of the deformation core by this procedure presented no further difficulties. The relative thicknesses of deformation zones were plotted against the relative diameters of the forging (Figs 5 and 6). The thickness of the first zone at half the forging radius differed little from combined axial thicknesses of the first and second zones. The thickness of the deformation zones at half the radius away from the axis was also plotted and found, like the thickness along the axis, to increase progressively with the ratio of the diameter to the flash thickness. The thickness along the axis of the deformation zone did not vanish even at small diameter/flash thickness ratios. When these ratios were about 20, the ratio of deformation zone thickness to flash thickness was about 3.5. The diameter/flash thickness ratio also affects the pattern of the deformation zone. At a ratio of 3, the deformation zone is a bi-concave lens. At large ratios, the "lens" becomes bi-convex. The usual analytical solution for the deformation zone assumes this to be conical or a stepped profile. A better solution

Refinement of the Pattern of the Deformation Core and Determination of the Force in Die Stamping

assumes an elliptical shape. With the help of simplifying assumption (plane strain), the forging pressures are obtained by analysis. For forgings which are round or nearly round in planform, the equilibrium equations are used in spherical coordinates when the deformation is axially symmetrical. The analysis of this case is also treated.

There are 11 figures, 2 tables and 8 Soviet references.

Semenov, Ye. I.

PHASE I BOOK EXPLOITATION SOV/3955

Moscow. Vyssheye tekhnicheskoye uchilishche

Mashiny i tekhnologiya obrabotki metallov davleniyem; sbornik statey (Machinery and Processes for the Pressworking of Metals; Collection of Articles) Moscow, Mashgiz, 1960. 246 p. (Series: Its: Trudy, vyp. 98) Errata slip inserted. 3,500 copies printed.

Ed.: A.I. Zimin, Doctor of Technical Sciences, Professor; Ed. of Publishing House: O.V. Chernyak; Tech. Ed.: T.F. Sokolova; Managing Ed. for Literature on Heavy Machine Manufacturing (Mashgiz): S.Ya. Golovin, Engineer.

PURPOSE: This collection of articles is intended for workers in scientific research institutions and in die-forging shops, and for engineering students.

COVERAGE: The book contains papers from the Department of Machines and Processes for the Pressworking of Metals of the MVTU (Moscow Higher Technical School imeni N.E. Bauman). The papers deal with theoretical and practical aspects of metal pressworking and with the theory and practice of forging machine and press design. These papers deal with machine hydraulics (selection of drives of presses, pressure in cylinders). A design of a hydraulic power-screw type "press-hammer", which can work as a percussion press or forging press, is presented. Problems of the theory of plastic deformation in forging, upsetting, and forming are also analyzed. 17 reference cards (Nos. 33 to 49) are appended to explain problems pertaining to the state of stress of plastically deformed metal. These cards are the continuation of cards presented in collection No. 79 of the MVTU, 1957. No personalities are mentioned. References accompany most of the articles.

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AVAILABLE: Library of Congress

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10

PHASE I BOOK EXPLOITATION SOV/4034

Poluprovodnikovyye pribory i ikh primeneniye; sbornik statey, vyp. 4. (Semiconductor Devices and Their Application; Collection of Articles, No. 4) Moscow, Izd-vo "Sovetskoye radio," 1960. 421 p. Errata slip inserted. No. of copies printed not given.

Ed. (Title page): Ya. A. Fedotov; Ed. (Inside book): I. M. Volkova; Tech. Ed.: A. A. Sveshnikov; Editorial Board: Ya. A. Fedotov (Resp. Ed.), N. A. Barkanov, I. G. Bergel'son, A. M. Broyde, Ye. I. Gal'perin (Deputy Resp. Ed.), Yu. A. Kamenetskiy, S. F. Kausov, A. V. Krasilov, A. A. Kulikovskiy, I. P. Nikolayevskiy, N. A. Penin, and I. P. Stepanenko.

PURPOSE: This collection of articles is for technicians and scientists working in the field of semiconductors.

COVERAGE: These articles cover the following problems: physical processes occurring in semiconductor diodes and transistors; transistor parameters, and methods and instruments for measuring them; special features of transistor operation in amplifying and oscillating circuits; and circuits and systems utilizing transistors. Several articles mention personalities. References accompany most articles.

Novitskiy, P.V., Ye.S. Lovshina, and G.N. Novopashennyy. Method of Designing LC-Generators Using Transistors With Stabilized Temperature Amplitude 263
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Kuzrakov, Ye.T., and Ya.I. Semenov. Diagram of Phase Automatic Frequency Control Using Semiconductor Components 271
The circuit is examined, selection of components considered, and some experimental results are given.

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The article examines the operating principle of a push-pull blocking oscillator using transistor triodes with a saturable transformer.

Zakharov, Yu.E. Use of Transistors For D-C Conversion 296
The article contains experimental data on the use of transistors for d-c converters.

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The article describes the method of calculating the rectilinear sawtooth current of a television scanning oscillator using transistors. Specifications are given for deflecting coils of vidicon type camera tubes.

Yakovlev, V.N. Research on a Junction Transistor Blocking Oscillator 323
The article describes processes occurring during the formation of the pulse peak. Conditions of blocking oscillator self-excitation are examined and the formula for determining pulse duration is derived. Processes in delay line blocking oscillators are analyzed and formulas are given for calculating delay line parameters.

Shestakov, I.A. Blocking-Oscillator Using Saturable Transistor 340
Processes occurring in a blocking-oscillator using junction triode operating under saturation conditions analyzed.
The article demonstrates that transistor parameters have no substantial effect on pulse shape.

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Yakovlev, V.N. Comparative Evaluation of Multivibrators Using Point-Contact Transistors, and Fields of Their Application 367
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A device for measuring low constant e.m.f. sources is described.

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Three types of phase meter transistor circuits are described.

Vasil'yev, V.P. Indication of the States of a Decade Transistor Counter By Means of Incandescent Lamps 406
A decade counter based entirely upon semiconductor devices is described.

Orinkevich, V.A. Development of a High Speed Digital Computer Arithmetic Unit Using Junction Transistors 414
The unit, which uses transistors of the P 16 type, was successfully tested.

AVAILABLE: Library of Congress

SEMENOV, Ye.I., dotsent, kand.tekhn.nauk

Drop forging in the United States. Vest.mash. 40 no.7:75-80 Jl '60. (MIRA 13:7)
(United States--Forging)

L 25153-65 EWT(m)/EWP(w)/EWA(d)/EWP(v)/EWP(t)/EWP(k)/EWP(b) Pf-4 JD/HM/EM
ACCESSION NR: AP5001778 S/0182/64/000/012/0011/0015

AUTHOR: Skorodumov, S. A.; Semenov, Ye. I. 23 B

TITLE: The calculation of starter stock for the sectioned pressing of disks

SOURCE: Kuznechno-shtampovochnoye proizvodstvo, no. 12, 1964, 11-15

TOPIC TAGS: turbine wheel, disk, sectioned disk pressing, starter stock dimension, steel deformation, starter material calculation, grip defect

ABSTRACT: A process of sectioned pressing of large turbine disks was developed at TSNIIMASH, which does not require particularly high pressure. This consists essentially in obtaining successive deformation of the individual circular parts of one disk by applying the press several times. Depending on the dimensions of the material and its resistance to deformation, as well as the force of the press, the sectioned press may consist of 2 or more dies. The present paper deals with pressing in 2 sections (see fig. 1 of enclosure). Formulas and graphs are presented for an experimentally based calculation of optimal dimensions of

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the starter material for a carbon steel disk. These are also applicable to more than 2 sections. Experimental work determined the character of the form changes of the starter material under these conditions, the mechanism of grip formation and the critical values for deformation upon which the grips are formed. The calculation of the dimensions of the starter material was among the most important problems, i.e. finding the minimal diameter required for obtaining disks without the grip defect. The procedure is shown according to which the optimal degree of deformation for each terminal ratio of the disk dimensions may be determined (grips were found to start forming at about 60% deformation). Maximal degree of deformation was found identical for all the ratios (diameter/height) of the pieces under study for one and the same initial diameter of the steel piece. Optimal dimensions of the initial piece were determined according to formulas (1) and (2)

$$H_{0\,opt} = \frac{H_k}{1 - \frac{\varepsilon_{opt}}{100}}; \quad (1)$$

$$D_{0\,opt} = \sqrt{\frac{V_{max} \cdot 4}{H_{0\,opt} \cdot \pi}}, \quad (2)$$

L 25153-65
ACCESSION NR: AP5001778

where ε is the deformation found from experimentally determined curves.
Orig. art. has: 3 formulas, 2 tables and 5 figures

ASSOCIATION: None

SUBMITTED: 00 ENCL: 01 SUB CODE: MM

NR REF SOV: 003 OTHER: 000

Card 3/4

GERASIMOVSKIY, V.I.; SEMENOV, Ye.I.; SHCHERBINA, V.V.

