USSR

UDC 620.186:669.018.58

LIVSHITS, B. G., IZGORODIN, A. K., NIKOLAYEVA, V. N., TSVILIN, M. Ya. and KLYCHEVA, V. A., Moscow Institute of Steel and Alloys

"Study of the Kinetics of Gamma-Phase Formation in YuNDK35T5-Type Alloys at 830-900°C"

Moscow, Metallovedeniye i termicheskaya obrabotka metallov, No 6, 1972, pp 65-66

Abstract: The study was conducted on cast alloys quenched to a mono β_2-phase from 1240°C. The quenched specimens were put through low-temperature isothermal treatment at 900, 870, 850, 840, and 830°C. The holding times for each temperature were 15, 25, 45, 60, and 180 min, respectively. The specimens were cooled in open air. The amount and kinetics of the phase separation were determined in 50 fields of vision by Glagolev's method. Titanium is shown to promote intensive γ_1-phase separation (up to 950°C), which is undesirable from the viewpoint of low-temperature treatment. Microstructural analytical data indicate that the reduction of Al content from 3 to 7% intensifies $\beta_2 \rightarrow \gamma_1 + \gamma_2$ transformation at all test temperatures. Noteworthy is the fact that the reduction of Al content to 7% markedly affects the decomposition kinetics at 900-870°C but much less at 840 and 830°C. The results of the study have shown that low-temperature treatment of YuNDK35T5 alloys must be conducted at minimum temperatures and minimum possible hold times. An increase in Ti

- USSR

LIVSHITS, B. G., et al., Metallovedeniye i termicheskaya obrabotka metallov, No 6, 1972, pp 65-66

contents and a reduction of Al contents inhibit low-temperature treatment. (1 table, 8 bibliographic references)

2/2

Instruments and Measurements

USSR UDC 621.375.024:621.317.7

KLYEYNER, E. A., MALITSKIY, G. A., MAL'TSYEV, YU. S.

"Measuring Converters for Small Back-Connected Instruments"

Voronezh, Izmeritel'naya Tekhnika, No 4, 1971, pp 66-67

Abstract: The schematics of direct current measurement converters constructed on the basis of Soviet linear integrated circuits of the 1UT401 (operation amplifier) and 1KT011 (integral interruptors) are investigated. These devices are designed to be built into the analog and digital back-connected measuring instruments. The results of experimental studies of the converters are presented and data are tabulated which permit estimation of the effectiveness of applying them. It is found that on the basis of the developed converters it is possible to create back-connected instruments of both the analog and digital type which have a number of advantages: high sensitivity, small size (it is possible to build an analog device 80 × 80 × 50 mm), low intake from the signal source and the power supply, relatively high accuracy basically determined by the accuracy of the instrument connected at the converter output, high reliability, and resistance to mechanical effects determined by the properties of the output instruments.

1/1

USSR

UDC 542.938.546.791.4

GLEBOV, V. A., KLYGIN, A. Ye., SMIRNOVA, I. D., and KOLYADA, N. S.

"An Investigation of the Hydrolysis of Tetravalent Uranium"

Moscow, Zhurnal Neorganicheskoy Khimii, Vol 17, No 12, Dec 72, pp 3312-3316

Abstract: By applying the method of spin echo, the effects of the pH and the temperature on the velocity of longitudinal relaxation of protons in $HClO_4$ solutions of U(IV) were studied. It was shown that as a result of hydrolysis an increase took place in the frequency of exchange of H_2O molecules in the hydrate shell of U(IV) and that this increase affected the velocity of relaxation of protons in the solutions. Spectrophotometric measurements at various values of the pH of the absorption at the wavelength 548 nm that is characteristic for the U^{4+} ion were also carried out. Both measurements of the nuclear magnetic resonance, which gave information of the exchange of H_2O molecules in hydrolysis (cf. Glebov et al, Zh. Neorg. Khim., 15, 1332, 1970; 17, 1175, 1972), and determinations of optical densities at 548 nm, which yielded data on the concentration of free U^{4+} ions, indicated that in the pH range studied (0 - 1.97) hydrolysis of the U^{4+} ions proceeded by the reaction $U^{4+} + H_2O \rightarrow UOH^{3+} + H^+$. The constant of formation of the monohydrate complex UOH^{3+} was 0.052 ± 0.003.

1/1

1/2 015 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--COMPLEXING IN THE COPPER II, ETHYLENEDIAMINETETRAACETIC ACID, WATER SYSTEM -U-

AUTHOR-(04)-LEKAYE, V.A., KLYGIN, A.YE., SMIRNOVA, I.D., KOLYADA, N.S.

COUNTRY OF INFO--USSR

SOURCE--ZH. NEORG. KHIM. 1970, 15(5), 1294-300

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ETHYLENEDIAMINE, COPPER COMPLEX, SPECTROPHOTOMETRIC ANALYSIS, NMR

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/0923 STEP NO--UR/0078/70/015/005/1294/1300

CIRC ACCESSION NO--AP0136354

UNCLASSIFIED

2/2 015 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0136354

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. COMPLEXING IN THE CU(II),EDTA, (H SUB4 L), H SUB2 O SYSTEM WAS STUDIED BY SPECTROPHOTOMETRIC AND NMR RELAXATION METHODS. THE FORMATION CONST. OF CUHL, AND ITS DEPROTONATION CONST., (DETD. BY THE N. P. KOMAR'S METHOD, 1954) ARE 76 TIMES 10 PRIME8 AND 1.14 TIMES 10 PRIMENEGATIVE3, RESP.

UNCLASSIFIED

1/2 012 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--REACTION OF AZO DERIVATIVES OF CHROMOTROPIC ACID WITH PERCHLORIC AND NITRIC ACIDS -U-

AUTHOR-(03)-KLYGIN, A.YE., KOLYADA, N.S., ZAVRAZHNOVA, D.N.

COUNTRY OF INFO--USSR

SOURCE--ZH. NEORG. KHIM. 1970, 15(2), 384-9

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--AZO COMPOUND, ARSENIC COMPOUND, SULFONIC ACID, NAPHTHALENE, SPECTROPHOTOMETRIC ANALYSIS, COMPLEX COMPOUND, PERCHLORIC ACID

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/1148 STEP NO--UR/0078/70/015/002/0384/0389

CIRC ACCESSION NO--AP0136568

UNCLASSIFIED

2/2 012 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0136568

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. REACTIONS OF HCLO SUB4 AND HNO SUB3 WITH CHROMOTROPIC ACID DERIVS. (2,7,BIS(2,SULFO,4,NITROPHENYLAZO),1,8,DIHYDROXY, 3,6,NAPHTHALENEDISULFONIC ACID (I), 2,(2,ARSONOPHENYLAZO),1,8, DIHYDROXY(2,SULFOPHENYLAZO),3,6,NAPHTHALENEDISULFONIC ACID (II), 2,7,BIS(2,SULFOPHENYLAZO),1,8,DIHYDROXY,3,6,NAPHTHALENEDISULFONIC ACID (III), OR 2,(2,ARSONOPHENYLAZO),1,8,DIHYDROXY,3,6, NAPHTHALENEDISULFONIC ACID) (IV)) WERE STUDIED SPECTROPHOTOMETRICALLY. IN EACH CASE, UNDISSOCD. ACID MOLS. WERE ADDED TO AZO GROUPS OF I-IV COMPDS. THE MOLAR ABSORPTIVITY (EPSILON) AND COMPLEXING CONSTS. (K SUB1) WERE (COMPD., EPSILON (IN MMU), K) FOR HCLO SUB4 COMPLEXES: SHOWN ON MICROFICHE.

UNCLASSIFIED

1/2 017 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--EQUILIBRIUMS IN SOLUTIONS OF NITRIC AND PERCHLORIC ACIDS -U-

AUTHOR-(03)-KLYGIN, A.YE., SMIRNOVA, I.G., ZAVRAZHNOVA, D.M.

COUNTRY OF INFO--USSR

SOURCE--ZH. NEORG. KHIM. 1970, 15(2) 294-8

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--NITRIC ACID, PERCHLORIC ACID, AQUEOUS SOLUTION, NMR SPECTRUM, EQUILIBRIUM CONSTANT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1983/0904 STEP NO--UR/0078/70/015/002/0294/0298

CIRC ACCESSION NO--AP0053828

UNCLASSIFIED

2/2 017 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0053828

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EQUIL. OF AQ. HNO SUB3, HCLO SUB4 AND MIXTS. OF HNO SUB3-HCLO SUB4 WERE DETD. BY USING NMR. FOR HNO SUB3, THE EQUIL. CONSTS. (K) AT 0, 25, AND 70DEGREES ARE 3.17 TIMES 10 PRIME NEGATIVE9, 2.36 TIMES 10 PRIME NEGATIVE9, AND 1.46 TIMES 10 PRIME NEGATIVE9, RESP. FOR HCLO SUB4, K IS 2.37 TIMES 10 PRIME NEGATIVE2 AND 2.26 TIMES 10 PRIME NEGATIVE2 AT 0 AND 25DEGREES, RESP. DELTA H AND DELTA S OF ACID DISSCCN. ARE 2.08 TIMES 10 PRIME3 CAL-MOLE AND 46.56 CAL-MOLE DEGREE FOR HNO SUB3 AND 3.02 TIMES 10 PRIME2 CAL-MOLE AND 8.56 CAL-MOLE DEGREE FOR HCLO SUB4, RESP.

UNCLASSIFIED

1/2 017 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--SPECTROPHOTOMETRIC STUDY OF COMPLEXING IN AN IRON,III,NITRATE,NITRIC ACID,WATER SYSTEM -U-

AUTHOR-(05)-KLYGIN, A.YE., SMIRNOVA, I.D., NIKOLSKAYA, N.A., KOLYADA, N.S., LEKAYE, V.A.

COUNTRY OF INFO--USSR

SOURCE--ZH. NEORG. KHIM. 1970, 15(3), 753-6

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--SPECTROPHOTOMETRIC ANALYSIS, IRON COMPLEX, NITRATE, NITRIC ACID, AQUEOUS SOLUTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3004/2028 STEP NO--UR/0078/70/015/003/0753/0756

CIRC ACCESSION NO--AP0132285

UNCLASSIFIED

2/2 017 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0132285

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PRESENCE OF FE PRIME3 POSITIVE, FE(NO SUB3) SUB3 .HNO SUB3 (I), AND FE(NO SUB3) SUB3 .3HNO SUB3 (II) IN FE(NO SUB3) SUB3 HNO SUB3 H SUB2 O SYSTEM WAS CONFIRMED SPECTROPHOTOMETRICALLY. MOLAR ABSORPTION COEFFS. OF I AND II AT 390, 400, AND 410 M MU ARE GIVEN. CONSTS. OF I AND II FORMATION ARE IN THE REGION OF 10 PRIME NEGATIVE2 AND 10 PRIME NEGATIVE3, RESP.

UNCLASSIFIED

1/2 014 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--COMPLEXING OF URANYL AND LANTHANUM IONS WITH ARSENAZO III IN PERCHLORIC ACID SOLUTIONS -U-

AUTHOR-(03)-KLYGIN, A.YE., ZAVRAZHNOVA, D.M., KOLYADA, N.S.

COUNTRY OF INFO--USSR

SOURCE--ZH. NEORG. KHIM. 1970, 15(3), 739-44

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--SPECTOSCOPIC ANALYSIS, METAL COMPLEX COMPOUND, LANTHANUM COMPOUND, URANIUM COMPOUND, PERCHLORIC ACID

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/1611 STEP NO--UR/0078/70/015/003/0739/0744

CIRC ACCESSION NO--AP0112605

UNCLASSIFIED

2/2 014 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0112605

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SPECTROSCOPIC STUDY REVEALED THAT UO SUB2 PRIME2 POSITIVE FORM WITH ARSENAZO III (H SUB8 R) TERNARY COMPLEXES (UO SUB2(CLO SUBR)SUB2 H SUB8 R) AND (LA(CLO SUB4)SUB2(H SUB8 R)) PRIME POSITIVE. THESE COMPDS. HAVE COMPLEX FORMATION COSTS. EQUAL TO 3.53 TIMES 10 PRIME3 AND 42.5 RESP., AND, AT 650 MMU, THEY HAVE MOLAR ABSORPTIVITIES 6.67 TIMES 10 PRIME4 AND 6.52 TIMES 10 PRIME4, RESP.

