} \rightarrow \text{In}^{3+} + \text{Sb}^{5+} + 8\text{Fe}^{2+}$

Using the Nernst term for the diffusion of  $\text{Fe}^{3+}$  from the solution to the surface of the solid at room temperature, the rate of dissolution of InSb can be approximately estimated. With an increase of  $\text{Fe}^{3+}$  ion concentration and increased acidity, the diffusion rate to the monocrystal surface increases. This is reflected in the temperature relation of the rate of dissolution shown graphically. In iodine solutions, the dependence of the InSb dissolution rate on I concentration is also shown. The rate of InSb dissolution, however, is determined by the HIO concentration. The difference between the kinetics of InSb and Ge dissolution in solutions of I is explained by the varying extent of covalency in their chemical bonds. There are 5 figures, 2 tables and 4 references: 3 Soviet-bloc and 1 non-Soviet-bloc.

ASSOCIATION: Leningradskiy gosudarstvenny universitet imeni A.A. Zhdanova (Leningrad State University imeni Zhdanov)

SUBMITTED: August 19, 1960

Card 2/2

S/054/62/000/004/014/017  
B101/B186

AUTHORS: Myuller, R. L., Orlova, G. M., Timofeyeva, V. N.,  
Ternovaya, G. I.

TITLE: The range of vitrification in the system arsenic - sulfur -  
germanium

PERIODICAL: Leningrad. Universitet. Vestnik. Seriya fiziki i khimii,  
no. 4, 1962, 146-150

TEXT: The physicochemical properties of glasses in the system As - S - Ge were studied. Attempts to obtain binary  $\text{GeS}_x$  melts ( $x = 1.0-4.0$ ) in the glassy state failed. Optimum conditions for producing glassy melts: heating of the charge in ampoules for 1.5-2 hrs at  $250^\circ\text{C}$ , for 6-7 hrs at  $450^\circ\text{C}$ , for 2 hrs at  $850^\circ\text{C}$  (at somewhat lower temperature with high S content), cooling to room temperature of the ampoule remaining in the furnace. 60 samples were melted (Fig.). The glasses of the system  $\text{AsS}_x\text{Ge}_y$  can be classified in four groups: (I)  $x - 2y \geq 1.5$ ; (II)  $1.0 \leq x - 2y < 1.5$ ; (III)  $0 \leq x - 2y < 1.0$ ; (IV)  $x - 2y < 0$ . Composition, density, glass group, molecular weight, content of structural units  $[\text{GeS}_{4/2}]$ ,  $[\text{AsS}_{3/2}]$ ,  $[\text{AsS}_{2/2}]$ ,

Card 1/3

The range of vitrification in...

S/054/62/000/004/014/017  
B101/B186

[ $SS_{2/2}$ ], [ $AsAs_{3/3}$ ], and [ $GeGe_{4/4}$ ], and the microhardness of the glassy melts are tabulated. The microhardness values calculated from the structural formula agree well with the experimental data (mean deviation 8%). There are 1 figure and 2 tables. ✓

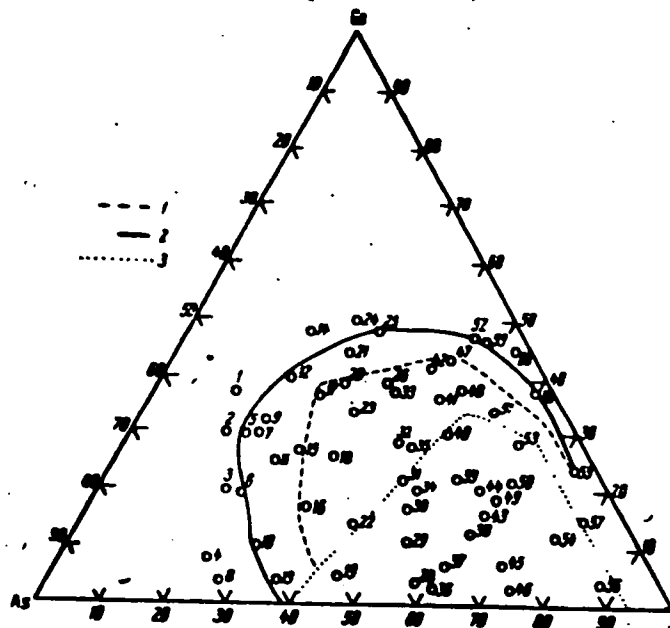
SUBMITTED: April 1962

Fig. Boundary of vitrification in the system As - S - Ge. --- boundary of vitrification; — boundary of crystallization; .... boundary of vitrification according to B. T. Kolomiets, N. A. Goryunova, V. P. Shilo (Collection "Stekloobraznoye sostoyaniye" [Glassy State], M.-L., Izd. AN SSSR, 456, 1960)

Card 2/3

The range of vitrification in...