Kuz'ma Alekseevich Vlasov, 1905-1964; obituary. Geokhimiia no.12:1332-1333 D '64. (MIRA 18:8)

L 20774-66 EWT(m)/EWP(w)/T/EWP(t)/EWP(k) JD/HW

ACC NR: AP6004681 SOURCE CODE: UR/0182/65/000/010/0011/0015

AUTHOR: Skorodumov, S. A.; Semenov, Ye. I.

41
39
B

ORG: none

TITLE: Investigation of deformed state during the sectional-die forging of disks

SOURCE: Kuznechno-shtampovochnoye proizvodstvo, no. 10, 1965, 11-15

TOPIC TAGS: plastic deformation, sectional die, die, iron, lead

ABSTRACT: The results of a study of the deformed state of sectionally forged disks as compared with the deformed state of disks subjected to conventional upsetting by means of plane-parallel tools are presented. Armco-iron and lead blanks were used. The lead blanks were deformed in a 50-ton press and the armco-iron blanks, in a 1300-ton press. In the simulating experiments with the composite lead blanks soldered with Wood's alloy, deformed state was investigated with the aid of a coordinate grid (with 2x2 mm squares) plotted in the vertical diametral plane of one of the halves of the blank. The blank was deformed to the desired degree of deformation in twin-section die, first by the central section and then by the outer section. After this the blank was split into two halves. The coordinate grid before and after the deformation was measured with the aid of a microscope and photographed. The actual degree of deformation in various parts of the diametral cross sectional area of the forgings was determined according to the changes in the coordinate grid. On this basis,

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UDC: 621.984

L 20774-66
ACC NR: AP6004681

curves of the distribution of actual degree of deformation for forgings obtained by sectional forging were plotted and were found to resemble the curves for forgings obtained by conventional upsetting. The only difference is that in sectional forging the maximal actual degrees of deformation in the central zone lie below the horizontal line dividing the forging into two halves by height, whereas in conventional upsetting these degrees lie either along or somewhat above this line. Subsequent experiments with hot forging of armco iron also showed that the distribution of actual degrees of deformation in sectional forging was roughly the same as in conventional upsetting. In general, the sectional-die forging of disks is less time-consuming than their upsetting and assures and improved macro- and microstructure of the material; this was confirmed by the strength and plasticity tests of disks obtained by both methods. Orig. art. has: 6 figures and 2 tables.

SUB CODE: 11, 13, 20/ SUBM DATE: none/ ORIG REF: 003/ OTH REF: 000

Card 2/2 vmb

PASHKOV, A.B.; SALDADZE, K.M.; SEMENOVA, Ye.I.; PUCHKOVA, I.A.

Anion exchange high-basicity membranes of a heterogeneous type. Plast. massy no.11:39-43 '65. (MIRA 18:12)

SEMENOVA, Ye. I.

FILYAND, M.A.; SEMENOVA, Ye.I.; POGODIN, S.A., zasluzhennyy deyatel' nauki i tekhniki, professor, doktor, retsenzent; MEYERSON, G.A., professor, doktor, laureat Stalinskoy premii; SAMSONOV, G.V., redaktor; KAMAYEVA, O.M., redaktor; MIKHAYLOVA, V.V., tekhnicheskiy redaktor.

[Properties of rare elements; handbook] Svoistva redkikh elementov; spravochnik. Moskva, Gos. nauchno-tekhn. izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1953. 414 p. (MLRA 7:11)
(Chemical elements)

86892
S/056/60/039/005/006/051
B029/B077

24.1200 (1138, 1134, 1158)

AUTHORS: Avvakumov, V. I., Garif'yanov, N. S., Semenova, Ye. I.

TITLE: Electron Paramagnetic Resonance and Paramagnetic Relaxation in Liquid and Undercooled Solutions of Ti^{+++} Salts

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960, Vol. 39, No. 5(11), pp. 1215 - 1220

TEXT: The authors detected an electron paramagnetic resonance in liquid solutions of $TiCl_3 6H_2O$ in glycerin and alcohol and also in undercooled solutions at 77° and 200°K at frequencies of 300 and 9640 megacycles. Moreover, they studied pyridine complexes of Ti^{+++}, and also specimens of silicate glass and boron glass which contained titanium compounds. The shape of the resonance lines obtained from polycrystalline specimens is determined mainly by the anisotropy of the g-factor. Table 1 shows how the line width ΔH depends on the concentration of Ti^{+++} in different solvents.

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Electron Paramagnetic Resonance and Paramagnetic Relaxation in Liquid and Undercooled Solutions of Ti^{+++} Salts

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Concentration of the solvent in moles/l	ΔH, Oe			Concentration of the Solvent in moles/l	ΔH, Oe		
	77°K	200°K	295°K		77°K	200°K	295°K
Glycerin solution $TiCl_3 \cdot 6H_2O$				Alcohol solution $TiCl_3 \cdot 6H_2O$			
2	54	60	-	1	63	-	-
1	32	35	-	0.5	35	-	20
0.5	17	18	-	0.25	27	-	10
0.25	14	17	10	0.1	17	-	10
0.1	13	16	10	0.05	16	-	10
0.01	13	16	10	0.01	16	-	10

The intensity of electron paramagnetic resonance decreases considerably during the transition from an undercooled state into a liquid state. For undercooled solutions of $TiCl_3 \cdot 6H_2O$ the line of electron paramagnetic resonance is very asymmetric and shows a second unresolved

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Electron Paramagnetic Resonance and Paramagnetic Relaxation in Liquid and Undercooled Solutions of Ti^{+++} Salts

absorption maximum. For ν = 9460 Mc/sec Table 2 is valid:

$g_{\parallel}$	$g_{\perp}$	g_{eff}
77°K		290°K
Glycerin solution of $TiCl_3 \cdot 6H_2O$		
1.99	1.93	1.95
Alcohol solution of $TiCl_3 \cdot 6H_2O$		
2.00	1.90	1.94

When the temperature of the undercooled solution rises, the width of the line and the asymmetry of the curves decrease; when the liquid state is reached, the lines are symmetric and narrow. At ~400°K the frequency dependence vanishes. In parallel fields, an absorption $\chi''_s(H)$ exists at 300 megacycles in a 2 M solution of $TiCl_3 \cdot 6H_2O$ in glycerin at 77°K, which is caused by spin relaxation. At a double dilution of this solution, the intensity of absorption is nearly zero. More details are given. ΔH for curves of electron paramagnetic resonance in concentrated glycerin and alcohol solutions is caused by magnetic dipole-dipole interaction. In dilute solutions, the line width which is

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Electron Paramagnetic Resonance and Paramagnetic Relaxation in Liquid and Undercooled Solutions of Ti^{+++} Salts

S/056/60/039/005/006/05:
B029/B077

independent of the concentration, is due to the anisotropy of the g-factor and the contribution of the magnetic moments from protons of surrounding molecules. The spin-lattice relaxation contributes to ΔH according to $\Delta H \sim 1/\rho_s + 1/\rho_l$. The transition from the undercooled solution to the liquid state influences the motion which causes a decrease of the line width. At 9460 megacycles, the shape of the curves for electron paramagnetic resonance is typical of ions with a strong isotropic g-factor. The shift of spin-spin relaxation toward lower frequencies with a decrease in concentration indicates an increase of the spin-lattice relaxation time ρ_1. This was explained by the thermal reservoirs of N. Bloembergen and S. Wang. The absence of electron paramagnetic resonance in silicate and boron glass indicates the presence of tetravalent titanium in these types of glass. The authors thank B. M. Kozyrev for a discussion of the results, and Yu. M. Ryzhmanov for assistance in experiments. There are 1 table and 17 references: 5 Soviet and 12 US.