UNCLASSIFIED

1/2 018 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--SPECTROPHOTOMETRIC STUDY OF THE COMPLEXING OF RARE EARTH ELEMENTS IN NITRATE SOLUTIONS -U-

AUTHOR-(05)-KLYGIN, A.YE., SMIRNOVA, I.D., KOLYADA, N.S., MALKINA, YE.N., GERTSEVA, A.M.

COUNTRY OF INFO--USSR

SOURCE--ZH. NEORG. KHIM. 1970, 15(3), 622-8

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--SPECTROPHOTOMETRIC ANALYSIS, NITRATE, NITRIC ACID, RARE EARTH METAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/1608 STEP NO--UR/0078/70/015/003/0622/0628

CIRC ACCESSION NO--AP0112602

UNCLASSIFIED

2/2 018 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0112602

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. HNO SUB3 SOLNS. OF LN (ND, PR, EU, DY, HO, ER, AND YB) NITRATES CONTAIN LN PRIME3 POSITIVE, LN(NO SUB3) SUB3 .HNO SUB3, AND LN(NO SUB3) SUB3 .3HNO SUB3. COMPLEXING IN LN PRIME3 POSITIVE-HNO SUB3-H SUB2 O SYSTEMS WAS DETD. SPECTROPHOTOMETRICALLY AND FORMATION CONSTS. WERE CALCD. BY THE LEAST SQUARES METHOD. THE MECHANISM OF LN PRIME3 POSITIVE EXTN. BY BU SUB3 PO SUB4 FROM HNO SUB3 SOLN. IS DISCUSSED. IT IS ASSUMED THAT AT THE CONDITIONS WHERE LN(NO SUB3) SUB3 .HNO SUB3 FORMS AT THE HIGHEST YIELD, THE DISTRIBUTION COEFF. D OF LN PRIME3 POSITIVE HAS THE LOWEST VALUE. THE MARKED INCREASE OF D AT HNO SUB3 CONCNS. LARGER THAN 5M IS DUE TO THE FORMATION OF LN(NO SUB3) SUB3 .3HNO SUB3 WHICH IS EXTD. BY BU SUB3 PO SUB4.

UNCLASSIFIED

USSR

UDC 546.791.6.541.49.546.65.546.137

KLYGIN, A. YE., ZAVRAZHNOVA, D. M., KOLYADA, N. S.

"Complexation of Uranyl and Lanthanum Ions with Arsenazo III in Perchloric Acid Solutions"

Moscow, Zhurnal Neorganicheskoy Khimii, Vol 15, No 3, 1970, pp 739-744

Abstract: A spectrophotometric study was made of the complexation of uranyl and lanthanum with arsenazo III in perchloric acid solutions. It was shown that in the system studied ternary complex compounds of composition $UO_2(ClO_4)_2H_8R$ and $La(ClO_4)_2(H_8R)^+$ are formed. These compounds have formation constants $(3.53\pm0.36)\cdot10^3$ and $(4.25\pm0.10)\cdot10^1$ and molar light extinction coefficients $(6.67\pm0.28)\cdot10^4$ and $(6.52\pm0.09)\cdot10^4$ at 650 nanometers, respectively.

1/1

Physiology

USSR

UDC 612.27+612.821.6

MEYERSON, F. Z., SOLOMATINA, Ye. S., VIKHLYAYEV, Yu. I. and KLYGUL', T. A., Laboratory of Experimental Cardiology, Institute of Normal and Pathological Physiology and Laboratory of Psychopharmacology, Institute of Pharmacology, Academy of Medical Sciences USSR, Moscow

"The Influence of Adaptation to Altitude Hypoxia on the Behavior of Animals in a Stress Situation"

Moscow, Zhurnal Vysshey Nervnoy Deyatel'nosti imeni I. P. Pavlov, Vol 23, Vyp 4, Jul/Aug 73, pp 751-756

Abstract: The influence of adaptation to hypoxia on the behavior of 40 rats in situations creating a conflict between the drinking and the defensive reflexes was studied. It was found that adapted animals made three times as many attempts to drink as controls, despite a painful electric shock. The experimental subjects showed a lower threshold of pain sensitivity, the same strength for the drinking reflex, the same motor activity in nonconflict situations and lower motor activity in conflict situations than controls. Therefore these factors are not considered possible causes for the change observed.

USSR

MEYERSON, F. Z., et al., Zhurnal Vysshey Nervnoy Deyatel'nosti imeni I. P. Pavlov, Vol 23, Vyp 4, Jul/Aug 73, pp 751-756

Earlier findings also eliminate disturbance in the elaboration of defensive conditioned reflexes. It was further found that interrupting the drinking reflex required a shock of twice the voltage in experimental rats as in controls. The greater stability of the drinking reflex to pain is said to be caused by a greater force and concentration of excitation in the neuron system responsible for the drinking reflex, and a deeper inhibition of the neuron system responsible for the motor pain reaction. This may be caused by some general change in the functioning and metabolism of the brain.

2/2

USSR

UDC 615.31:547.869.2].012.1

GRITSENKO, A. N., YERMAKOVA, Z. I., ZHURAVLEV, S. V., VIKHLYAYEV, Yu. I., and KLYGUL', T. A., Institute of Pharmacology of the USSR Academy of Medical Sciences Moscow

"Synthesis in the Phenthiazine Series. XXXI. 10-γ-Alkylaminopropyl and 10-β-Alkylaminopropionyl Derivatives of Substituted Phenthiazines"

Moscow, Khimiko Farmatsevticheskiy Zhurnal, No 7, Vol 5, July 1971, pp 10-14

Abstract: A study was made of the synthesis of a series of 10-γ-alkylaminopropyl and 10-β-alkylaminopropionyl derivatives of 1-nitro, 4-nitro, 1-bromo and 1,3-dibromophenthiazines, and their pharmacological characteristics were compared. In order to obtain the aminoalkyl chain in position 10 of the phenthiazine, γ-dimethylaminopropylchloride and N-methyl-N'-(γ-chloropropyl)piperazine were used. The 10-(β-chloropropionyl) derivatives were obtained by interaction of the phenthiazine with β-chloropropionylchloride. All the investigated compounds had a clear sedative effect and were active with respect to all tests. The piperazinyl derivatives were, as a rule, more active than the compounds with dialkylaminoalkyl substitutions in position 10. Halogenation of the phenthiazine ring with respect to positions 1, 3 and 4 leads to weakening of the activity of the compounds by comparison with the unsubstituted analogs and with compounds having similar substitutions in position 2. Halogenation with

1/2

USSR

GRITSENKO, A. N., et al., Khimiko Farmatsevticheskiy Zhurnal, Vol 5, No 7, July 1971, pp 10-14

respect to position 2 is the optimal version for activity of the compounds. Formation of the ethers with respect to position 2 leads to lowered activity. The mechanisms of these effects are discussed.

2/2

USSR

UDC 615.787:612.014.46

KARAYEV, S. F., Candidate of Chemical Sciences, VIKHLYAYEV, YU. I., Cand
KLYGUL', T. A., Candidates of Medical Sciences, and SHIKHIYEV, I. A., Doctor of Chemical Sciences, Chair of Petroleum Synthesis, Institute of Petroleum and Chemistry imeni M. Azizbekov, and Laboratory of Psychopharmacology, Moscow Institute of Pharmacology and Chemotherapy

"Synthesis and Psychotropic Properties of 1,1,1-trichloro-4-pentyn-2-ol and Some of its Derivatives"

Baku, Azerbayzhanskiy Meditsinskiy Zhurnal, No 5, May 71, pp 19-23

Abstract: A study was made of the neuropharmacological spectrum of action of compounds I-V (see table). The neuropharmacological properties of the preparations were determined in mice, using the following tests: subcutaneous corazole; subcutaneous strychnine' maximum electric shock (MES); reticulum deposit; potentiating hexenal sleep; acute toxicity. The preparations were intraperitoneally administered to the animals in doses of 0.2 ml per 20 of body weight. The experiments established that all of the preparations with the exception of V have a definite effect on the central nervous system, combining sedative, antispasmodic, myorelaxant, and sleep-inducing properties, with the antispasmodic action particularly effective in spasms induced by

1/2

USSR

KARAYEV, S. F., et al., Azerbayzhanskiy Meditsinskiy Zhurnal, No 5, May 71, pp 19-23

corazole, strychnine, and MES. All of the preparations potentiated hexenal sleep indicating the sleep-inducing and tranquilizing component in the compounds. The toxicity of the compounds varies within a range of 500 to 1,000 mg/kg of body weight.

№	Compounds
I	$CCl_3CHCH_2C\equiv CH$ (OH on the CH)
II	$CCl_3CH\langle^{CH_2C\equiv CH}_{OCOCH_2N(II)}$
III	$CCl_3CH\langle^{CH_2C\equiv CH}_{OCOCH_2N(C_2H_5)_2}$
IV	$CCl_3CH\langle^{CH_2C\equiv CH}_{OCOCH_2N(C_4H_9)_2}$
V	$CH_3(C_3H_7)_2SiCH=CHCH_2C(CH_3)-CH_2$, O O, C, CH_3 C_2H_5

2/2

1/2 012 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--1,4,BENZODIAZEPINES AND THEIR DERIVATIVES. III. SYNTHESIS AND CORRELATION BETWEEN THE STRUCTURE AND PHARMACOLOGICAL ACTIVITY OF

AUTHOR-(05)-BOGATSKIY, A.V., VIKHLYAYEV, YU.I., ANDRONATI, S.A., KLYGUL, T.A., CHUMACHENKO, T.K.

COUNTRY OF INFO--USSR

SOURCE--KHIM.-FARM. ZH. 1970, 4(1), 5-9

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--TRANQUILIZER, ANTICONVULSANT DRUG, MUSCLE RELAXANT, HYPNOSIS, CHEMICAL SYNTHESIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3008/0540 STEP NO--UR/0450/70/004/001/0005/0009

CIRC ACCESSION NO--AP0137629

UNCLASSIFIED

2/2 012 UNCLASSIFIED PROCESSING DATE--04DEC70
CIRC ACCESSION NO--AP0137629
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RESULTS OF PHARMACOL. TESTS WERE GIVEN FOR 14 DERIVS. OF 1,3,DIHYDRO,(2H),1,4,BENZODIAZEPIN,2,ONE SYNTHESIZED EARLIER (ANDRONATI AND BOGATSKII, 1969). DETAILS OF IR SPECTRA WERE ALSO REPORTED. ALL THE COMPDS. COMBINED TRANQUILIZING, ANTICONVULSANT, MUSCLE RELAXING, AND HYPNOTIC ACTIVITIES; SOME OF THEM REVEALED ALSO SEDATIVE ACTIVITY. DISORDERS OF THE MOTOR ACTIVITY WERE OBSD. IN CERTAIN CASES. FACILITY: ODESS. UNIV. IM. MECHNIKOVA, ODESSA, USSR.

UNCLASSIFIED

1/2 008 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--PSYCHOTROPIC 10-2- DIETHYLAMINO
- PROPIONYL-2-TRIFLUOROMETHYLPHENOTHIAZINE HYDROCHLORIDE -U-

AUTHOR-(05)-ZHURAVLEV, S.V., GRITSENKO, A.N., VIKHLYAEV, YU.I., KLYGUL, T.A., ULYANOVA, O.V.