B/054/62/000/004/014/017  
B101/B186



Card 3/3



MYULLER, R.L.; ORLOVA, G.M.; TIMOFYEVA, V.N.; TERNOVAYA, G.I.

Glass-forming boundary in the system arsenic - sulfur - germanium.  
Vest.LGU 17 no.22:146-150 '62. (MIRA 15:12)  
(Arsenic) (Vitreous state)

TIMOFEYEVA, V.N.; ORLOVA, G.M.; TERNOVAYA, L.I.; TSAYUN, G.P.

Kinetics of dissolution of vitreous  $\text{AsSe}_{1.5}\text{Ge}_x$ ,  $\text{AsS}_{1.5}\text{Ge}_x$ ,  
 $\text{AsS}_{2.5}\text{Ge}_x$  in sodium hydroxide solutions. Vest. LGU 18 no.10:  
108-115 '63. (MIRA 16:3)

(Glass manufacture—Chemistry)  
(Solution (Chemistry))

ORLOVA, G.M.; TSAYUN, G.P.

Kinetics of dissolution of arsenic selenide glasses with small  
additions of gallium in alkaline solutions. Vest. LGU 18  
no.10:133-138 '63. (MIRA 16:8)  
(Arsenic selenide) (Glass manufacture--Chemistry)  
(Solution (Chemistry))

LEVI, M.I.; SUCHKOV, Yu.G.; ORLOVA, G.M.; GERASYUK, I.G.; SHKODA, E.M.;  
PEYSAKHIS, L.A.; STOGOVA, A.N.; IOPATINA, E.F.; SUKHANNIYOVA, N.A.;  
PAK, G.Yu.; MUMINOV, K.M.; DONSKAYA, T.N.; NASSONOV, I.S.; VEYBERG,  
V.I.; MURTAZANGVA, E.Sh.; SHEL'MAN, A.I.; LAVRENT'YEV, A.P.;  
BASOVA, N.N.; GOLKOVSKIY, G.M.; KULOV, G.I.; SALIMOV, N.I.;  
TALYGINA, N.I.

Results of the testing of the reactions of passive hemagglutination  
and neutralization of antibodies in the epizootologic examination of  
wild rodents for plague. Zhur. mikrobiol., epid. i immun. 40 no.14:  
118-119 D '63. (MIRA 17:12)

1. Iz Rostovskogo i Sredne Aziatskogo protivochumnykh institutov,  
Chimkentskoy, Taldy-Kurganskoy, Aralomorskoy, Turkmeneskoy, Astrakhanskoy  
i Frunzenskoy protivochumnykh stantsiy.

TINKER, I.S. [deceased]; LEVI, M.I.; KHOKHLOVA, A.M.; ALESHINA, Ye.N.;  
ORLOVA, G.M.; GERASYUK, L.G.

Immunological comparison of the IA fraction of various strains  
of the plague pathogen. Zhur.mikrobiol., epid. i immun. 41 no.5:144  
My '64. (MIRA 18:2)

1. Rostovskiy-na-Donu nauchno-issledovatel'skiy protivochumnyy  
institut.

L. 60418-65 EWT(1)/EWT(m)/T/EWP(t)/EWP(b)/EWA(h)/EWA(c) Pz-6/Feb IJP(c)  
JD/GS/AT

ACCESSION NR: AT5017277

UR/0000/65/000/000/0218/0226

AUTHOR: Orlova, G.M.; Yerofeyev, S.K.; Romanova, N.V.

37  
34  
371

TITLE: Kinetics of chemical etching of single-crystal gallium arsenide in alkaline hydrogen peroxide solutions.