86892

Electron Paramagnetic Resonance and Paramagnetic Relaxation in Liquid and Undercooled Solutions of Ti^{+++} Salts

S/056/60/039/005/006/051
B029/B077

ASSOCIATION: Kazanskiy filial Akademii nauk SSSR (Kazan' Branch of the Academy of Sciences USSR)

SUBMITTED: June 17, 1960

Card 5/5

25698 S/181/61/003/007/020/023
B104/B203

24.7900

AUTHORS: Avvakumov, V. I., Garif'yanov, N. S., Salikhov, S. G., and Semenova, Ye. I.

TITLE: Paramagnetic resonance in $TiCl_3 \cdot 6H_2O$ and $Ti_2(SO_4)_3 \cdot 4H_2O$ layers

PERIODICAL: Fizika tverdogo tela, v. 3, no. 7, 1961, 2111 - 2114

TEXT: In a previous paper (ZhETF, 39, 11, 1215, 1960), the authors had studied the paramagnetic resonance absorption of $TiCl_3 \cdot 6H_2O$ and $Ti_2(SO_4)_3 \cdot 4H_2O$ salts dissolved in glycerin and alcohol at T = 77°, 200°, and 300°K. They had found an anisotropy of the g-factor. Here, they report on experiments with powdery (fine-crystalline) specimens. The experiments were made at 9594 Mc/sec and 270 Mc/sec at 77° and 200°K, with the same salts as indicated above and with specimens in which these salts were dissolved in diamagnetic Al salts at ratios of Ti:Al = 1:10 and Ti:Al = 1:100. The results shown in Fig. 1a reveal that the g-factor of Ti^{3+} is anisotropic at 77°K; $g_1 = 1.91$ and $g_2 = 1.84$. On heating,

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this line becomes symmetrical, and disappears completely above 200°K. Between T = 77°K and a temperature T_{up}, the form of this line is temperature dependent. T_{up} is supposed at 100 - 120°K. At T = 200°K, the line is symmetrical, the g-factor is 1.91±0.02, and the half-width of the line ΔH = 376 oersteds. At 270 Mc/sec, this line is symmetrical at T = 77°K, and the half-width is 81 oersteds. The dissolved specimens (1:100) have, at the higher frequency at 77°K, in contrast to the undissolved specimens, a symmetrical line with g_{eff} = 1.91±0.02 at a width ΔH = 203 oersteds. At 270 Mc/sec, this line is narrower (ΔH = 38 oersteds). With further dilution of the solution, g_{eff} and the line width remain constant. g_{eff} = 1.91±0.02 was determined on $Ti_2(SO_4)_3 \cdot 4H_2O$ at the higher frequency at 77°K (undissolved specimen). Here, the line is symmetrical, the width is 209 oersteds (Fig. 2a). Also here, the line width does not depend on temperature in a certain temperature range. T_{up} is estimated with 200°K. Above this temperature, this line becomes wider and disappears. In contrast to the above-mentioned chloride, the line width is almost equal at

both frequencies. In the solution 1:10, the line width is 147 oersteds at the higher frequency, and 26.5 oersteds at the lower one. In a discussion of the results, it is stated that the line width at the higher frequency is determined by the anisotropy of the g-factor. The symmetry of lines of dissolved specimens at higher frequencies is explained by inhomogeneities of the intercrystalline field. The authors conclude that the line width of the undissolved specimens is determined by magnetic dipole-dipole interactions. The dependence of the line width on the concentration of magnetic particles is given as a proof. Since the paramagnetic resonance absorption can be observed at 77°K and over, the authors conclude that the lower orbital triplet of Ti^{3+}, which in the ground state is in a field with cubic symmetry, is strongly split by fields of lower symmetry. If the Ti^{3+} ion is in an octahedral environment, the crystal field can have no axial symmetry but only trigonal symmetry. It is also possible that the Ti^{3+} ion is in a tetrahedral environment. The authors thank S. A. Al'tshuler and B. M. Kozyrev for a discussion of the results. There are 2 figures and 4 references: 1 Soviet-bloc and 3 non-Soviet-bloc.

ASSOCIATION: Kazanskiy filial AN SSSR (Kazan' Branch of the AS USSR)
Kazanskiy gosudarstvennyy universitet im. V. I. Ul'yanova-

Paramagnetic resonance...

Lenina (Kazan' State University imeni V. I. Ul'yanov-Lenin)

SUBMITTED: January 7, 1961 (initially),
February 27, 1961 (after revision)

Fig. 1: Curves for the paramagnetic resonance absorption of undissolved $TiCl_3 \cdot 6H_2O$.

Legend: (a) 9594 Mc/sec; (b) 270 Mc/sec.

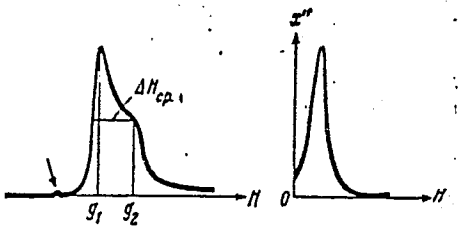

Fig. 1

Fig. 2: Curves for the paramagnetic resonance absorption of undissolved $Ti_2(SO_4)_3 \cdot 4H_2O$.

Legend as in Fig. 1.

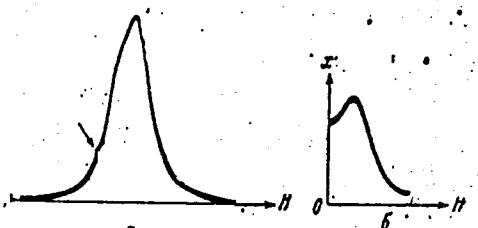

Fig. 2

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AVVAKUMOV, V.I.; GARIF'YANOV, N.S.; SEMENOVA, Ye.I.

Electron paramagnetic resonance in trivalent titanium halides.
Fiz. met. i metalloved. 12 no.4:624 O '61. (MIRA 14:11)

1. Kazanskiy filial AN SSSR.
(Titanium halides)

2718

S/056/61/041/002/003/028
B102/B205

24,7900

AUTHORS: Garif'yanov, N. S., Semenova, Ye. I.

TITLE: Hyperfine structure of electron paramagnetic resonance lines in subcooled solutions of Ti^{+++} salts

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 41, no. 2 (8), 1961, 337 - 339

TEXT: Following a series of publications (ZhETF, 39, 1215, 1960; ZhETF, 37, 1551, 1959, etc.) the authors report on investigations of the hyperfine structure of epr lines in liquid and subcooled solutions of $Ti_2(SO_4)_3$ enriched in Ti^{47} and Ti^{49} to 43.3 and 71.5%, respectively. Measurements in liquid alcoholic and glycerin solutions of Ti^{+++} were made at ν = 9430 Mc/sec and T = 295°K, and in subcooled glycerin solutions at ν = 450 - 270 Mc/sec and T = 77°K. The solutions had concentrations of

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Hyperfine structure of...

~0.05 mole/l. The measuring technique has been described earlier. At 9430 Mc/sec and 77°K it was not possible to achieve resolution of the hyperfine structure in subcooled glycerin solutions, since the absorption lines were broad and the splitting constants small. At ν = 450 Mc/sec, however, resolution could be achieved in the presence of strong magnetic fields. At this frequency and at a temperature of 77°K, the hyperfine structure of epr lines of the $^{47}Ti^{+++}$ solution consisted of five peaks (cf. Fig. 1a), which indicates that the nuclear spin, I, of this ion equals 5/2. The hyperfine splitting constant A is~ 30 oe, and can be determined from the resolution of the hyperfine-structural peaks. Atν = 450 Mc/sec and T = 77°K, the $^{49}Ti^{+++}$ion in a subcooled glycerin solution exhibits seven peaks (Fig. 1b). Accordingly, the nuclear spin I amounts to 7/2 and |A|~30 oe. At 9430 Mc/sec and T = 295°K, the hyperfine structure of the epr lines of Ti^{49} in an alcoholic $Ti_2(SO_4)_3$ solution will not be resolved. The

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S/056/61/041/002/003/028
B102/B205

Hyperfine structure of...

epr line consists of two components, one broad and the other narrow. A graphical analysis showed the hyperfine splitting constant to be $|a| \approx 12$ oe. In liquid solutions $|a| = (A+2B)/3$. By substituting the values of A and B obtained from the data on the hyperfine structure into the last-mentioned formula, one finds $|a| \approx 11$ oe. ($|B| \sim 2$ oe). There are 1 figure and 7 references: 5 Soviet and 2 non-Soviet. The two references to English-language publications read as follows: R. H. Sands. Phys. Rev. 99, 1292, 1955; C. D. Jeffries. Phys. Rev. 92, 1262, 1953.