COUNTRY OF INFO--USSR

SOURCE--BRIT. 1,191,800

DATE PUBLISHED--13MAY70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PATENT, TRANQUILIZER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/0073 STEP NO--UK/0000/70/000/000/0000/0000

CIRC ACCESSION NO--AA0127700

UNCLASSIFIED

2/2 008 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AA0127700

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE COMPD. (I), HAVING PSYCHOTROPIC PROPERTIES, WAS PREPD. BY TREATMENT OF 2 TRIFLUOROMETHYLPHENOTHIAZINE WITH CLCH SUB2 CH SUB2 COCL, AND CONVERTING THE RESULTING 10 (BETA CHLOROPROPIONYL) 2 TRIFLUOROMETHYLPHENOTHIAZINE WITH NHET SUB2 INTO I. FACILITY: INSTITUTE OF PHARMACOLOGY AND CHEMOTHERAPY, ACADEMY OF MEDICAL SCIENCES, U.S.S.R.

UNCLASSIFIED

USSR

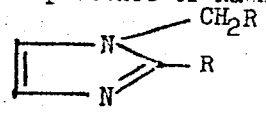
UDC 547.781.1.4:542.944.7

KOCHERGIN, P. M., KLYKOV, M. A., and MIKHAYLOVA, I. S., All-Union Scientific Research Chemico-Pharmaceutical Institute imeni S. Ordzhonikidze, Moscow

"Studies in the Imidazole Series. LXXVI. Catalytic Dechlorination of Chloro Derivatives of Imidazole."

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 6, Jun 72, pp 820-822

Abstract: 5-Chloroimidazole and 1,2-disubstituted 5-chloroimidazoles were subjected to catalytic hydrogenation with Raney Ni to eliminate the Cl atom. By carrying out the reaction at 40-100° and an H_2 pressure of 50-100 atm. in the presence of NaOH in alcohol or of Na alkoxide, compounds



with R = H, Me, Et, Pr, Bu, i-Bu were prepared.

Hydrogenation of 1-benzyl-2-phenyl-5-chloroimidazole under the same conditions at elevated temperatures led to the formation of 2-cyclohexylimidazole; to obtain 1-benzyl-2-phenylimidazole, the reaction had to be carried out at a temperature ≤ 20-25°.

1/1

USSR UDC 621.791.052:539.414

BAKSHI, O. A., Doctor of Technical Sciences; KLYKOV, N. A., Candidate of Technical Sciences, and RESHETOV, A. L., Engineer

"Fatigue Strength of Welded Joints With Soft Interlayer in Bending With Twisting"

Moscow, Svarochnoye Proizvodstvo, No 1(471), Jan 74, pp 1-3

Abstract: A study was made of the effect of the relative thickness (k) of a soft interlayer, determinable as the ratio of interlayer thickness to the thickness of the specimen, on the fatigue strength of 250 x 18 x 18 mm specimens of brand 35 steel in a plane state of stress in bending with twisting. The hardness of the base metal and of the interlayer metal were found to be independent of k. In the plane state of stress, the fatigue strength of specimens with a soft interlayer increases with decreasing k; on twisting, it is independent of the interlayer thickness. At given relative interlayer thickness, with increasing ratio $\gamma = \tau_{yx}/\sigma_x$, where τ_{yx} and σ_x are the tangential and normal stresses acting in the cross section of the specimen, a decrease of limiting normal stresses σ_x is observed. The character of the fatigue failure of specimens with an interlayer depends

1/2

USSR

BAKSHI, O. A., et al., Svarochnoye Proizvodstvo, No 1(471), Jan 74, pp 1-3

on the dimension of the latter. At k changing from 0.13 to 0.17 and $\delta > 0$, an egress of the fatigue crack into the base metal is observed. At $k \geqslant 0.6$, the fatigue crack is always located in the metal of the soft interlayer. Four figures, three tables, six bibliographic references.

2/2

USSR UDC 621.791.754.011:546.821

KLYKOV, N. A., RESHETOV, A. L., Chelyabinsk Polytechnic Institute, RUSSO, V. L., ZELENII, V. A., Leningrad

"Stress-Concentration Sensitivity of Seam-Zone Metal and Welded Seams of Titanium Alloys"

Kiev, Avtomaticheskaya Svarka, No 11, Nov 72, pp 30-32.

Abstract: The notch sensitivity of the welded joints in titanium alloys was studied using VT5 and OT4-1 alloys. The fatigue resistance of the metal in the seam, near-seam zone and base metal differs. Both flat and cylindrical specimens were studied with a test base of $5 \cdot 10^6$ cycles. It was found that the thermal cycle of welding influences fatigue strength and sensitivity to stress concentration of the metal of the seam and near-seam zone of titanium alloys. As the sensitivity to stress concentration increases, the fatigue limit of smooth specimens decreases.

1/1

USSR

UDC 612.791.014.482

OSANOV, D. P., YERSHOV, E. B., KLYKOV, O. V., and RAKOVA, V. A.

"Kinetics of Dose Distribution in Skin Contaminated by Radioactive Substances"

Moscow, Meditsinskaya Radiologiya, No 5, 1971, pp 44-50

Abstract: Solutions of tritium oxide, Sr^{89}, Pu^{239} nitrates, and other radioactive substances were applied to the backs of 8-week-old pigs (whose skin is morphologically and physiologically almost identical to human skin) in order to study the kinetics of penetration of the absorbed doses. The distribution of activity was investigated by the method of layer-by-layer radiometry of horizontal sections 15 to 20 μm thick. The substances remained on the skin from 1 hour to 2 days. Data were also obtained on the kinetics of elimination of the isotopes from the skin after a single 6-hour exposure. A correlation was observed between the absorbed doses in the basal layer that were formed by the thin surface contamination and the thick-layer source created in the skin by penetration of the isotopes through the horny layer.

1/1

Devices

USSR

UDC 621.397.7

BAKHTOB, I. S., KLYKOV, S. I., BOGORODSKIY, G. N., MINEYEV, V. V. [Tsentr. n.-i. in-t svyazi--Central Scientific-Research Institute of Communications]

"Device for Shaping of Video Signal for Facsimile Apparatus"

USSR Author's Certificate No 253123, Filed 31 May 68, Published 23 Jan 70 (from RZh--Elektrosvyaz', No 9, Sep 70, Abstract No 9.64.229P)

Translation: A device is proposed which differs from those known by the fact that the output of the video signal at the transmitting end is connected through a white level stabilizer to series-connected units for shaping the pulse height and to two duration shapers connected through an inverting amplifier. At the receiving end, the output of a low-frequency filter is connected through a trigger with a single-threshold circuit and an inverting amplifier to identical series-connected duration shapers, which are separated by the inverting amplifier. The device proposed makes it possible to increase the freedom from noise of the transmitted facsimile signals with simultaneous correction of the aperture distortions. One illustration. G. M.

1/1

USSR UDC 620.17:669.14.018.44:621.78.061

KLYKOVA, R. S., MUROVANNAYA, S. G., and MARMER, E. N., All-Union Scientific Research Institute of Electric Heating Equipment

"Properties of Heat-Resistant Steels After Vacuum Heat Treatment"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 1, Jan 73, pp 62-65

Abstract: The effect of vacuum heat treatment on 2Kh13, 1Kh11MF and EI893 heat-resisting alloys was investigated with the alloys heated at different temperatures for different time intervals and at pressures of 10^{-2} and 10^{-3} mm Hg. After heat treatment the samples were checked for change of purity class, presence of an oxide film, microstructure, and depth of defective layer. Mechanical properties were also determined. Some samples were heat-treated in argon and nitrogen. It was found that vacuum heating at the mentioned pressures does not change the microrelief of the surface and provides the required surface finish (class 7). Heating and cooling at a high temperature provides a bright surface. After heating and hardening, the depth of the surface layer depleted by alloying elements is less than or equal to 50-60 microns. Heating at a pressure of 10^{-3} mm Hg in modes of tempering and aging does not cause additional change in the surface condition and the formation of a depleted layer. The study of mechanical

USSR

KLYKOVA, R. S., et al., Metallovedeniye i Termicheskaya Obrabotka Metallov, No 1, Jan 73, pp 62-65

properties of vacuum heat-treated samples showed that vacuum treatment, ensuring degassing of the alloys, does not lower strength and increases their ductility. 4 figures, 3 tables, 2 bibliographic references.

2/2

USSR UDC: 532

DUTCHAK, Ya. Y., KLYM, M. M., FRENCHKO, V. S.

"Short-Range X-Ray Study in Bi-Pb-Sn Eutectic in the Liquid State"

Visnyk L'viv. un-tu. Ser. Fiz. (L'vov University Herald. Physics Series), 1971, vyp. 6(14), pp 57-59, 109 (from RZh-Fizika, No 6, Jun 72, Abstract No 6Ye143)

Translation: The paper presents the results of an x-ray study of a eutectic comprised of 41.9 at.% Bi + 21.1 at.% Pb + 37% Sn in the liquid state. Analysis of radial distribution curves shows quasi-eutectic distribution of atoms in this alloy in the complete melting region. It is found that when the temperature is raised to 433°K, the structure of the melt is described by statistical distribution of atoms. Authors' abstract.

1/1

USSR UDC 53.07/.08+53.001.5

KLYNIN, V. A.

"A General-Purpose DC Measurement Amplifier"

Tr. Soyuzn. NII priborostr. (Works of the Union Scientific Research Institute of Instrument Building), 1971, vyp. 16, pp 9-14 (from RZh-Fizika, No 4, Apr 72, Abstract No 4A579)

Translation: The paper describes a general-purpose DC measurement amplifier based on a modulation-demodulation circuit. The use of two modulators based on type 1KT011 integral interruptors with mutual compensation of surges in the input section of the DC amplifier gave the following parameters: maximum sensitivity 10^{-9} A; input zero drift $2 \cdot 10^{-10}$ in five hours; passband 500 Hz; nonlinearity of the output characteristic in the output voltage range from 0 to ±10 v under a load of 2kΩ and a current gain of 1 000 is no more than 0.05% of the scale. The principle of operation is described as well as the results of an experimental check and examples of using the amplifier. Resumé.

1/1

USSR

UDC: 669.018.26

KISHKIN, S. T., Academician, KLYPIN, A. A.

"Effects of Electric and Magnetic Action on Creep in Metals and Alloys"

Moscow, Doklady Akademii Nauk SSSR, Vol 211, No 2, 1973, pp 325-327

Abstract: The authors discuss the results of research showing that electric and magnetic fields and also electric current actively influence the dislocation process of plastic deformation of both magnetic and nonmagnetic materials, indicating a universal law of interaction between external fields and the electromagnetic field of a crystal lattice in the region of plastic deformation. Experimental results show that creep is affected by magnetic fields of about 50 gausses, electric fields of less than 10 V/mm, and a current density through the specimen of 0.15 A/mm^2. A table is given summarizing the creep rate for several metals and alloys before and after application of these three factors. Analysis of creep curves showed that plastic deformation is increased by magnetic and electric effects in the initial period and that the rate of uniform deformation increases as well. In many instances the time to fracture is shortened by these effects.

1/1

USSR UDC 620.171.2

KLYPIN, A. A., Moscow, Moscow Aviation Institute imeni Sergo Ordzhonikidze

"On the Creep of Metals Under the Action of Electric Current"

Kiev, Problemy Prochnosti, No 9, Sep 73, pp 35-39

Abstract: An experimentsl investigation was made of the influence of a low density current conducted through the samples during their creeping. The investigated sample was externally heated on an installation consisting of a loading device, mounted on the base of the MP-3 creep-testing machine, a tubular heater connected with the power transformer, a device for maintening a constant temperature, and a deformation measuring system. The influence of the current intensity of acting voltages and of recurrent connections of electric current on the acceleration of the creep of different metals and alloys (Cu, Ni, Co, Ti, Duralumin, some steel brands) is discussed by reference to diagrams and tabulated data. On the basis of experimental data of the influence of electric and magnetic fields on creep, the hypothesis is made on a unique mechanism of influence of electromagnetic nature on the interaction of dislocation with the crystalline structure. Seven figures, two tables, nine bibliographic references.