SOURCE: Leningrad. Universitet. Khimiya tverdogo tela (Chemistry of solids). Leningrad, Izd-vo Leningr. univ., 1965, 218-228

TOPIC TAGS: gallium arsenide, hydrogen peroxide, chemical etching, semiconductor etching

ABSTRACT: 0.1, 0.5, and 0.7 N solutions of hydrogen peroxide in 0.02-1.0 N NaOH were used to etch single-crystal GaAs at 20-45C. The rate of the chemical reaction w (in mole · cm<sup>-2</sup> · sec<sup>-1</sup>) was determined, and from the temperature dependence of this rate,

the activation energy of dissolution  $\epsilon_A$  (in kcal/mole) and preexponential factor  $C_0$  in the equation

$$w = C_0 \exp \left( - \frac{\epsilon_A}{RT} \right)$$

(in mole  $\cdot$  cm $^{-2}$   $\cdot$  sec $^{-1}$ ) were calculated per structural unit of GaAs. It was found that

Card 1/2

L 60418-65

ACCESSION NR: AT5017277

when the NaOH concentration decreases in the range 0.02-0.1 N the etching rate depends on the stirring of the solution and is largely determined by the rate of diffusion. The 0.1-0.25 N NaOH solutions were intermediate between these two types. 3

U. V. PINSKAYA. Orig. art. has: 7 figures and 1 table.

ASSOCIATION: None

SUBMITTED: 02Mar65

ENCL: 00

SUB CODE: IC, GC

NO REF SOV: 006

OTHER: 006

Card 2/2 *slp*

L 21024-66 BWT(m)/T/ENP(t) IJP(c) JD/JG/GS  
ACCESSION NR: AT5017278

UR/0000/85/000/000/0227/0230

AUTHOR: Orlova, G. M.; Yerofeyev, S. K.; Romanova, N. V.

15  
BT1

TITLE: Kinetics of chemical etching of single-crystal gallium arsenide in hydrochloric acid solutions of hydrogen peroxide

SOURCE: Leningrad. Universitet. Khimiya tverdogo tela (Chemistry of solids). Leningrad, Izd-vo Leningr. univ., 1965, 227-230

TOPIC TAGS: gallium arsenide, hydrogen peroxide, chemical etching, semiconductor etching

APPROVED FOR RELEASE: Wednesday, June 21, 2000  
ABSTRACT: The study of the dissolution kinetics of GaAs continued in acid solutions of H<sub>2</sub>O<sub>2</sub>. A 0.7 N H<sub>2</sub>O<sub>2</sub> solution was used in 0.02, 0.06, 0.12, 0.23, 1.01, 1.93, and 3.17 N HCl. The dissolution rate of GaAs was determined (in mole · cm<sup>-2</sup> · sec<sup>-1</sup>); from the temperature dependence of this rate, the activation energy  $E_A$  (in kcal/mole) and the preexponential factor  $C_e$  in the equation

$$w = C_e \exp \left( - \frac{E_A}{RT} \right)$$

(in mole · cm<sup>-2</sup> · sec<sup>-1</sup>) were calculated. The character of the etching process was found to

Card 1/2



L 21024-66

ACCESSION NR: AT5017278

0  
differ substantially from the dissolution in alkaline solutions of hydrogen peroxide, and was largely determined by the acid content. In the range from 0.12 to 1.93 N HCl, the chemical etching is determined by the rate of the heterogeneous chemical reaction and is independent of HCl concentration. In more dilute HCl solutions, a considerable influence on the dissolution rate of GaAs is exerted by the formation of a film of amphoteric gallium hydroxide. Orig. art. has: 2 figures and 1 table.

ASSOCIATION: None

SUBMITTED: 02Mar65

ENCL: 00

SUB CODE:

NO REF SOV: 003

OTHER: 000

Card 2/2 BK

1 11209-66 EWT(m)/T/EWP(t)/EWP(b) IJP(a) JD  
 ACC NR: AP8003518 SOURCE CODE: UR/0054/65/000/003/0119/0122

AUTHOR: Sorokin, I. P.; Stremilova, N. N.; Orlova, G. N. 57

ORG: Leningrad State University (Leningradskiy gosudarstvennyy uni-  
 versitet) B

TITLE: Dissolution of germanium in hydrochloric acid solutions of po-  
 tassium dichromate 21

SOURCE: Leningrad. Universitet. Vestnik. Seriya fiziki i khimii,  
 no. 9, 1965, 119-122

TOPIC TAGS: germanium, potassium compound, hydrochloric acid, activa-  
 tion energy, etched crystal, solution kinetics, germanium single crys-  
 tal