ASSOCIATION: Kazanskiy filial Akademii nauk SSSR (Kazan' Branch of the Academy of Sciences USSR)

SUBMITTED: March 8, 1961

Card 3/3

GARIF'YANOV, N.S.; SEMENOVA, Ye.I.

Paramagnetic electron resonance in some aqueous complexes of Ti^{3+} salts. Dokl. AN SSSR 140 no.1:157-158 S-O '61. (MIRA 14:9)

1. Fiziko-tekhnicheskiy institut Kazanskogo filiala AN SSSR. Predstavleno akademikom A.Ye.Arbuzovym.
(Titanium compounds--Spectra)

SEMENOVA, Ye.I.

Some compounds of trivalent titanium and their paramagnetic resonance. Dokl. AN SSSR 143 no.6:1368-1369 Ap '62. (MIRA 15:4)

1. Fiziko-tekhnicheskiy institut Kazanskogo filiala AN SSSR. Predstavleno akademikom A.Ye.Arbuzovym.

(Titanium compounds)
(Paramagnetic resonance and relaxation)

S/020/62/147/002/012/021
B106/B101

AUTHORS: Garif'yanov, N. S., Kozyrev, B. M., Semenova, Ye. I.

TITLE: Electron paramagnetic resonance in compounds of bivalent silver

PERIODICAL: Akademiya nauk SSSR.. Doklady, v. 147, no. 2, 1962, 365-367

TEXT: The e. p. r. spectra of some compounds of bivalent silver were studied in order to confirm experimentally the strong covalent bond between silver and the ligands which has been postulated by K. D. Bowers (Proc. Phys. Soc. A, 66, 666 (1953)) for $[Ag(Py)_4]S_2O_8$, and to ascertain the strong exchange interactions between the 4d-electrons, which are expected in analogy to Cu^{II} compounds. Results: Fine crystalline $Ag(C_5H_5N)_4S_2O_8$ (A) showed at 450 Mcps and 77°K a peak with $g = 2.15$, $\delta H = 26$ oerst. This, and also the independence of the coefficient of paramagnetic susceptibility of H_o indicate an exchange interaction between the 4d electrons. At 9320 Mcps, 77 and 295°K a line with $g_{\parallel} = 2.17 \pm 0.01$, $g_{\perp} = 2.08 \pm 0.01$ was

Card 1/2

KUCHERYAVENKO, N.S.; SEMENOVA, Ye.I.

Rate of nuclear relaxation as dependent on the symmetry of the Ti^{3+} complex in aqueous solutions. Dokl. AN SSSR 152 no.3:662-664 S '63. (MIRA 16:12)

1. Kazanskiy pedagogicheskiy institut i Fiziko-tekhnicheskiy institut Kazanskogo filiala AN SSSR. Predstavleno akademikom A.Ye. Arbuzovym.

L 41480-65 EWP(e)/EWT(m)/EWP(w)/EWA(d)/EPR/T/EWP(t)/EWP(z)/EWP(b)/EWA(c) Pe-4
IJP(c) JD/HM/HW/JG
AM4037975 BOOK EXPLOITATION

Filyand, Mikhail Abramovich; Semenova, Yelizaveta Ivanovna

Properties of rare elements; a handbook (Svoystva redkikh elementov; spravochnik) 2d ed., rev. and enl. Moscow, Izd-vo Metallurgiya, 1964. 0912 p. illus., biblio. Errata slip inserted. 6300 copies printed.

TOPIC TAGS: chemical elements, properties of elements, minor elements, light metals, refractory elements, radioactive elements, rare-earth elements, handbooks, alloys, metallography

PURPOSE AND COVERAGE: This handbook is intended for scientists, engineers, and technicians. It may also be of use to students at metallurgical institutes. This is the second edition of a work first published in 1953. The book has been revised and enlarged, and contains updated information. The text, based primarily on Western sources, presents a systematic review of data on the structure and physical and mechanical properties of rare metals. The workability, chemical stability, and areas of application of these metals are briefly discussed. Metals important in modern aerospace technologies (e.g., titanium and beryllium) are given extensive treatment.

Card 1/2 SUBMITTED: 18 Nov 63

Semenov, Ye. I.

USSR/ Minerals

Card 1/1 Pub. 22 - 37/47

Authors : Semenov, Ye. I., and Burova, T. A.

Title : About the new mineral Labuntsovite and the so-called titanoelpidite

Periodical : Dok. AN SSSR 101/6, 1113 - 1116, Apr. 21, 1955

Abstract : It was established experimentally that Labuntsovite - an aqueous silicate of Ti, Nb, Ca, Mn, Ba, Na, and K - is a new mineral usually associated with products of hydrothermal conversion of murmanite. Judging by its composition, Debey crystallograms, and optical and other characteristics, the new mineral was found to be in no way related to the elpidite mineral group. Labuntsovite crystals were found to be coated with a white thin layer of anatase leucoxene which forms during post-hydrothermal conversion of the labuntsovite. Two references: 1 USSR and 1 Danish (1899-1926). Tables; graph; drawings.

Institution : .....

Presented by: Academician A. G. Betekhtin, December 24, 1954

SEMENOV, Ye. I.

USSR/Cosmochemistry. Geochemistry. Hydrochemistry. D

Abs Jour : Referat. Zhurnal Khimiya, No 6, 1957, 18903.

Author : Ye.I. Semenov.
Inst :
Title : Soconite in Alkaline Pegmatites.

Orig Pub : Symposium Kora vyvyetrivaniya, Vyp. 2, M., AN SSSR, 1956, 179-183.

Abstract : Soconite was discovered in pegmatites of the Lovozerskiy range (Kola peninsula). Its monomineral secretions connected with the oxidation of sphalerite attain the dimensions of 50 x 30 cm. The results of chemical, spectral, thermal, X-ray, chromatographic, microscopic and electron-microscopic analyses are cited. Chemical composition (in %): SiO_2 35.10, Al_2O_3 6.40, Fe_2O_3 0.04, ZnO 35.74, MgO 2.38, MnO traces, CaO 2.03, SrO 0.29, Na_2O 0.25, K_2O 0.14, H_2O^+ (110°) 6.20, H_2O^- 10.77, total 99.34. La, Pb, Cu and Be were additionally discovered by spectral analysis. The

Card 1/2 -15-

Abs Jour : Referat. Zhurnal Khimiya, No 6, 1957, 18903.

USSR/ Cosmochemistry. Geochemistry. Hydrochemistry D.

Abs Jour : Referat Zhur - Khimiya, No 4, 1957, 11512

2.48; Al_2O_3 1.68; 1.00; Fe_3O_4 5.44; 13.15; MnO 27.65; 23.60; MgO 2.98; 1.63; CaO 3.60; 1.45; BaO, not determined; 0.32; K_2O 4.38; 5.63; Na_2O 2.14; 2.14; H_2O^+ (110°) 3.84; 3.90, H_2O^- 1.08; 0.80; F 1.22; not determined; sum 100.49; 100.18. In addition were determined: by roentgenospectral method 1% Sr, 0.2% Rb, 0.1% Ce and 0.1% Nd; by spectral method weak lines of Be, Zn, Ga and Ta. Crystallochemical formulas according to two analyses: $(K_{0.64}\ Na_{0.48})_{1.12}\ (Mn_{.69}Fe_{0.47}\ Mg_{0.51}\ Ca_{0.44})_{4.11}(Ti_{1.00}\ Zr_{0.07}\ Nb_{0.03})_{1.10}\ [Si_{3.75}\ Al_{0.22}\ Ti_{0.03}\ O_{14}]\cdot\ (F_1OH)_2$; $(K_{0.83}\ Na_{0.47}\ Ba_{0.01})_{1.31}\ (Mn_{2.28}\ Fe_{1.19}\ Mg_{0.28}\ Ca_{0.18})_{3.93}\ (Ti_{0.90}\ Nb_{0.13})_{1.03}\cdot\ [Si_{3.85}\ Al_{0.14}\ Ti_{0.01}\ O_{14}]\cdot\ (OH)_2$. One specific chemical analysis re-

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USSR/ Cosmochemistry. Geochemistry. Hydrochemistry D.