1/1

USSR UDC 621.789

KLYPIN, A. A., Moscow Order of Lenin Aviation Institute imeni Sergo Ordzhonikidze

"Effect of Magnetic and Electric Fields on Creep"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 8, Aug 73, pp 2-6

Abstract: The strength and ductility of steels and alloys and cobalt, nickel, copper, and luminum in a magnetic field at different test temperatures was investigated using an IM-4R test machine with an attachment consisting of an electromagnet in which the sample can be placed so that the magnetic flux can be directed along or across the sample. Both nickel and cobalt undergo creep upon turning on the magnetic field and contraction when the field is turned off. For copper there is no cnntraction when the field is turned off. Also, at 800°C and 6 kgf/mm^2 stress, with cobalt under a magnetic field of 10 and 75 oersted, the creep is 0.5 and 1.5%/hr, respectively, while without the magnetic field the creep rate is only 0.2%/hr. There was a substantial difference in the behavior of the studied materials with change in test temperature: Co from 500 to 900°C, carbon steel 300-600°C, nickel 350-800°C, alloy KhN77TYu and steel Kh18N9T 700-900°C, copper 20-800°C, and aluminum 1/2

USSR

KLYPIN, A. A., Metallovedeniye i Termicheskaya Obrabotka Metallov, No 8, Aug 73, pp 2-6

20-300°C. Creep rate increased in all cases upon switching on the magnetic field. It was concluded that the interaction of external magnetic and electric fields with the electromagnetic field of the crystal lattice in the process of plastic deformation causes, in general, appearance of deformation discontinuities by the pulsing excitation of conductivity electrons, acceleration of plastic deformation in the region of superconductivity, the presence of a magnetoplastic effect in nickel, development of a photoplastic in semiconductors, and acceleration of relaxation from gamma-radiation. Six figures, one table, seven bibliographic references.

2/2

USSR

UDC: 539.4

NOVIK, F. S., KLYPIN, A. A., Moscow Polytechnic Institute, Moscow Aviation Institute

"Concerning Correlations Between the Properties of Some Heat-Resistant Alloys"

Kiev, Problemy Prochnosti, No 9, Sep 72, pp 84-89

Abstract: Relations are found between the properties of various groups of heat-resistant alloys at room temperature and at elevated temperatures, and the results are generalized to show correlations between short-term and long--term strength. The initial data for the correlation analysis were taken from reference materials on three separate groups of alloys: eleven deformable nickel alloys, nine cast alloys, and eight grades of high-temperature steel. The mechanical properties of the alloys were compared at temperatures of 20, 700 and 800°C using the Minsk-22 computer. A linear correlation was found between the properties of the alloys, and particularly between short--term and long-term strength (up to 1000 hours) at room temperature and at elevated temperatures. A scheme is given for predicting hard-to-determine properties from the tensile properties of the materials determined at room temperature. Some linear regression equations are proposed for determining

USSR

NOVIK, F. S., KLYPIN, A. A., Problemy Prochnosti, No 9, Sep 72, pp 84-89

long-term strength from data on short-term strength with a given reliable probability. An analysis of relations between especially long-term strength and short-term strength for certain of the alloys showed no linear correlation between these characteristics.

2/2

USSR

UDC 669.245'26:539.43

FROLOV YU. P., KLYPIN A. A.

"Some Methods of Hardening Heat-Resistant Alloys based on Ni and Cr"

Tp. Mo k. aviats. in-ta (Works of Moscow Aviation Institute), 1971, vyp 228, pp 25-42 (from RZh-Metallurgiya, No 4, Apr 72, Abstract 4I732)

Translation: Thermomechanical treatment including post-deformation annealing preceding aging increases the level of high-temperature strength of EI437A alloy. By segregating the carbides along the grain boundaries it is possible to increase the high-temperature strength. The best properties are obtained for a combination of both types of treatment. The possibility of hardening a number of Ni-Cr alloys by preliminary jacketing at an increased stress level and working temperatures is demonstrated. The optimal stress level of the preliminary jacketing was found for certain materials. 11 illustrations and a 17-entry bibliography.

1/1

USSR

UDC 669.018.44:669.018.2

KLYPIN, A. A., NOVIK, F. S., and NORISOVA, YE. S.

"Study of Correlations Between Mechanical Properties of Some Alloys"

V sb. Povysh. konstruktivn. prochnosti staley i splavov (Increasing the Structureal Strength of Steels and Alloys - Collection of Works), No 1, Moscow, 1970, pp 91-94 (from RZh-Metallurgiya, No 3, Mar 71, Abstract No 3I906 by A. Gruzdov)

Translation: A "Minsk-22" computer was used for correlation analysis of the mechanical properties (σ_B, σ_T, σ_W, σ_{creep}, E, δ, ψ, a_H, HB, σ_{rupt}) of heat-resisting steels and Ni-deformable and casting alloys. The presence of absence of a linear correlation was judged from pair-correlation coefficient values and signs. Correlations are found between most of the indicated properties, including between short-term strength at 20° C and rupture strength at high temperatures. The most important consequence of the presence of a correlation is the possiblity of predicting most properties from a certain number of characteristics which are the simplest to determine. Two illustrations. Bibliography with four titles.

1/1

1/2 021 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--EFFECT OF NOTCHES AND TRANSIENT OVERLOADS ON THE LONG TERM STRENGTH -U-

AUTHOR-(02)-KLYPIN, A.A., FROLOV, YU.P.

COUNTRY OF INFO--USSR

SOURCE--PROBLEMY PROCHNOSTI, VOL. 2, APR. 1970, P. 89-91

DATE PUBLISHED----APR70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--HIGH STRENGTH STEEL, STEEL HEAT TREATMENT/(U)KH18N9T STEEL, (U)KH77TLU STEEL, (U)EL481 STEEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/0114 STEP NO--UR/3663/70/002/000/0089/0091

CIRC ACCESSION NO--AP0123886

UNCLASSIFIED

2/2 021 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0123886

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STUDY OF THE EFFECT OF TRANSIETN OVERLOADS ON THE LONG TERM STRENGTH OF STEELS KH18A9T, KH77TLU, AND EL-481 USING NOTCHED AND SMOOTH SAMPLES. SPECIAL ATTENTION IS GIVEN TO THE EFFECT OF HEAT TREATMENT ON THE SENSITIVITY TO NOTCHES AT HIGH TEMPERATURES. FACILITY: MOSKOVSKII AVIATSIONNYI INSTITUT, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 620.17:669.27'71'295'296

KLYPIN, B. A., MANEGIN, Yu. V., MARKIN, V. G., and FEDOROV, Yu. K., Central Scientific Research Institute of Ferrous Metallurgy imeni I. P. Bardin

"Technological and Mechanical Properties of Some Tungsten Alloys"

Moscow, Metallovedeniye, No 6, 1971, pp 44-47

Abstract: Mechanical and technological properties of tungsten alloys containing W-0.5% Ti, W-10% Mo-0.5% Ti, and W-0.5% Ti-0.1% Zr, vacuum smelted in an arc furnace with consumable electrode, were investigated on pressed, forged, and rolled bars. Highest quality bars were obtained by use of dies covered with Al_2O_3 and by a drawing rate of not less than 4. Introduction of 10% Mo into the alloy W-0.5% Ti at temperatures up to 2000°C increases its strength and improves its macrostructure and the quality of the ingot. Introduction of 0.1% Zr into the alloy W-0.5% Ti sharply increases the recrystallization temperature and the hardness of the alloy at 1500-1700° C which hinders its deformation. Effects of drawing (1600-1640° C) on the specific pressure and of the temperature on mechanical properties and the dependence of hardness on the annealing temperature are shown. Four figures, six bibliographic references.

1/1

USSR UDC:669.27.28.017

KLYPIN, B. A., and KORGUNOVA, N. N.

"Temperature Dependence of Mechanical Properties of Certain Alloys of Molybdenum and Tungsten"

Spetsial'nyye Stali i Splavy [Special Steels and Alloys--Collection of Works], No 77, Metallurgiya Press, 1970, pp 67-71

Translation: Temperature dependences of the mechanical properties of a number of alloys based on molybdenum and tungsten are constructed in the 20-2500°C interval by tests in extension at high deformation rates. The differing nature of the dependence in the three intervals of homologous temperatures (low temperature, intermediate and high temperature) is demonstrated, and the influence of alloying on these dependences is analyzed. For alloys hardened by alloying with a solid solution, the temperature dependences of the properties are similar and differ only in the level of the properties. For alloys with increased carbon content, these dependences have certain peculiarities. The relationship of the high temperature break on the curve log $\sigma_{0.2}$-t and the recrystallization temperature of the alloy is demonstrated. 2 figures; 2 tables; 8 biblio. refs.

1/1

USSR

UDC 669.27.28.017

MORGUNOVA, N. N., KLYPIN, B. A., and LASTOCHKIN, R. R.

"Influence of Carbon on the Ductility of Molybdenum"

Spetsial'nyye Stali i Splavy [Special Steels and Alloys--Collection of Works], No 77, Metallurgiya Press, 1970, pp 63-67

Translation: The influence of 0.02-0.29% C on the transition temperature from the plastic state to the brittle state is studied in bars of deformed and recrystallized molybdenum. As the carbon content is increased, the transition temperature of the deformed molybdenum remains practically unchanged, while the transition temperature of recrystallized molybdenum increases. The relationship is demonstrated between a change in transition temperature and the microstructure of the molybdenum. In deformed molybdenum with various carbon contents, the carbides produced are of identical size and distributed evenly, and in recrystallized molybdenum the carbides become larger with increasing carbon content and form a network on the grain boundaries. 3 figures; 1 table.

1/2 007 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--EFFECT OF PRESERVATION ON STEROID ALKALOIDS IN NIGHTSHADE RAW MATERIAL -U-

AUTHOR-(02)-MOISEYEV, R.K., KLYSHEV, L.K.

COUNTRY OF INFO--USSR

SOURCE--VESTN. AKAD. NAUK KAZ SSR 1970, 26(1), 55-7

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ALKALOID, PROCESSED PLANT PRODUCT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/0410 STEP NO--UR/0031/70/026/001/0055/0057

CIRC ACCESSION NO--AP0122590

UNCLASSIFIED

2/2 007 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0122590

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. NIGHT SHADE (SOLANUM LACINIATUM (AVICULARE)) LEAVES OF THE SAME AGE WERE DRIED AT 110-15DEGREES FOR 10-15 MIN AND STORED UNDER MENDELYEEV'S CEMENT (PLASTIC SEALING COMPD. PREPD. BY FUSING WAX, PARAFFIN, COLOPHONY, AND POWDERED FE SUB2 O SUB3) OR IN THE PRESENCE OF H SUB2 SO SUB4 (PH 3.5-4.0) OR NA SUB2 S SUB2 O SUB5. LEVELS OF SOLASODINE, SOLAMARGINE, AND TOTAL ALKALOIDS WERE DETD. IN THE LEAVES AFTER 4 OR 9 MONTHS AND FOUND TO BE NO DIFFERENT FROM THE INITIAL VALUES.

UNCLASSIFIED

USSR

UDC 621.373.826:621.317.1

ARSEN'YEV, V. V., DNEPROVSKIY, V. S., KLYSHKO, D. N., and KHATTATOV, V. U.