ABSTRACT: The solution kinetics of germanium in 7N HCl solutions con-  
 taining  $K_2Cr_2O_7$  in amounts of 0.02, 0.17 and 0.31 mol/l were studied  
 at 20-80°C on n-type Ge single crystal discs with the large surface  
 oriented along the (111) plane. The solution rate of Ge(w) was deter-  
 mined gravimetrically and was calculated from the equation

$$w = \frac{1}{TM} \cdot \frac{P_1 - P_2}{D \left( \frac{D}{2} + A \right)}$$

Card 1/2

UDC: 546.289 : 592.73

L 11,209-66

ACC NR: AP6003616

where  $p_1$  and  $p_2$  are the initial and final weights of  $\text{Ge}(g)$ ,  $D$  and  $h$  are the diameter and thickness of the disc ( $\text{cm}$ ), and  $t$  is the time of the experiment. The solution rate increases with the stirring rate in 0.17 and 0.31 M  $\text{K}_2\text{Cr}_2\text{O}_7$  solutions in 7M HCl. The activation energy of solution  $E$  was found from the linear dependence of  $\log v$  on  $1/T$ , and the preexponential factor  $C$  in the equation

$$v = C e^{-E/RT}$$

was obtained. The solution rate increases in direct proportion to the potassium bichromate concentration over the entire temperature range. The dependence of the solution rate on stirring and the low values of the activation energy (less than 10 kcal/mol) indicate that the solution rate is determined by the rate of diffusion of the oxidant toward the surface of the sample. Orig. art. has: 5 figures.

SUB CODE: 07/ SUBM DATE: 20Nov64/ ORIG REF: 003/ OTH REF: 005

TS  
2/2

SOROKIN, I.P.; STREMLOVA, N.N.; ORLOVA, G.M.

Dissolution of germanium in hydrochloric acid solutions of  
potassium dichromate. Vest. LGU no.16:119-122 '65.  
(MIRA 18:9)

L 00966-66 EWT(1)/T/ЭнА(н) IJP(c) A<sup>1</sup>

ACCESSION NR: AP5020082

UR/0079/65/035/008/1335/1340  
621.794.4 : 546.289 : 546.681/2

AUTHOR: Orlova, G. M.; Tikhomirova, L. I.

TITLE: Chemical etching of semiconductor compounds type A<sup>IV</sup> and A<sup>III</sup>B<sup>V</sup> in an alkaline solution of potassium ferricyanide

SOURCE: Zhurnal obshchey khimii, v. 35, no. 8, 1965, 1336-1340

TOPIC TAGS: etched crystal, germanium semiconductor, gallium compound, gallium arsenide, indium compound, chemical kinetics, semiconductor single crystal, phosphide, antimonide, germanium single crystal

ABSTRACT: The kinetics of chemical etching of single crystals of germanium, gallium phosphide, gallium arsenide, gallium antimonide and indium antimonide was studied in an 0.18 molar solution of potassium ferricyanide in 1.0 molar KOH. The rate of etching  $w$  in g-moles/cm<sup>2</sup>-sec was calculated from the formula

$$w = \frac{\Delta g}{H \cdot \Delta t \cdot S}$$

where  $\Delta g$  is change in sample weight during time  $\Delta t$  in seconds;  $H$  is molecular weight;

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and  $s$  is sample surface area in  $\text{cm}^2$ . The single crystal surfaces were examined with an MIM-7 microscope. The etching was done in non-agitated as well as in agitated (400 rpm) media in the 20-45°C range. The relationship between rate of etching and temperature for gallium phosphide in an alkaline solution of potassium ferricyanide is shown in fig. 1 of the Enclosure. Etching rate as a function of temperature for various other semiconductors is given in fig. 2 of the Enclosure. The rate of heterogeneous chemical reaction is used to control etching of gallium phosphide. Etching of germanium, gallium arsenide and gallium antimonide is controlled by diffusion. The ionic character increases in the following sequence: InSb > GaSb > GaAs > GaP. "The authors thank N. A. Goryunova for supplying the single crystals of gallium phosphide and S. Vekshina for supplying the single crystals of gallium antimonide." Orig. art. has 4 figures, 1 table.

ASSOCIATION: Leningradskiy gosudrastvennyy universitet (Leningrad State University)

SUBMITTED: 02Jul64

ENCL: 02

SUB CODE: GC, SS

NO REF SOV: 010

OTHER: 005

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ACCESSION NR: AP5020082

ENCLOSURE: 01

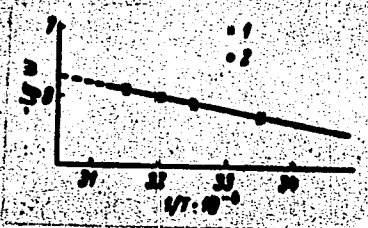


Fig. 1. Relationship between  $\log v$  and  $1/T$  for etching of gallium phosphide in an alkaline solution of potassium ferricyanide: 1--agitated solution; 2--quiet solution.