Abs Jour : Referat Zhur - Khimiya No 4, 1957, 11512

vealed 4.35% Nb_2O_5. The mineral has been named in honor of Soviet minsro-logists B.M. Kupletskiy and E.M. Bonshtedt-Kupletskaya who were the first to investigate Soviet astrophyllites.

3/3

SEMENOV, Ye. I.

D.

USSR/ Cosmochemistry. Geochemistry. Hydrochemistry

Abs Jour ; Referat Zhur - Khimiya, No 4, 1957, 11507

Author : Semenov Ye.I., Bonshtedt-Kupletskaya E.M., Moleva V.A., Sludskaya N.N.
Inst : Academy of Sciences USSR
Title : Vinogradovite -- A New Mineral

Orig Pub : Dokl. AN SSSR, 1956, 109, No 3, 617-620

Abstract : In 12 pegmatite cores of Lovozersk and Khibiny alkaline massifs (Kola peninsula) has been discovered a new mineral -- vinogradovite, named in honor of academician A.P. Vinogradov. The mineral is present in the form of finely acicular and finely fibrous formations up to 5 cm in size: in contact-adjoining portions as fringes and pseudomorphoses of ramsaite and lamprophillite; in the central part, within cavities of druses of natrolite and analcime; other associated minerals of pegmatite: aegirite, nepheline, microcline, eudialite, apatite, polylithionite, neptunite etc. Origin of vinogradovite is hydrothermal. Syngony is monoclinic. Coloration of aggregates is white, crystals are colorless. Brittle, with uneven fracture, perfect cleavage along (010). Hardness $\sim$ 4, sp. gr. 2.878, m.p. $\sim$ 800°. Optically biaxial

1/2

DUDYKINA, A.S.; SEMENOV, Ye.I.

Lovozero and Khibiny massifs, a rare-metal biogeochemical region. Trudy Inst. min., geokhim. i kristallokhim. red. elem. no.1:35-37 '57. (MIRA 11:6)

(Kola Peninsula--Metals, Rare and minor)

SEMENOV, Ye.I.

Titanium and niobium oxides and hydroxides in the Lovozero alkaline massif. Trudy Inst. min., geokhim. i kristallokhim. red. elem. no.1:41-59 '57. (MIRA 11:6)
(Lovozero tundras--Metallic oxides)

SEMENOV, Ye.I.

Leucophane in alkali pegmatites of the Kola Peninsula. Trudy Inst. min., geokhim. i kristallokhim. rod. elem. no.1:60-63 '57. (MIRA 11:6)
(Kola Peninsula--Leucophane)
(Pegmatites)

SEMENOV, Ye.I.

Gelbertrandite and spherobertrandite, new beryllium silicate hydrates. Trudy Inst. min., geokhim. i kristallokhim. red. elem. no.1:64-69 '57. (MIRA 11:6)

(Bertrandite) (Silicates)

SEMENOV, Ye.I.

Isomorphism and "camouflage" of rare earths [with summary in English]. Geokhimiia no.7:626-637 '57. (MIRA 11:1)

1.Institut mineralogii, geokhimii i kristallokhimii redkikh elementov AN SSSR, Moskva.
(Isomorphism) (Rare earths)

SHILIN, L.L.; SEMENOV, Ye.I.

The beryllium minerals epididymite and eudidymite in alkaline pegmatites of the Kola Peninsula. Dokl. AN SSSR 112 no.2:325-328 Ja '57. (MLRA 10:4)

1. Institut geologii rudnykh mestorozhdeniy, petrografii, mineralogii i geokhimii Akademii nauk SSSR. Predstavleno akademikom N. V. Belovym.

(Kola Peninsula--Beryllium ores)

SEMENOV, Ye. I.

20-5-52/60

AUTHOR: TIKHONENKOV, I.P., SEMENOV, Ye.I., KAZAKOVA, M.Ye.

TITLE: The First Find of Elpidite in the U.S.S.R. (Pervaya nakhodka el'pidita v Soyuze -Russian)

PERIODICAL: Doklady Akademii Nauk SSSR, 1957, Vol 114, Nr 5, pp 1101-1103 (U.S.S.R.)

ABSTRACT: Elpidite $Na_2ZrSi_6O_{15} \cdot 3H_2O$ belongs to the rarest zircon-minerals. Until recently it was only known from the basic pegmatites of South-Greenland. The authors first discovered it in 1949 in the pegmatites of the Lovozero-massif (of peninsula Kola). The so-called Titano-elpidite from the pegmatites of Khibiny (1926) proved to be a new mineral without relation to elpidite. Elpidite occurs in the mentioned massif in the form of white radial accretions of long prismatic crystals in the cavities of pink albite. The crystals are described here. It is a biaxial mineral, soluble neither in HCl nor in H_2SO_4 or HNO_3. It is known that only one chemical analysis of the Greenland elpidite was published (Lindstroem 1894), the second one is by the third author from the Lovozero finding (1952). A comparison of the two analyses shows almost no differences. By spectral analysis: Hafnium, beryllium, strontium, magnesium, manganese and yttrium was, in addition, found in elpidite. The fairly high content of niobium in view of an almost complete absence of titanium is characteristic. Thus, the possibility of an isomorphous replacement of zirconium by niobium is confirmed. The results of thermal analysis indicate "zeolitic" character of the water in elpidite. It can, if made anhydrous, absorb the water. For this reason it would be more correct to write

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Card 1/2

AUTHORS: Semenov, Ye. I., Barinskiy, R. L. SOV/7-58-4-4/13

TITLE: Peculiarities in the Content of Rare Earths in Minerals (Osobennosti sostava redkikh zemel' v mineralakh)

PERIODICAL: Geokhimiya, 1958, Nr 4, pp. 314 - 333 (USSR)

ABSTRACT: More than 1oo samples were investigated; they are from Ye. I. Semenov, partly also from other geologists. Samples from abroad were made available to G. P. Barsanov from the collections of the Mineralogical Museum (Mineralogicheskiy muzey AN SSSR). In the case of most minerals the sum of oxides of the rare earths was separated by the analysts A. V. Bykova, O. F. Dorondova, M. Ye. Kazakova, M. V. Kukharchik, I. S. Razina. The individual rare earths were determined by X-ray spectral analysis by R. L. Barinskiy, accuracy 5 - 7 %, sensitivity o,1 %. The results are given in a great table.

In their paper the authors deal with the following sections:

a) The classification of the contents of rare earths. If the contents of rare earths are plotted on a diagram and the points thus obtained are connected the known toothed

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Peculiarities in the Content of Rare Earths in Minerals

line is obtained; if, however, the even-numbered points and the odd-numbered points are connected, two sufficiently simple curves with few maxima are obtained (usually from 1 - 2). These curves are given for a number of minerals. The minerals are divided into three types according to the magnitude of the maximum.
b) Lanthanide couples. The ratio of the content of one of the rare earths with even atomic number to the ratio of the subsequent one is represented graphically.
c) On the classification of the rare earths. It is suggested to draw the boundary line between cerium earths and yttrium oxides in mineralogical-geochemical respect between Tb and Dy. Furthermore it is suggested to combine two elements in one sub-group and to denote it according to the predominant even-numbered element: Cerium group (Ce, La), neodymium group (Nd, Pr), samarium group (Sm, Eu), gadolinium group (Gd, Tb), dysprosium group (Dy, Ho), erbium group (Er, Tu), and ytterbium group (Yb, Lu). There are 5 figures, 1 table, and 12 references, 4 of which are Soviet.

30V/ 7-58-4-4/13

Peculiarities in the Content of Rare Earths in Minerals

ASSOCIATION: Institut mineralogii, geokhimii i kristallokhimii redkikh elementov AN SSSR, Moskva
(Moscow Institute of Mineralogy, Geochemistry and Crystal Chemistry of Rare Elements, AS USSR)

PRESENTED: November 6, 1957, at the Jubilee Meeting of the Scientist's Council of the Institute

SUBMITTED: December 28, 1957

1. Minerals--Analysis 2. Rare earth elements--Separation
3. Rare earth elements--Determination 4. X-ray spectroscopy --Applications

Card 3/3

SOV/7-58-5-6/15

AUTHOR: Semenov, Ye. I.