"Semiconductor Correlators for Micromicrosecond Light Pulses"

V sb. Nelineyn. protsessy v optike (Nonlinear Processes in Optics — collection of works), Novosibirsk, 1972, vyp.2, pp 291-301 (from RZh-Radiotekhnika, No 11, Nov 72, Abstract No 11 A271)

Translation: The authors present the results of studying the parameters of the thermosecond pulses of laser radiation using semiconductor correlators of light. The use of 2-photon absorbing semiconductors makes it possible to measure the moments of emission (Sn) and evaluate pulse duration and the intensity of radiation. The measurements were carried out both with repsect to the direct absorption of radiation by the semiconductor and with respect to the fall in brightness of 2-photon luminescence tracks in the specimens. A.K.

1/1

USSR UDC 621.375.82

ARSEN'YEV, V. V., DNEPROVSKIY, V. S., KLYSHKO, D. N., KHATTATOV, V. U.

"Semiconducting Correlators for Picosecond Light Pulses"

V sb. Nelineyn. protsessy v optike (Nonlinear Processes in Optics -- collection of works), vyp. 2, Novosibirsk, 1972, pp 291-301 (from RZh-Fizika, No 12, Dec 72, Abstract No 12D994)

Translation: The possibilities of using semiconductors to measure the parameters of picosecond pulses of laser radiation in particular, their intensity and duration are discussed. The parameters of the Nd-glass laser radiation pulses were measured experimentally in the synchronization mode with respect to two-photon absorption in single $CdS_{0.6}CdSe_{0.4}$ crystals. The measurement errors were evaluated. The advantages of using semiconductors to measure the pulse durations were noted. The bibliography has 14 entries.

1/1

USSR

UDC: 621.378.325

ARSEN'YEV, V. V., DNEPROVSKIY, V. S., and KLYSHKO, D. N.

"Controlling the Duration of a Laser Pulse by Nonlinear Absorption in Semiconductors"

Moscow, Kvantovaya elektronika, No 7, 1972, pp 33-37

Abstract: Results are given of an experimental inquiry into the characteristics of ruby and neodymium lasers with double-photon absorbing elements, semiconductor CdS plates for the ruby and CdSe for the neodymium. A schematic of the experimental equipment is shown. The diameter and length of the ruby rod were 12 and 120 mm respectively and the dimensions for the neodymium rod were 10 and 120 mm. Two IFP-2000 lamps were used for pumping and, along with the active element, were water-cooled. The duration of the pulse was measured by the FEU-22 photomultiplier, matched to the S1-11 oscilloscope, and the radiation energy was controlled by a thermocouple calorimeter. Curves are plotted for the pulse duration of both types of laser as a function of the pumping energy. For a theoretical investigation of laser oscillation characteristics, the authors analyze a system of balanced equations describing the behavior of the inverse population density and the photon

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R001401410005-5"

USSR

UDC: 621.378.325

ARSEN'YEV, V. V., et al, Kvantovaya elektronika, No 7, 1972, pp 33-37

current density in the resonator. They conclude that lasers with smoothly adjustable pulse durations, attained through the use of nonlinear absorbing semiconductors, may be widely used because of the simplicity of their technical realization. Their gratitude to L. A. Sysoyev for preparing the semiconductor specimens, R. V. Khokhlov for explaining the experimental results, and to V. A. Aleshkevich for assisting with the work, is expressed.

2/2

USSR

UDC: 681.142.5

ARSEN'YEV, V. V., DNEPROVSKIY, V. S., KLYSHKO, D. N., and KHATTATOV, V. U.

"A Simple Semiconductor Correlator for Picosecond Light Pulses"

Moscow, Kvantovaya elektronika, No 7, 1972, pp 82-84

Abstract: This brief communication reports the application of two-photon absorbing semiconductors for measuring second radiation moments of ultrashort light pulses of approximately 10^{-12} seconds duration. The moments are designated $\langle S_0^2 \rangle$, where S_0 is the intensity of the incident light on the semiconductor, with the angle brackets indicating averaging over time as well as statistical averaging. The schematic for such a semiconductor correlator, involving a laser, three calorimeters, the semiconductor crystal $CdS_{0.6}CdSe_{0.4}$, is shown. In this schematic, the laser being measured is neodymium, but the same arrangement can be used for measuring a ruby device with a CdS crystal used as the semiconductor. The authors thank R. V. Khokhlov for his explanation of the results and V. S. Fokin for his assistance in conducting the experiments.

1/1

USSR

KLYSHKO, D. N., NAZAROVA, N. I., and KHOKHLOV, R. V.

"Parametric Light Scattering in the Field of an Ultrasonic Wave"

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, vol. 61, No. 4(10), October 1971, pp 1422-1426

Abstract: This article considers another possible method for compensating the dispersion of light in cubic crystals without inversion centers by using auxiliary ultrasonic pumping of a particular frequency and wave vector satisfying the condition of quadruple wave synchronism. Besides the pumping wave, the other three waves are those involved in the reaction $\omega_3 \rightarrow \omega_1 + \omega_2$, where ω_3 is the frequency of the incident light on a crystal, and ω_2 and ω_1 are the frequencies of the scattered waves. Experiments involving these waves provide useful information concerning the characteristics of crystals asymmetrical with respect to their center, particularly the dispersion of the refractive indices in the infrared region of the spectrum. From their computations, the authors conclude that it is possible to observe parametric light scattering in cubic piezoelectric crystals through the use of the auxiliary ultrasonic pumping. They are connected with the M. V. Lomonosov Moscow State University.
1/1

USSR

KLYSHKO, D. N., et al (Moscow State University)

"Nonlinear Absorption of Picosecond Light Pulses in Semiconductors"

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki; January, 1971; pp 114-6

Abstract: Nonlinear absorption of the radiation from a mode-locked neodymium laser (λ1.06 or λ0.53 μ) in transparent (CdS_xCdSe_{1-x}, CdS and ZnS) semiconductors is observed. The indication was based on luminescence of the crystals induced by two- or three-photon excitation of the carriers. The high peak intensity of the radiation S_0 leads to appreciable nonlinear absorption accompanied by a characteristic drop of luminance I(z) of the luminescence track along the direction of propagation of the beam. By comparing the experimental and theoretical variation of I(z) for two (ZnS) and three-photon (CdS) absorption, one can determine the moments $\langle [E]^{2n} \rangle$ of the radiation and evaluate the pulse duration and intensity of the radiation.

1/1

Acc. Nr: AP0043684 Ref. Code: UR 0056

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, 1970, Vol 58, Nr 3, pp 878-886

SCATTERING OF LIGHT BY LIGHT IN A NONCENTRALLY SYMMETRICAL MEDIUM

D. N. Klyshko, N. I. Nazarova

The main characteristics (intensity, dependence of frequency on scattering angle, line shape) of the radiation scattered by a transparent crystal not possessing a symmetry center are calculated. Scattering due to the quadratic and cubic terms in the macroscopic polarizability expansion in amplitude of the incident light (which is assumed to be monochromatic) is considered. It is shown that as a rule the efficiency of two consecutive three-photon processes is greater than the efficiency of a four-photon process. The effect of the finite cross section of the incident light beam is taken into account.

1/1

REEL/FRAME 19770088

21

1/2 033 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--PARAMETRIC LUMINESCENCE AND LIGHT SCATTERING ON POLARITONS -U-

AUTHOR-(03)-KLYSHKO, D.N., PENIN, A.N., POLKOVNIKOV, B.F.

COUNTRY OF INFO--USSR

SOURCE--PIS'MA. ZH. EKSP. TEOR. FIZ. 1970, 11(1) 11-14

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--LIGHT SCATTERING, CRYSTAL LUMINESCENCE, NIOBATE, LITHIUM COMPOUND, CRYSTAL POLARIZATION, ARGON LASER, SPECTROSCOPY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1983/1790 STEP NO--UR/0386/70/011/001/0011/0014

CIRC ACCESSION NO--AP0054627

UNCLASSIFIED

2/2 033 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0054627

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN OBSERVATION OF THE SCATTERING IN A WIDE FREQUENCY INTERVAL ENABLES MEASURING THE DISPERSION OF NONLINEAR AND LINEAR POLARIZABILITIES OF THE SUBSTANCE AND PROVES TO BE A SUITABLE METHOD OF NONLINEAR SPECTROSCOPY. BY USING A LI NIOBATE CRYSTAL, THE SCATTERING WAS OBSD. IN A TRANSITION REGION WHERE IT WAS CAUSED BOTH BY THE ELECTRON AND LATTICE NONLINEARITIES. THE FREQUENCY DEPENDENCE OF SCATTERED LIGHT ON THE OBSERVATION DIRECTION IS A CHARACTERISTIC SIGN OF THE COHERENT INELASTIC SCATTERING. A FREQUENCY ANGLE SPECTRUM WAS OBTAINED ON PLACING THE SPECTROGRAPH SLIT (PARALLEL TO THE CRYSTAL AXIS) INTO THE LENS FOCUS; THE CXCITING BEAM OF AN AR LASER WAS PERPENDICULAR TO THE CRYSTAL AXIS AND HAD EXTRAORDINARY POLARIZATION WHILE THE SCATTERED LIGHT AND POLARITIONS HAD ORDINARY ONES. THE MOST IMPORTNAT FEATURE OF THE SPECTRUM DIAGRAM WAS A BRIGHTNESS GAP OF THE SCATTERED RADIATION AT AN IDLE FREQUENCY (THE DIFFERENCE BETWEEN THE FREQUENCIES OF INCIDENT AND OBSD. LIGHTS) OF SIMILAR TO 1500 CM PRIME NEGATIVI; IT WAS CAUSED BY MUTUAL COMPENSATION OF THE ELECTRON AND LATTICE NONLINEARITIES ON THIS FREQUENCY. THE EXPTS. INDICATED THAT THE ABSORPTION ON THE IDLE FREQUENCY DID NOT AFFECT IMMEDIATELY THE POWER OF SCATTERED LIGHT OP-D OMEGA. THE EFFECT OF RAMAN SCATTERING ON SMALL ANGLES MAKES IT EASY TO DET. THE LONGITUDINAL OR TRANSVERSE TYPES OF POLARIZATION OF THE LATTICE VIBRATIONS.

UNCLASSIFIED

USSR

UDC 681.2.087.92

BABAYEV, R.M., TIKHONOV, V.I., KLYSTOVSKAYA, M.D., DMITRIYEVA, L.Ye.

"A Semiconductor Hall emf Pickup"

USSR Author's Certificate No 241546, Filed 9 Mar 67, Published 3 Mar 70 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 11, Nov 70, Abstract No 11A109P)

Translation: This Author's Certificate introduces a semiconductor Hall emf pickup. To improve the temperature stability of its basic characteristics -- for instance, the voltage transmission coefficient -- the pickup is based on a solid solution of $In_{1-x}Ga_xAs$, where x = 0.15-0.20. V.M.

1/1

Acc. Nr: AP0044023 K Ref. Code: UR 0240

PRIMARY SOURCE: Gigiyena i Sanitariya, 1970, Nr 2, pp 52-56

EXPERIMENTAL STUDY OF SHORT-LIVING DAUGHTER PRODUCTS OF RADON IN THE RESPIRATORY TRACT

V. N. Kirichenko, Dzh. G. Khachirov, S. A. Dubrovin, Klyuch, V. Ye.; Bykhovskiy, A. V.

One should know the nature of the isotopes distribution in order to asses the dosage load on basal cells of the bronchial epithelium in different lengths of the respiratory tract following inhalation of radon and of its daughter products. Experimental investigations carried out with the aid of a specially elaborated method of direct alpha-spectrometry of the preparations helped to clear up the nature of the radon daughter products distribution in the mucosa of bronchial epithelium of dogs and rabbits. These data enable dosage loads on the basal cells of the bronchial epithelium to be measured more exactly when the air containing RaA, RaB, RaC and RaC' isotopes is inhaled by experimental animals.