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ENCLOSURE: 02

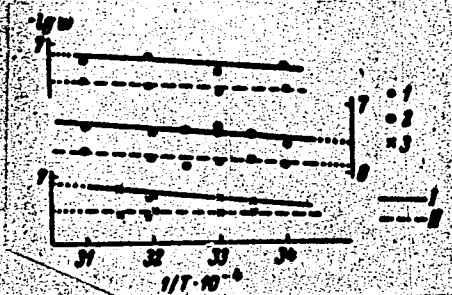


Fig. 2.  $\lg v$  as a function of  $1/T$  for etching of germanium (1), gallium arsenide (2) and gallium antimonide (3) in an alkaline solution of potassium ferricyanide: I--agitated solution; II--quiet solution.

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L 6968-66 EWT(m)/ENP(j)/I/ENP(t)/ENP(b)/EWA(c) JD/RM  
ACC NR: AP5028202

SOURCE CODE: UR/0079/65/035/009/1512/1517

AUTHOR: Stravilova, N. N.; Sorokin, I. P.; Orlova, G. M.  
55 53 55

40  
39  
B

ORG: Leningrad State University (Leningradskiy gosudarstvennyy universitet)  
33

TITLE: Dissolution kinetics of single-crystal germanium in hydrochloric acid solutions of ferric chloride  
14 53, 27

SOURCE: Zhurnal obshchey khimii, v. 35, no. 9, 1965, 1512-1517

TOPIC TAGS: solution kinetics, germanium single crystal, iron compound, hydrochloric acid, chloride, germanium compound

ABSTRACT: The dissolution of n-type single crystal germanium disks 10 mm in diameter and 1 mm thick, with their large surface oriented parallel to the (111) plane, was studied in 7.0 M hydrochloric acid solutions containing 0.02 to 2.66 moles FeCl<sub>3</sub>. It was shown that in 0.33 to 2.66 M FeCl<sub>3</sub> solutions in 7.0 M HCl, the dissolution rate of germanium is determined by the rate of the heterogeneous chemical reaction of oxidation of germanium. In 0.02 M FeCl<sub>3</sub> in 7.0 M HCl, the dissolution rate is determined by the rate of diffusion. The decrease in the dissolution rate of

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UDC: 546.289.131 + 546.8

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ACC NR: AP5028202

germanium in the  $\text{FeCl}_3$  concentration range from 0.6 to 1.4 M HCl apparently results from the formation of complex compounds between  $\text{FeCl}_3$  and HCl. The variation of the dissolution rate with the content of free HCl goes through a maximum around 6 M HCl, probably because of the change in the solubility of germanium tetrachloride associated with rising HCl concentration. Orig. art. has: 6 figures, 1 table, and 1 formula.

SUB CODE: GC,SS/ SUBM DATE: 02Jul64/ ORIG REF: 008/ OTH REF: 004

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Card 2/2

I 05017-67 EWT(m)/EWP(t)/ETI IJP(c) JD

ACC-NO. AP6031943

SOURCE CODE: UR/0080/66/039/009/1921/1927

AUTHOR: Orlova, G. M. ; Binder, Kh.

30  
B

ORG: none

TITLE: Kinetics of dissolution of monocrystallic gallium arsenide in water and in hydrochloric acid solutions 17 27

SOURCE: Zhurnal prikladnoy khimii, v. 39, no. 9, 1966, 1921-1927

TOPIC TAGS: iodine, hydrochloric acid, gallium arsenide

ABSTRACT: Research in the kinetics of the dissolution of monocrystalline gallium arsenide in water and in hydrochloric acid solutions of iodine has shown that the character of the process depends on the concentration of iodine in the solution. The process of dissolution of 0.2—0.5 M of iodine solutions is limited by the speed of the heterogeneous reaction of GaAs oxidation, by hypiodous acid in water solutions of iodine, and by molecular iodine in hydrochloric solutions of iodine. The energies of the GaAs dissolution activation are  $12.1 \pm 0.3$  kcal/mol and  $19.6 \pm 0.4$  kcal/mol. In more dilute iodine solutions, the process of GaAs dissolution is determined by convex-diffused phenomena in the solution. Orig. art. has: 7 figures.

SUB CODE: 07/ SUBM DATE: 16 Aug 65/ ORIG REF: 004/ OTH REF: 010  
Card 1/1 ZC UDC: 546.681'19+532.73 ~~correction~~