TITLE: The Connection Between the Composition of Rare Earths and the Composition and Structure of Minerals (Svyaz' sostava redkikh zemel' s sostavom i strukturoy mineralov)

PERIODICAL: Geokhimiya, 1958, Nr 5, pp 452 - 461 (USSR)

ABSTRACT: This paper makes use of experimental results published already earlier (Ref 1). Depending on the crystal lattice the rare earths enter the individual minerals in different quantities. For their characterization the author uses diagrams in which the percentage of the even lanthanides is entered. When the points obtained this way are connected with one another a curve is obtained which has characteristic maxima. Such curves were plotted for bastnasite, monazite, euxenite, fergusonite, zirconium, spessartin, sphene, orthite, pyrochlorine, uraninite, "chinglusuite", and "churchite". According to the possibility of the isomorphous penetration the author distinguishes selective and complex minerals. According to the position of the maxima different groups of selective minerals may be distinguished: cerium selective minerals like monazite, bastnasite, loparite etc., as well as the yttrium-selective euxenite,

Card 1/3

chenotime etc. are wide spread; the gadolinium selective minerals are much rarer and they cannot be determined so accurately. In minerals not belonging to the rare earth group the composition of rare earths is determined by their closeness of their ionic radii to the element being replaced. Thus, the minerals of Sr, Ba, K are usually cerium-selective minerals of Zr, Sc, Fe yttrium-selective minerals, and those of Ca-complex minerals. The composition of TR may serve for diagnostical purposes and for the identification of selective minerals. In selective minerals the composition of TR is determined according to the crystallochemical structure of minerals which limit the isomorphism capacity, in complex minerals it is determined according to the medium and the composition of TR in the initial melt or solution. There are 1 figure and 9 references, 5 of which are Soviet.

ASSOCIATION: Institut mineralogii, geokhimii i kristallokhimii redkikh elementov AN SSSR, Moskva(Moscow Institute of the Mineralogy, Geochemistry and Crystal Chemistry of Rare Elements, AS USSR)

The Connection Between the Composition of Rare Earths and the Composition and Structure of Minerals SOV/7-58-5-6/15

SUBMITTED: January 14, 1958

Card 3/3

SEMENOV, Ye.I.; KAZAKOVA, M.Ye.; SIMONOV, V.I.

"Seidozerite'" a new zircon mineral and other minerals of the woehlerite group in alkali pegmatites. Zap. Vses. min. ob-va 87 no.5:590-597 '58. (MIRA 12:1)

(Zircon) (Woehlerite)

SEMENOV, Ye.I.

Rhaldophanite group minerals in alkaline massifs. Mat.po min.Kol'. poluost. 1:91-101 '59. (MIRA 15:2)
(Kola Peninsula--Rhaldophanite)

SEMENOV, Ye.I.

Mineralogy of alkaline pegmatites in the Khibiny Mountains and Lovozero Tundras. Mat.po min.Kol'.poluost. 1:102-106 '59. (MIRA 15:2)

(Khibiny Mountains--Pegmatites)
(Lovozero Tundras--Pegmatites)

SEMENOV, Ye.I.

Zirconium content in titanium minerals. Trudy Inst.min., geokhim.i kristalokhim.red.elem. no.2:87-92 '59. (MIRA 15:4)
(Zirconium) (Titanium)

SEMENOV, Ye.I.

Isomorphous series "labuntsovit" - "nenadkevichit." Trudy Inst.min., geokhim.i kristalokhim.red.elem. no.2:102-109 '59. (MIRA 15:4)
(Kola Peninsula--Minerals) (Isomorphism)

SEMENOV, Ye.I.

Minerals of the montmorillonite group in alkali massifs. Trudy Inst.min., geokhim.i kristalokhim.red.elem. no.2:124-137 '59. (MIRA 15:4)

(Lovozero tundras--Montmorillonite)

SEMENOV, Ye.I.

Possible new rare earth fluocarbonate. Trudy Inst.min., geokhim.i kristalokhim.red.elem. no.2:181-186 '59. (MIRA 15:4)
(Kirghizistan--Rare earth fluocarbonate)

SEMENOV, Ye.I.; SHUBA, I.D.

Geological age of the Lovozero and other alkaline massifs of the Kola Peninsula. Trudy IGEM no.28:138-141 '59.
(MIRA 13:4)
(Kola Peninsula--Rocks, Igneous)
(Geological time)

PHASE I BOOK EXPLOITATION SOV/5740

Akademiya nauk SSSR. Institut mineralogii, geokhimii i kristallokhimii redkikh elementov

Voprosy mineralogii, geokhimii i genezisa mestorozhdeniy redkikh elementov (Problems in Mineralogy, Geochemistry, and Deposit Formation of Rare Elements) Moscow, Izd-vo AN SSSR, 1960. 253 p. (Series: Its: Trudy, vyp. 4) Errata printed on the inside of back cover. 2,200 copies printed.

Chief Ed.: K. A. Vlasov, Corresponding Member, Academy of Sciences USSR; Resp. Ed.: V. V. Lyakhovich; Ed. of Publishing House: L. S. Tarasov; Tech. Ed.: P. S. Kashina.

PURPOSE: This book is intended for geologists, mineralogists, and petrographers.

COVERAGE: This is a collection of 23 articles on the formation, geology, mineralogy, petrography, and geochemistry of deposits of rare elements in Siberia and [Soviet] Central Asia. The distribution and characteristics of rare elements found in these areas as well as some quantitative and qualitative methods of investigating the rocks and minerals in which they are found,

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or with which they are associated, are discussed. Two articles present an economic investigation of the possibilities of industrial extraction and utilization of celenium, tellurium, and hafnium. No personalities are mentioned. Each article is accompanied by references.

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11-14-61

SEMENOV, Ye.I.; BYKOVA, A.V.

Beryllosodalite. Dokl.AN SSSR 133 no.5:1191-1193 Ag '60.
(MIRA 13:8)

1. Institut mineralogii, geokhimii i kristallokhimii redkikh elementov Akademii nauk SSSR. Predstavleno akad. N.V.Belovym.
(Lovozero Tundras--Sodalite)

BESPALOVA, I.D.; SEMENOV, Ye.I.

Absolute age of the Lovozero and other alkaline massifs in the Kola Peninsula. Biul.Kom.po opr.abs.vozr.geol.form. no.4: 77-80 '61. (MIRA 15:1)

(Kola Peninsula--Rocks, Igneous)
(Geological time)

SEMENOV, Ye.I.; TIKHONENKOV, I.P.

Low-temperature ramsayite. Trudy IMGRE no.7:91-95 '61.
(MIRA 16:11)

SEMENOV, Ye.I.; KAZAKOVA, M.Ye.

Zirconium opals from alkali pegmatites. Trudy IMGRE no.7: 96-99 '61.

Hydrothorite in the pegmatites of the Lovozero alkali tundras. 123-129 (MIRA 16:11)

S/020/61/136/004/025/026
B016/B075

AUTHORS: Semenov, Ye. I., Khun Ven-sin, and Kapitonova, T. A.

TITLE: The New Mineral Baotite

PERIODICAL: Doklady Akademii nauk SSSR, 1961, Vol. 136, No. 4, pp. 915-916

TEXT: The authors report on a new niobium mineral "baotite" (named after the town of Baotou in Inner Mongolia). Basing on the authors' data Pen Tsi-zhuy had already published brief information concerning this subject (Ref. 1). Baotite forms isometric, sometimes rectangular porphyritic crystals, 8-10 cm large, in white quartz. It has distinct cleavage faces in two directions, a brownish-black color, and in small splinters, it is transparent. Specific gravity d = 4.42 (theoretically 4.74). Microhardness 769 kg/mm^2 (about 5.9 of the Mohs scale). Optically monoaxial positive, N_e = 2.16, N_o = 1.94, $N_e - N_o$ = 0.22. An intensive pleochroism from black-brown (N_e) to greenish-yellow (N_o) is visible. Extinction is diagonal with respect to the cleavage faces. V. I. Simonov