1//

2 4th

REEL/FRAME
19770460

USSR

UDC 547.241

GRISHINA, O. N., KOSOVA, L. M., and KLYUCHANSKAYA, S. M., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Acad. of Sci. USSR

"Alkylthionophosphine Sulfides. Part XII. Reactions of Alkylthionophosphine Sulfides With Organomagnesium Compounds"

Leningrad, Zhurnal Obshchey Khimii, Sep 71, Vol 41, No 9, pp 1995-1999

Abstract: The principal reaction products of alkylthionophosphine sulfides with organomagnesium compounds are dialkyldithiophosphinic acids. The reaction in addition the principal product also yields mercaptans, trialkylphosphine sulfides and oxygen-containing phosphorus acids. The yield of these byproducts is 40-60%. The reaction losses are considerable (20-30%) and are assumed to be due to the oxygen-containing phosphorus acids which are lost during the hydrolysis of the complex. The formation of trialkylphosphine sulfide is related to the mobility of zinc sulfur in the sulfide which, as shown in an earlier study, splits from phosphorus to form a new sulfur-containing compound, in this case, possibly a mercaptan. Distillation of dialkyldithiophosphinic acids under vacuum, followed by the elimination of hydrogen sulfide, results in the formation of

1/2

USSR

GRISHINA, O. N., et al:, Zhurnal Obshchey Khimii, Sep 71, Vol 41, No 9, pp 1995-1999

thioanhydrides of these acids. Identification of the new compounds was based on elemental analysis, physicochemical constants and IR spectra.

2/2

USSR

UDC 621.382:621.317.799

KLYUCHANTSEV, S.V., KOLESNIKOV, V.G., LITVINOV, V.K., MOISEYEV, I.A., SERGEYEV, N.M., TALOV, I.L.

"Multiprogram System With Time Sharing For Monitoring Of Parameters And Classification Of Semiconductor Devices"

V sb. Novoye v tekhn. poluprovodn. proiz-va (New Semiconductor Production Technology--Collection Of Works), Voronezh, Voronezh University, 1971, pp 96-104 (from RZh:Elektronika i yeye primeneniye, No 4, April 1972, Abstract No 4B538)

Translation: The paper reports on the development of an automatic system for monitoring and classification of transistors and semiconductor diodes. The following enter into the composition of the system: 1) A Type "Elektronika-100" computer with a storage size of 4096 words and a device for input-output of information; 2) A Type UT-1 program-controlled tester with 1 ÷ monitoring stations each. The maximum set [komplekt] of the system can have up to seven UT-1 testers. The mathematical security developed makes it possible to perform multiprogram control by testers (the monitoring stations operate in a time-sharing regime) and with the following monitoring regimes: 1) Simultaneous monitoring of up to seven different types of transistors and semiconductor diodes (the

1/2

USSR

KLYUCHANTSEV, S.V., et al. V sb. Novoye v tekhn. poluprovodn. proiz-va, Voronezh, Voronezh University, 1971, pp 96-104

overall extent of the test program should not exceed 240 tests) and the separation of them into 14 or 32 groups; 2) Automatic monitoring and processing of the results of measurements (quantity and percentage of devices in each group, quantity and percentage of rejected devices), and also the entry of these results into the numerical printing [tsifropechat']. The system can change the quantitative composition of the equipment with the object of accommodation to the requirements of test, series, or mass production. 3 ill. 1 ref. V.P.

2/2

Nuclear Science and Technology

USSR

UDC 620.197.5.539.17

SKAKUN, N. A., KLYUCHAREV, A. P., KHAR'KOV, O. N., ZELENSKIY, V. F., and KULAKOV, V. S.

"Using the Nuclear Reaction O^{18} (p, α)N^{15} to Study Oxidation of Metals"

Moscow, Atomnaya Energiya, Vol 30, No 5, May 71, pp 456-458

Abstract: In recent times data on nuclear reactions have been employed to study the processes taking place in the surface layers during oxidation of metals and alloys. Registering the reaction products of the material irradiated by charged particles makes it possible to determine the amount of the test element without ruining the sample and at the same time localizing it by depth. One of the methods suggested in this article involves registering and analyzing the energy spectrum of alpha-particles from the reaction O^{18} (p, α)N^{15} by bombarding a sample containing the isotope O^{18} with a beam of monoenergetic protons.

The excitation function of the reaction O^{18}(p, α)N^{15} was measured experimentally in the range of proton energies of 500-730 keV. Using the procedures discussed in the article, the authors find the distribution profile of oxygen in oxidized samples of zirconium. They also examine the possibility of making similar investigations using the narrow resonance of the reaction

1/2

USSR

SKAKUN, N. A., et al., Atomnaya Energiya, Vol 30, No 5, May 71, pp 456-458

$O^{18}(p, \alpha)N^{15}$ when E_0 = 629 keV. They also mention the possibility of using this resonance to study the thick surface layers of metals. All the investigations are supported by illustrations in the form of graphs.

The methods employed made it possible to investigate the interaction of oxygen with various solids, especially with the majority of metals and alloys used in the design of reactors.

This article contains 4 figures, 2 equations, and a bibliography of 5 titles.

2/2

UNCLASSIFIED

TITLE--DOUBLE IRON FREE TOROIDAL BETA SPECTROMETER FOR THE INVESTIGATION OF SHORT LIVED ACTIVITIES -U-

PROCESSING DATE--27NOV70

AUTHOR-(05)-RAKIVNENKO, YU.N., ROMANIY, I.A., KLYUCHAREV, A.P., SKAKUN, YE.A., YATSENKO, G.I.

COUNTRY OF INFO--USSR

SOURCE--UKR. FIZ. ZH. (RUSS. ED.) 1970, 15(4), 578-82

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--BETA SPECTROMETER, PARTICLE ACCELERATION, CESIUM ISOTOPE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3008/0588

STEP NO--UR/0185/70/015/004/0578/0582

CIRC ACCESSION NO--AP0137673

UNCLASSIFIED

2/2 012 UNCLASSIFIED

CIRC ACCESSION NO--AP0137673 PROCESSING DATE--27NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A BETA SPECTROMETER IS DESCRIBED FOR USE IN STUDYING SHORT LIVED ACTIVITIES WHICH ARE FORMED FROM THE INTERACTION OF ACCELERATED PARTICLES WITH VARIOUS TARGETS. EACH LENS OF THE SPECTROMETER CONTAINS 100 COILS PREPD. FROM A PROFILED CU TUBE, THE SHAPE OF THEIR OPERATING SEGMENTS BEING DESIGNED SO THAT 2-MEV E CAN BE FOCUSSED. THE APP. CAN MEASURE DOUBLE AND TRIPLE COINCIDENCES. THE TARGET IS CHANGED BY MEANS OF A VACUUM VALVE WITHOUT DESTROYING THE VACUUM IN THE APP. THE APP. WAS TESTED BY USING 10-MM PRIME137 CS SOURCES. FOR THESE SOURCES THE APRAMETERS OF THE APP. WERE DETD. TO BE AS FOLLOWS: TRANSMISSION OF 1 LENS 16PERCENT OF 4 PI, RESOLN. 1.0PERCENT. FACILITY: FIZ.-TEKH. INST., KHARKOV, USSR.

UNCLASSIFIED

USSR

UDC 543.52:546.21

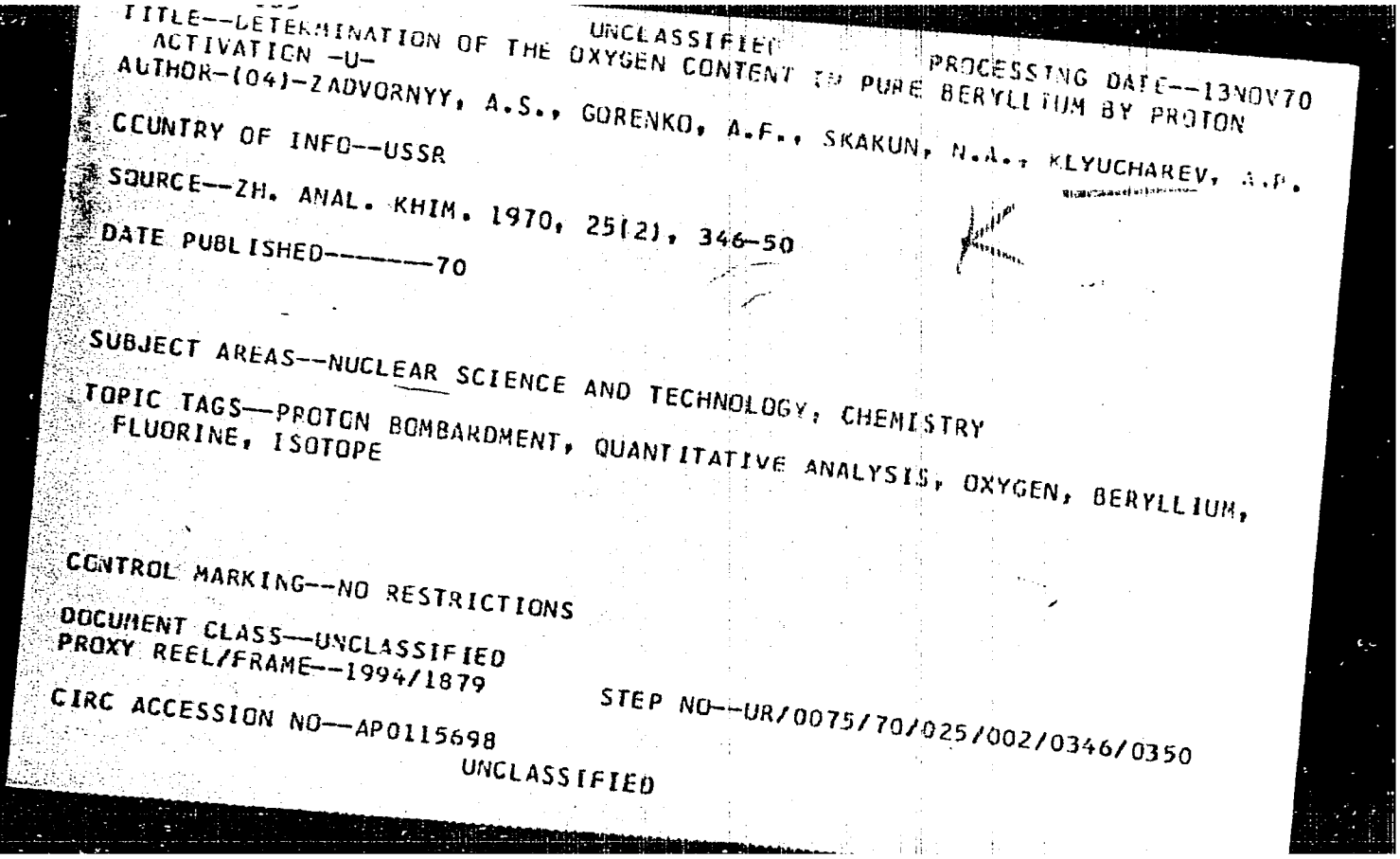
GORENKO, A. F., SKAKUN, N. A., SHEVCHENKO, G. M., ZADVORNYY, A. S., BUGAYEVA, N. I., and KLYUCHAREV, A. P.

"Gamma-Activation Analysis of Carbon in Uranium and Thorium"

Moscow, Atomnaya Energiya, Vol 34, No 1, Jan 73, pp 53-54

Abstract: In determining carbon in fissionable elements and materials on their base, a higher sensitivity than by conventional methods results when the carbon is burned out in the oxygen flux from the samples preliminarily irradiated with gamma-quanta. In this case C^{11}, developing in the $C^{12}(\gamma, n)$ reaction, is selectively extracted from the active matrix and the amount of collected $C^{11}O_2$ is determined from the radioactive decay of the carbon isotope by a sensitive nuclear detector. The process of accumulation and decay of $C^{11}O_2$ molecules, extracted from U, Th, and $(C_{15}H_{12}O_6)_n$ samples, irradiated by bremsstrahlung of gamma-quanta generated on a tungsten converter by a 30-Mev electron bundle, is demonstrated. The activation spectrum in ascarite in determining carbon in uranium carbide is shown. Under the selected activation conditions (electron energy 30 Mev, current 10 μA, irradiation 20 min.), the sensitivity in determining carbon in uranium and thorium is $1.3 \cdot 10^{-7}$ g. Two figures, four bibliographic references.