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of the Institut kristallografii AN SSSR (Institute of Crystallography AS USSR) has determined the dimensions of the tetragonal cell a_o = 19.68; c_o = 5.88 A, c_o/a_o = 0.312. Volume of the cell v = a^2c = 2205A^3. The space group is I $4_1/a$. Table 1 contains data of the Debye powder pattern, taken by analyst N. G. Bataliyeva. Chemical analyses are summarized in Table 2. Specimen no. 1, contained small quantities of albite and other minerals. Sr, Mn, V, Cu, Sn, and Cr could be discovered in baotite by spectrum analysis (weak lines). The empirical formula $Ba_2Ti_7NbSi_4O_{28}Cl$ with a weight per formula unit of 1575 was determined by chemical analysis. The number of formula units in the unit cell amounts to z = 3.72 $\approx$4. The formula is of the general type $Ba(Ti,Nb)_2 SiO_7$ (z = 16). V. I. Simonov (Ref. 3), for the first time, determined the crystalline structure of baotite and found fourfold meta-silicate rings of silicon-oxygen tetrahedra Si_4O_{12} in it, as well as chains of titanium-niobium octahedra. In this structure, chlorine concentrates in large cavities. Ye. I. Semenov and Chzhan Pey-shan' (Ref. 2) recently have described a new mineral bafertisite $BaFe_2TiSi_2O_9$ occurring in the Chinese People's

The New Mineral Baotite

S/020/61/136/004/025/026
B016/B075

Republic. This mineral also contains Cl and Nb. In it, like in baotite, neither the compensation of the isomorphous substitution of Ti by Nb, nor the part played by Cl, are satisfactorily explained. In baotite, substitution according to formula $Nb^{5+}Cl^{-} \rightarrow Ti^{4+}$ is most probable, since the number of atoms of Nb and Cl are approximately equal. Jointly with baotite, albite, alkali-amphibole, aegrine, bastnäsite, galenite, and pyrite in small quantities occur in quartz veins. These hydrothermal quartz veins are deposited in quartzites not far from an alkali-granosyenite massif. The authors assume that the formation of baotite as well as of other minerals occurring there is connected with the alkaline metasomatosis. Table 1 gives the numerical values of the interplanar spacings of baotite which have been obtained by the Debye powder pattern (analyst N. G. Bataliyeva). Table 2 contains the chemical analysis of baotite (analysts T. A. Kapitonova and A. V. Bykova). There are 2 tables and 3 references: 1 Soviet.

PRESENTED: July 27, 1960, by N. V. Belov, Academician

SUBMITTED: July 27, 1960

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S/020/61/136/004/025/026
B016/B075

1 Компоненты	3 Образец № 1			7 Образец № 2	
	4 вес. %	5 ат. колич.	6 группировка	4 вес. %	5 ат. колич.
SiO_2	14,17	0,236	0,236 = 0,96 ≈ 1	13,20	0,220
TiO_2	29,33	0,367	0,492 ≈ 2,00	33,65	0,421
Nb_2O_5	11,50	0,087		10,80	0,081
Fe_2O_3	3,07	0,038		1,75	0,022
Al_2O_3	1,62	0,032		следы	
Cr_2O_3	0,05	—		—	
MgO	0,20	0,004		—	
CaO	0,41	0,007	0,261 ≈ 1,06 ≈ 1	—	
BaO	37,55	0,244		38,60	0,251
K_2O	0,13	0,003		—	
Na_2O	0,20	0,007		—	
H_2O	0,52	0,058		—	
Cl	2,01	0,057		2,17	0,065
$-O=Cl_2$	0,45	—		0,50	
2 Сумма	100,31			99,67	

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Legend to Table 1: 1) current number; 2) I;
3) d, A.

Legend to Table 2: 1) components; 2) sum;
3) sample no. 1; 4) wt%; 5) number of atoms;
6) group; 7) sample no. 2.

№№ п. п.	I	d, A	№№ п.п.	I	d, A
1	8	3,55	11	3	1,959
2	3	3,34	12	2	1,828
3	6	3,17	13	6	1,775
4	8	2,88	14	5	1,716
5	5	2,77	15	4	1,358
6	3	2,69	16	10	1,337
7	6	2,49	17	5	0,980
8	8	2,24	18	4	0,937
9	3	2,04	19	5	0,833
10	4	2,00			
1	2	3	1	2	3

Card 5/5

[redacted], Ye.I.; KHODAKOV, V.N.; BARINSKIY, R.L.

Rare earths in phosphorites. Geokhimiia no.5 434-439 '62.
(MIRA 15:7)

1. Institute of Mineralogy, Geochemistry and Crystal Chemistry of Rare Elements, U.S.S.R., Moscow.
(Rare earths) (Phosphorites)

SEMENOV, Ye. I.

Apatite group minerals in pegmatites of the Lovozero alkaline massif. Trudy IMGRE no.9:36-54 '62. (MIRA 16:1)

(Lovozero Tundras--Apatite)
(Lovozero Tundras--Pegmatites)

SEMENOV, Ye. I.

Hallocysite-kaolinite group minerals in alkaline massifs.
Trudy IMGRE no.9:67-82 '62. (MIRA 16:1)

(Halloysite) (Kaolinite)

SEMENOV, Ye. I.; TIKHONENKOV, I. P.

Catapleiite and hydrocatapleiite of alkaline pegmatites.
Trudy IMGRE no.9:88-93 '62. (MIRA 16:1)

(Catapleiite) (Pegmatites)

SEMENOV, Yevgeniy Ivanovich; VLASOV, K.A., glav. red.; GERASIMOVSKIY, V.I., doktor geol.-min. nauk, otv. red.; TARASOV, L.S., red.izd-va; PRUSAKOVA, T.A., tekhn. red.; RUS'KOVA, O.M., tekhn. red.

[Rare-earth mineralogy; mineralogy, genetic types of mineralization and basic characteristics of the geochemistry of rare-earth elements] Mineralogiia redkikh zemel'; mineralogiia, geneticheskie tipy mineralizatsii i osnovnye cherty geokhimii redkozemel'nykh elementov. Moskva, Izd-vo AN SSSR, 1963. 411 p. (MIRA 17:2)

1.Chlen-korrespondent AN SSSR (for Vlasov).

SEMENOV, Ye.I.; KOCHEMASOV, G.G.; BYKOVA, A.V.

Zirkelite and rosenbushchite from contact-metasomatic rocks in the Lovozero Tundras. Trudy IMGRE no.15:106-109 '63. (MIRA 16:11)

YAKOVLEVSKAYA, T.A.; SEMENOV, Ye.I.

Some new data on chkalovite. Trudy Min. muz. no.14:265-267 '63.
(MIRA 16:10)

(Chkalovite)

SEMENOV, Ye.I.

Pyrophanite, franklinite, and tungsten, manganese containing minerals in pegmatites of the Lovozero massif. Trudy IMGRE no.16:176-179 '63. (MIRA 16:8)

SEMENOV, Ye.I.

Rare elements in hydroxides of aluminum, iron, silicon, and manganese from the weathering surface and mineral formations deposited by hydrothermal solutions in alkali massifs. Trudy IMGRE no.17:15-32 '63. (MIRA 16:11)

SEMENOV, Ye.I.; DUSMATOV, V.D.; SAMSONOVA, N.S.

Yttrium-beryllium minerals of the datolite group. Kristallografiia 8 no.4:677-679 Jl-Ag '63. (MIRA 16:9)

1. Institut mineralogii, geokhimii, kristallokhimii redkikh elementov.

(Datolite)

SEMENOV, Ye.I.; SPITSYN, A.N.; BUROVA, Z.N.

Hydropyrochlore from Lovozero alkaline massif. Dokl. AN SSSR 150 no.5:1128-1130 Je '63. (MIRA 16:8)

1. Institut mineralogii, geokhimii i kristallokhimii redkikh elementov. Predstavleno akademikom N.V.Belovym.
(Lovozero Tundras—Pyrochlore)

ACCESSION NR: AP4004601 S/0020/63/153/004/0913/0915

AUTHOR: Dusmatov, V. D.; Yefimov, A. F.; Semenov, Ye. I.

TITLE: First find of stilwellite in the USSR

SOURCE: AN SSSR. Doklady*, v. 153, no. 4, 1963, 913-915

TOPIC TAGS: rare earth mineral, stilwellite, $CeBSiO_5$, rare earth borosilicate, cerium borosilicate

ABSTRACT: In the USSR, stilwellite was first discovered in the pegmatites and hydrothermal veins associated with the alkaline rocks of the Alaysk Range in Tadzhikistan and the Inaglinsk massif in South Yakutia. In contrast to the Australian variety, this stilwellite has a fairly well-developed crystal form. The sizes range from 5 x 1 cm for the Tadzhikistan mineral to 0.3 x 0.1 cm for the Yakutian. The crystals are a combination of a hexagonal prism $\{11\bar{2}0\}(\phi = 30°, \rho = 0)$ and rhombohedron $\{10\bar{1}1\}(\phi = 0°, \rho = 56°)$. The chemical composition of the stilwellite found in the pure crystalline state is very close to the formula $CeBSiO_5$. Only a small substitution of the rare earths by thorium (up to 1.8% ThO_2) can be observed.

Card 1/2

SEMENOV, Ye.I.

Calcium and sodium carbonate hydrates. Kristallografiia 9 no.1: 109-110 Ja-F '64. (MIRA 17:3)

1. Institut mineralogii, geokhimii i kristallokhimii redkikh elementov AN SSSR.

VLASOV, K.A., glav. red. [deceased]; SEMENOV, Ye.I., doktor geol.-min. nauk, otv. red.; TIKHONENKOVA, R.P., kand. geol.-min. nauk, otv. red.

[Mineralogy and genetic characteristics of alkali massifs] Mineralogiia i geneticheskie osobennosti shchelochnykh massivov. Moskva, Nauka, 1964. 193 p. (MIRA 18:2)

1. Akademiya nauk SSSR. Institut mineralogii, geokhimii i kristallokhimii redkikh elementov. 2. Chlen-korrespondent AN SSSR (for Vlasov).

SHAGANOV, Ye.I., PYRONA, A.V.

Beryllium borate, hambergite in the alkali pegmatites of the Lake Baikal region. Dokl. AN SSSR 161 no.6:1407-1408 Ap '65. (MIRA 18:5)

1. Submitted November 18, 1964.

SEMENOV, Ye.I.; KATAYEVA, Z.T.; RUDNITSKAYA, Ye.S.

New data on yttrotungstite. Dokl. AN SSSR 163 no.2:447-449 Jl '65.
(MIRA 18:7)

1. Submitted January 22, 1965.

GINZBURG, I.V.; SEMENOV, Ye.I.; LEONOVA, L.L.; SIDORENKO, G.A.; DUSMATOV, V.D.

Crystalline [illegible] high in alkali content in Central Asia. Trudy Min.muz. no.16:57-72 '65. (MIRA 18:8)

SEMENOV, Ye.I.; KHOMYAKOV, A.P.; BYKOVA, A.V.

New mineral "magbasite." Dokl. AN SSSR 163 no.3:718-719 Jl '65.
(MIRA 18:7)

1. Institut mineralogii, geokhimii i kristallokhimii redkikh elementov.
Submitted November 18, 1964.

ACC NR: AP7006804 SOURCE CODE: UR/0122/66/000/012/0051/0055

AUTHOR: Semenov, Ye. I. (Lecturer, Candidate of technical sciences); Skorodumov, S. A. (Candidate of technical sciences)

ORG: None

TITLE: Determining the forces of deformation for sectional stamping of discs

SOURCE: Vestnik mashinostroyeniya, no. 12, 1966, 51-55

TOPIC TAGS: metal deformation, turbine disc, metal stamping, stress distribution

ABSTRACT: Experiments are conducted at the Central Scientific Research Institute of Machine Technology to determine the proper deformation forces and ratios between punch diameters for two-section stamping of disc forgings. Lead specimens were used in a die with angular pickups on a fifty-ton hydraulic press and in a die with wire pickups on a 400 ton hydraulic press. The ratios of the forging dimensions were D/H=6, 12, 18. Theoretical curves are proposed for the distribution of normal contact stresses which agree satisfactorily with the experimental data for stress distribution during operation with central and outside punches. The formulas derived on the basis of these curves for determining the forces of deformation during operation with central and outside punches give fairly accurate results. It was found that the optimum ratio of the diameter of the outside punch to that of the central punch is not a constant

UDC: 621.73.043

Card 1/2

ACC NR: AP7006804

1.55 as assumed previously, but that it varies from 1.737 to 1.619 with a change in *D/H* from 6 to 18. Orig. art. has: 7 figures, 1 table, 8 formulas.

SUB CODE: 13/ SUBM DATE: None/ ORIG. REF: 006

Card 2/2

KORDYUKOV, Vasiliy Pavlovich; SEMENOV, Ye.I., kand. tekhn. [illegible], red.

[Making large forgings by the hammer forging method] Opyt izgotovleniia krupnykh p'kovok svobodnoi kovkoi. Moskva, Mashinostroenie, 1965. 191 p. (MIRA 18:12)

SEMENOV, Ye.I.

Effect of changes of temporary parameters on the operating precision of amplitude-pulse telemetering systems. Izv.vys.ucheb.zav.;prib. 7 no.5:47-50 '64. (MIRA 17:12)

1. Leningradskiy elektrotekhnicheskiy institut imeni V.I.Ul'yanova (Lenina). Rekomendovano kafedroy elektroizmeritel'noy tekhniki.

SEMENOV, Ye.I.; FRID, B.I.

[Telephony] Telefoniia. Moskva, Voenizdat, 1954. 360 p.(MLRA 8:1D)

SEMENOV, Ye.I.

Determining the required characteristics for acoustic noise resistance in voice channels. Elektrosviaz' 11 no.10:50-56 O '57. (MIRA 10:10)

(Telephone)

SOV/112-58-3-4509

8 (2)

Translation from: Referativnyy zhurnal. Elektrotekhnika, 1958, Nr 3, p 159 (USSR)

AUTHOR: Fremke, A. V., Semenov, Ye. I., and Zhilin, V. N.

TITLE: Amplitude-Type Cyclic Telemeter (Amplitudnaya tsiklicheskaya teleizmeritel'naya sistema)

PERIODICAL: Izv. Leningr. elektrotekhn. in-ta, 1957, Nr 29, pp 45-51

ABSTRACT: A multichannel telemeter is described that has time division of channels and amplitude modulation in each of them. Block diagrams of the systems with electro-mechanical and electron primary elements are presented, as well as simplified circuit diagrams of individual units. Basic error of the system (without the primary-element error) is $\pm$ 2 to 2½%.

V. A. K.

Card 1/1

USCOMM-DC-61,057

SOV/106-58-9-13/17

AUTHOR: Semenow, Ye. I.

TITLE: The Mutual Connection between the Informational Capacity of a Telephone Channel and Articulation (K voprosu o vzaimosvyazi mezhdu propusknoy sposobnost'yu telefonnogo kanala i artikulyatsiyey)

PERIODICAL: Elektrosvyaz', 1958, Nr 9, pp 73 - 74 (USSR)

ABSTRACT: The informational capacity of a communication channel is the most general parameter since it characterises not only the economic effectiveness but also guarantees the highest quality and greatest reliability. Although up to the present time an objective estimate of the naturalness of human speech is not possible, articulation has been the subject of many studies. At the basis of the studies on "readability" of speech is its representation by means of additive formants A in a frequency band ΔF consisting of n elementary bands Δf_1, Δf_2 .....Δf_n. According to Ref 1 the determination of A is that of finding the probability of occurrence of a 2-dimensional random magnitude (formant) in a region lying above the resulting (taking noise into account) threshold of audibility at the

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output of the telephone channel. From this point of view the formal expression for A is that in (1) where the component probabilities are summed. Since the energy spectrum of speech and noise within the limits of the elementary frequency bands can be considered as smooth, continuous and non-coherent, then expression (2) for signal/noise ratio can be substituted into the known formula for the capacity of a channel for a continuous signal having a non-uniform frequency distribution. This is done in (3). Thus by comparing (1) and (3) it is possible to see a complete analogy between A and the channel capacity, C. The author has calculated A and C for an ordinary urban telephone channel from measurements with the TAH-5 equipment in the frequency range 300 - 27)) c/s. For zero line attenuation the channel capacity does not exceed 16,000 binary units/sec and for a line attenuation of 2.5 nepers it does not exceed 5,000. The corresponding values of articulation formant were 0.51 and 0.33 while the syllabic formants were 81% and 60%. If perfect

The Mutual Connection between the Informational Capacity of a Telephone Channel and Articulation

reproduction is required (i.e $A \simeq 1$) then, in the given range, a channel capacity of 37,800 bits/sec is needed which requires a signal/noise ratio of approximately 42 db. For a real telephone channel such a ratio is not even possible under ordinary room-noise conditions. In the above example the signal/noise ratios were 20 db and 5 db respectively.
There is 1 Soviet reference.

SUBMITTED: April 24, 1958

Card 3/3