1/1



UNCLASSIFIED

TITLE--DETERMINATION OF THE OXYGEN CONTENT IN PURE BERYLLIUM BY PROTON ACTIVATION -U-

PROCESSING DATE--13NOV70

AUTHOR-(04)-ZADVORNYY, A.S., GORENKO, A.F., SKAKUN, N.A., KLYUCHAREV, A.P.

COUNTRY OF INFO--USSR

SOURCE--ZH. ANAL. KHIM. 1970, 25(2), 346-50

DATE PUBLISHED-------70

SUBJECT AREAS--NUCLEAR SCIENCE AND TECHNOLOGY, CHEMISTRY

TOPIC TAGS--PROTON BOMBARDMENT, QUANTITATIVE ANALYSIS, OXYGEN, BERYLLIUM, FLUORINE, ISOTOPE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1994/1879

STEP NO--UR/0075/70/025/002/0346/0350

CIRC ACCESSION NO--AP0115698

UNCLASSIFIED

2/2 035 UNCLASSIFIED

CIRC ACCESSION NO--AP0115698 PROCESSING DATE--13NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE REACTION PRIME18 O(P,N)PRIME18 F WAS USED WITH PROTONS OBTAINED FROM A LINEAR ACCELERATOR AND HAVING AN ENERGY OF 9.5 MEV. THE IRRADIATED SAMPLES OF INDUSTRIAL BE AND PRUIFIED BE IN AN AR ATM. WERE ANALYZED BY GAMMA SPECTROMETRY. THE O CONTENT WAS 1.65 AND 0.2PERCENT IN TECH. AND PURE BE, RESP. THE ERROR IS PLUS OR MINUS 12PERCENT, AND THE SENSITIVITY 10 PRIME NEGATIVE2 PERCENT.

UNCLASSIFIED

USSR

UDC 610.017.1:[577.23+575](047)

VOROB'YEV, A. A. and KLYUCHAREV, L. A.

"Molecular-Genetic Aspects of Immunogenesis: a Review of the Literature"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 10, 1972, pp 26-31

Abstract: The formation of specific antibodies responsible for humoral immunity is now generally believed to take place in the following manner. Antigen as a foreign substance is absorbed by macrophages and destroyed by fermentation, giving rising to specific "immune" RNA capable of inducing the differentiation and synthesis of antibodies in various types of plasma cells. Mature plasma cells possess the necessary apparatus for intensive protein synthesis and antibodies are formed by the usual mechanisms. Polypeptide chains of antibodies are synthesized in polysomes on matrices of information RNA whose appearance is induced by preformed antigen. Antibodies then leave the plasma cells and enter the lymph and blood stream where they may specifically bind antigen, thereby performing their protective function. Recent published data relating to the molecular mechanisms of immunogenesis and antigen specificity add new details on the processes by which sensitive cells bind antigen and on the transmission of information and differentiation of somatic cells capable of producing antibodies.

1/1

USSR

UDC 669.187.043.51

KLYUCHAREV, V. YE., URAZGIL'DEYEV, A. KH., AGEYEV, P. YA., and SOBOLEV, YU. V., Leningrad Polytechnica Institute

"Characteristics of the Behavior of Gases in the Crystallization of Ingots of Kh18N9-Type Steel with Titanium"

Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy, Chernaya Metallurgiya, No 3, 1973, pp 43-46

Abstract: An experimental study was made of the change in concentration of hydrogen, nitrogen, and oxygen in the crystallization process of OKh18N10T steel ingots weighing 3.2 and 13.7 tons. The metal was smelted in a 40-ton basic electric arc furnace. The pouring was from above through an intermediate funnel. Samples of the metal were taken with the help of a closed quartz pipette from three levels on the central zone of the ingot during 1-2.5 hrs of crystallization. The behavior of H, N, and O during crystallization is discussed by reference to diagrams characterizing their concentration change. The results of the experiments indicate the possibility of eliminating nitrogen from steel by deoxidizing the metal with titanium. Three figures, two bibliographic references.

1/1

USSR

UDC 546.46'621'831'21

SUVOROV, S. A., KLYUCHAROV, YA. V., and KOZLOVA, O. B.

"Distribution of Magnesium Oxide in Compounds in the System $MgO-Al_2O_3-ZrO_2$"

Moscow, Neorganicheskiye Materialy, Vol 7, No 4, Apr 71, pp 659-664

Abstract: Phase conversions were studied in the trinary system $MgO-Al_2O_3-ZrO_2$ as functions of the chemical activity of the initial components. In order to exclude the influence of an excess of any given component, they were mixed in equal molar ratios. The distribution of magnesium oxide in complex compounds of the composition $MgO: Al_2O_3 : ZrO_2 = 1 : 1 : 1$ was found to depend on the chemical activity of the initial components and to be accompanied by the formation of both magnesial-alumina spinel and solid solutions of MgO in ZrO_2. The greatest quantity of solid solution of magnesium oxide in zirconium dioxide is formed in complex compounds involving magnesium oxide annealed at 1750° 1/2

USSR

SUVOROV, S. A., et al., Neorganicheskiye Materialy, Vol 7, No 4, Apr 71, pp 659-664

C, electrically melted corundum, and nitric acid zirconium. By using components with various chemical activities, it is possible to change the final phase composition of compounds in the $MgO-Al_2O_3-ZrO_2$ systems with identical initial material composition. The course of curves of thermal expansion of these compounds depends directly on the phase composition.

2/2

UDC 546.46'621'831'21

USSR

SUVOROV, S. A., KLYUCHAROV, YA. V., and KOZLOVA, O. B.

"Distribution of Magnesium Oxide in Compounds in the System $MgO-Al_2O_3-ZrO_2$"

Moscow, Neorganicheskiye Materialy, Vol 7, No 4, Apr 71, pp 659-664

Abstract: Phase conversions were studied in the trinary system $MgO-Al_2O_3-ZrO_2$ as functions of the chemical activity of the initial components. In order to exclude the influence of an excess of any given component, they were mixed in equal molar ratios. The distribution of magnesium oxide in complex compounds of the composition $MgO: Al_2O_3 : ZrO_2 = 1 : 1 : 1$ was found to depend on the chemical activity of the initial components and to be accompanied by the formation of both magnesial-alumina spinel and solid solutions of MgO in ZrO_2. The greatest quantity of solid solution of magnesium oxide in zirconium dioxide is formed in complex compounds involving magnesium oxide annealed at 1750°

1/2

USSR

SUVOROV, S. A., et al., Neorganicheskiye Materialy, Vol 7, No 4, Apr 71, pp 659-664

C, electrically melted corundum, and nitric acid zirconium. By using components with various chemical activities, it is possible to change the final phase composition of compounds in the $MgO-Al_2O_3-ZrO_2$ systems with identical initial material composition. The course of curves of thermal expansion of these compounds depends directly on the phase composition.

2/2

Acc. Nr. AP0049977 Abstracting Service: CHEMICAL ABST. 4-70 Ref. Code UR 0131

82460y Effect of a gaseous medium on the interaction of zirconium dioxide with cerium dioxide and properties of the roasted material. Klyucharov, Ya. V.; Strakhov, V. I. (Leningrad. Tekhnol. Inst. im. Lensoveta, Leningrad, USSR). *Ogneupory* 1970, 35(1), 40–6 (Russ). The effect of solid phase reactions between ZrO_2 and Ce_2O_3 on the properties of the products of firing and of slow heating and cooling of the ZrO_2-Ce_2O_3 compns. in the range 20–1300° in an oxidizing medium on changes of their phase compn. was studied. Samples 10 mm diam. and 10–15 mm high of the compns. contg. 70–90% ZrO_2 and 10–30% CeO_2 and contg. 50–100% tetragonal solid ZrO_2 80-CeO_2 20 mole % soln. synthesized at 1750° in an oxidizing medium and 0–50% monoclinic ZrO_2, were molded under pressure 500 kg/cm² with poly(vinyl alc.) as a binder and fired in vacuo (10^{-3}–10^{-4} torr) or in a reducing medium at 1750 and 2000° for 2 and 1 hr, resp. The shrinkage, bulk d. and porosity, and compressive strength of the samples was detd. CeO_2 in the compns. was reduced to Ce_2O_3 which formed solid solns. with ZrO_2, and partly to Ce. An isometric solid soln. with a crystal lattice of the fluorite type was obtained from the compns. contg. 5.55–16.05 mole % Ce_2O_3 and ZrO_2 at 1750–2000°, which after quick cooling to room temp. maintained its structure. After slow cooling the soln. decompd. to the $Ce_2Zr_2O_7$-ZrO_2 solid soln. of the pyrochlore type, monoclinic ZrO_2-Ce_2O_3 solid soln., and Ce. Heating of the ZrO_2-Ce_2O_3 solid solns. in the air led to their oxidn.

W. J. Skorski

1/1

19801915

EB

7

1/2 007 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--VOLUME CHANGES IN A PERICLASE FERRUGINOUS SPINEL SYSTEM -U-

AUTHOR-(03)-KUZNETSOV, YU.D., KLYUCHAROV, YA.V., SUVOROV, S.A.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER. 1970, 6(1), 86-90

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--SPINEL, SOLID SOLUTION, IRON OXIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/0848 STEP NO--UR/0363/70/006/001/0086/0090

CIRC ACCESSION NO--AP0118024

UNCLASSIFIED

2/2 007 UNCLASSIFIED PROCESSING DATE--16OCT70
CIRC ACCESSION NO--AP0118024
ABSTRACT/EXTRACT--(U) GP-0- ABSTRRACT. VOL. CHANGES ARE INSIGNIFICANT IN THER PERICLASE FERRUGINOUS SPINEL SYSTEM ACCOMPANYING THE FORMATION AND DECOMPN. OF SOLID SOLNS. OF A GIVEN SYSTEM WITHOUT CHANGING THE VALENCY STATE OF FE. THE REDN. OF FE OXIDES IN THE GIVEN SYSTEM IS ACCOMPANIED BY A DECREASE IN THE VOL. OF THE PHASES FORMING, WHEREAS OXION. IS ACCOMPAINED BY AN INCREASE IN THE SAME. FACILITY: LENINGRAD. TEKHNOL. INST. IM. LENSOVETA, LENINGRAD, USSR.

UNCLASSIFIED

2/2 021 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--APC132317

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PHASE TRANSFORMATIONS TAKING PLACE DURING THE INTERACTION BETWEEN PERICLASE AND CR SPINEL ARE EXAMD. FOR COMPNS. OF MGO NG (AL SUB1, X,Y CR SUBX FE SUBY) TYPE (X EQUALS 0.16, 0.46, 0.61; Y EQUALS 0.20, 0.22, 0.23). DURING FIRING OF THESE COMPNS. THE DISSOLN. OF INDIVIDUAL COMPONENTS OF THE SPINEL IN THE PERICLASE IS NOT THE SAME: UP TO 1400DEGREES, PREDOMINANT DIFFUSION OF FEO INTO THE PERICLASE IS OBSERVED, WHILE AT HIGHER TEMPS. (1600-1750DEGREES) THE DISSOLN. IN THE PERICLASE OF TRIVALENT CATIONS DEVELOPS SIGNIFICANTLY. IN THE COMPN. OF THE SPINEL, WHICH DISSOLVES IN THE PERICLASE, THE CONTENT OF THE FE OXIDES PRESENT IS HIGHER IN THE CASE OF THE PERICLASE COMPNS. WITH HIGH ALUMINA RATHER THAN HIGH CHROMIUM SPINELS. THE PERICLASE COMPNS. WITH HIGH ALUMINA RATHER THAN HIGH CHROMIUM SPINELS. THE COMPN. OF THE SPINEL PPTG. FROM THE SOLID SOLN. WITH THE PERICLASE AND THE AMT. OF FE OXIDES WHICH REMAIN IN IT ARE DETD. BY THE DECOMPN. RATE OF THE SOLID SOLNS, WHICH, IN TURN, DEPENDS ON THE DEGREE OF SUPERSATN. OF THE LATTER BY THE SPINEL. DURING THE COOLING PROCESS FROM HIGH TEMPS. (1600-1750DEGREES), A MORE COMPLETE DECOMPN. OF THE SPINEL PERICLASE SOLID SOLNS. TAKES PLACE. THE DISTRIBUTION OF THE FE OXIDES BETWEEN THE PERICLASE AND THE SPINEL IS DETD. BY THE COMPN. OF THE LATTER. IN CASE OF HIGH ALUMINA SPINELS, A CONSIDERABLE PORTION OF THE FE OXIDES IS PRESENT IN THE SOLID SOLN. WITH THE PERICLASE, WHERE THEY ARE REPRESENTED PRIMARILY BY THE FEO.

FACILITY: LENINGRAD. TEKHNOL. INST. IM. LENSOVETA, LENINGRAD, USSR.

UNCLASSIFIED

3/Z 007 UNCLASSIFIED PROCESSING DATE--02OCT70

TITLE--A NEW ODYSSEY OF THE "CHERNOMOR" -U-

AUTHOR--KLYUCHEROV, G.

COUNTRY OF INFO--USSR

SOURCE--TRUD, JUNE 27, 1970, P 4, COLS 1-2

DATE PUBLISHED--27JUN70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--OCEANOGKAPHIC RESEARCH FACILITY, UNDERWATER RESEARCH LABORATORY/(U)CHERNOMOR UNDERWATER LABORATORY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1989/1586 STEP NO--UR/9025/70/000/000/0004/0004

CIRC ACCESSION NO--AN0108006

UNCLASSIFIED

2/2 007 UNCLASSIFIED PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AN0108006

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A SUBMERSSIBLE HABITAT, THE SOUTHERN BRANCH OF THE INSTITUTE OF OCEANOLOGY OF THE SOVIET ACADEMY OF SCIENCES, THE "CHERNOMOR", WAS LAUNCHED ON JUNE 26. THE CHERNOMOR'S CABIN IS SEVEN METERS LONG. THE 1970 MODEL IS MORE COMFORTABLE AND HAS A LARGER SUPPLY OF OXYGEN. THE GROUP OF TECHNICAL LOGISTICS OF THE "CHERNOMOR" IS HEADED BY IGOR SUDARKIN. THE LEADING ENGINEER OF ALL SYSTEMS AND ONE OF THE INITIATORS OF THE "CHERNOMOR" I$ PAVEL BOROVIKOV. THE UNDERWATER EXPERIMENTS ARE DIRECTED BY VLADILEN PETROVICH NIKOLAYEV, A CANDIDATE OF TECHNICAL SCIENCES AND HYDROOPTICS EXPERT. ACCORDING TO SASHA ALEKSANDR LOMOV, CHIEF DIVER, THE FIRST TEAM TO GO DOWN WILL BE P. BOROVIKOV, I. SUDARKIN, A. PODOROZHANSKIY, YU. STEFANOV, V. DAVIDOVICH, AND O. POPOV.

UNCLASSIFIED

1/2 023 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--CATABOLITE REPRESSION OF ENZYME SYNTHESIS IN MUTANTS OF ESCHERICHIA COLI WITH A DEFECT IN THE CARBOHYDRATE TRANSPORT SYSTEM -U-

AUTHOR-(04)-GERSHANOVICH, V.N., YUROVITSKAYA, N.V., SAPRYKINA, T.P., KLYLCHEVA, V.V.

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 190(5), 1232-4

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--BACTERIA MUTATION, ESCHERICHIA COLI, CULTURE MEDIUM, ENZYME, CARBOHYDRATE, BIOLOGIC TRANSPORT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1999/0705 STEP NO--UR/0020/70/190/005/1232/1234

CIRC ACCESSION NO--AT0122791

UNCLASSIFIED

2/2 023 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AT0122791

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SYNTHESIS OF BETA GALACTOSIDASE BY E. COLI MUTANT P-34 GROWN IN A MEDIUM CONTG. ME THIOGALACTOSIDE WAS REDUCED TO WE-33PERCENT OF NORMAL BY GLUCOSE. THIS INDICATES THAT GLUCOSE DIRECTLY REPRESSES THE ENZYME OF THE LAC OPERON AND THAT ITS COMPETITIVE BLOCKING OF GALACTOSE TRANSPORT IS A SECONDARY EFFECT, SINCE THE NORMAL GALACTOSE TRANSPORT SYSTEM IS LACKING IN P-34. GLUCOSE SLIGHTLY STIMULATES THE SYNTHESIS OF TRYPTOPHANASE AND SERINE DEAMINASE BY P-34 GROWN IN MEDIA CONTG. TRYPTOPHAN AND SERINE, RESP., ALTHOUGH IT REPRESSES THE SYNTHESIS OF THESE ENZYMES BY UNMUTATED E. COLI. THUS, THESE ENZYMES ARE LESS SENSITIVE TO GLUCOSE REPRESSION THAN IS BETA GALACTOSIDASE. FACILITY: INST. EPIDEMIOL. MIKROBIOL. IM. GAMALEI, MOSCOW, USSR.

UNCLASSIFIED

1/2 011 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--IMPROVEMENT IN THE PREPARATION OF PHOSPHATIDE CONCENTRATES -U-

AUTHOR-(05)-KLYUCHKIN, V.V., ZUYEV, E.I., SAVELYEVA, V.L., KONDRASHIN, N.A., PIDRIYKO, YE.V.
COUNTRY OF INFO--USSR

SOURCE--MASLO-ZHIR. PROM. 1970, 36(2), 34-7

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--HYDROLYSIS, CRUDE OIL, PETROLEUM PRODUCT, PHOSPHOLIPID

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/1559 STEP NO--UR/9085/70/036/002/0034/0037

CIRC ACCESSION NO--AP0118542

UNCLASSIFIED

2/2 011 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0118542

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. UNDESIRABLE CHANGES IN PHOSPHOLIQIDS CAUSED BY THEIR SEPN. DURING HYDRATION OF OILS ARE HYDROLYSIS AND FORMATION OF DARK PHOSPHATIDES. THEREFORE, THE METHOD OF PRODUCTION MUST EXCLUDE OXIDN. PROCESSES AND HYDROLYSIS OF OIL. FOR THIS PURPOSE, THE CRUDE OIL FROM THE EXTN. EQUIPMENT FLOWS DIRECTLY TO HYDRATION WITH NEARLY COMPLETE ABSENCE OF CONTACE WITH AIR. THE CONTACT TIME OS OIL PHOSPHOLIQIDS WITH H SUB2 O IS CONSIDERABLE DECREASED. THE HYDRATION PPT. IS SEPD. FROM THE OIL ON A SUPERCENTRIFUGE AT 15,000 RPM. DRYING AND DEODORIZING THE PPT. TAKES PLACE AT 730 MM AND SMALLER THAN 110DEGREES IN 0.8-2.4 MM LAYERS DURING 2.5-7 MIN. THE QUALITY AND STABILITY OF THE PHOSPHOLIQIDS OBTAINED ARE VERY GOOD. FACILITY: KHABAROVSK. MASLO-ZHIR. KOMB., KHABAROVSK, USSR.

UNCLASSIFIED

USSR

UDC 51:621.391

KLYUCHKO, V. I., and BEREZNYAKOV, G. Ye.

"Codes With Cyclical Verified Matrices"

Pribory i sistemy avtomatiki. Resp. mezhved. temat. nauch.-tekhn. sb. (Automation Devices and Systems, Republic Interdepartmental Scientific-Technical Thematic Collection), No 24, 1972, pp 119-127 (from RZh--Matematika, No 10, 1972, Abstract No 10V467)

Translation: The verified matrix belonging to the cyclical subspace is used as the basis of the synthesis of a code providing, for a velocity of $R_g = 0.5$, a maximum quantity of minimum code distance in a code word containing g information symbols for a length of code limits $K \ll g$. An algorithm is given for finding the optimal polynomials for the synthesis of such codes, and an electronic computer simulation is made for the purpose of verifying the accuracy of the results obtained. Authors' abstract.

1/1

USSR

UDC: 51:621.391

KLYUCHKO, V. I., BEREZNIKOV, G. Ye.

"Codes With Cyclic Verification Matrix"

Pribory i sistemy avtomatiki. Resp. mezhved. temat. nauch.-tekhn. sb. (Automation Devices and Systems. Republic Interdepartmental Thematic Scientific and Technical Collection), 1972, vyp. 24, pp 119-127 (from RZh-Kibernetika, No 10, Oct 72, abstract No 10V467 [authors' abstract])

Translation: A verification matrix which belongs to a cyclic space is taken as the basis for synthesizing a code which gives a maximum value of the minimum code space at rate $R_g = 0.5$ for a code word which contains g information symbols when the length of the code restrictions $K \ll g$. An algorithm is presented for finding the optimum polynomials for synthesizing such codes and computer modeling to check the validity of the results.

1/1

USSR

UDC: 539.163.546.662

GAVRILYUK, V. I., GROMOV, K. YA., KLYUCHNIKOV, A. A., KUPRYASHKIN, V. T., LATYSHEV, G. D., MAKOVETSKIY, YU. V., and FEOKTISTOV, A. I.

"Studying the Internal Conversion Electron Spectrum of ^{146}Gd"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol 37, No 9, 1973, pp 1839-1845

Abstract: The authors study the individual sections of the internal conversion electron spectrum of ^{146}Gd with the aid of a $\rho 7\sqrt{2}$ magnetic beta-spectrometer with high discrimination. This involved three problems: 1. More accurate measurement of conversion line intensity on the L-subshells of atoms for gamma-114.67, gamma-115.52, and gamma-154.58 than has been done previously in order to determine more precisely the E2-component admixture in these M1-transitions. 2. Study the possible direct transitions K260.19, $2^- \rightarrow 4^-$ and K269.28, $1^- \rightarrow 3^-$ according to the decay scheme. 3. Detect the K421 and K576 transitions. The results show that the calculated spectrum was more compressed than the experimental. Further study of the levels of ^{146}Eu will show what is the real order of the levels.

1/1

USSR

UDC 620.197.3

TUPIKIN, YU. I., KLYUCHINOV, N. G., and BERZILINA, M. K., Moscow State Pedagogical Institute imeni V. I. Lenin

"Protective Properties of Nitro and Nitroso Compounds Against Corrosion of OT4 Titanium Alloy in Acids"

Moscow, Zashchita Metallov, Vol 10, No 1, Jan-Feb 74, pp 65-69

Abstract: Considering earlier published data, this article studies the relationship between the nature of the functional groups, the structure of nitro and nitroso compounds and their inhibiting effect on the corrosion of OT4 alloy in hydrochloric and sulfuric acids. The protective properties are found to depend on the oxidation properties and mutual placement of functional groups in the molecule of the inhibitor. Picric acid and p-nitrosodimethylaniline are the most effective corrosion inhibitors for OT4 alloy, because p-nitrosodimethylaniline has a high ox-red potential, begins to reduce at high positive values of potential on the OT4 alloy and has a high limiting reduction current. Picric acid has the highest reduction current and high ox-red potential.

1/1

USSR

UDC 620.197.3:669.295

TUPIKIN, YE. I., and KLYUCHNIKOV, N. G., Moscow State Pedagogical Institute imeni V. I. Lenin

"Effect of Some Nitrogen-Containing Organic Substances on the Corrosion of OT_4 Titanium Alloy in Hydrochloric Acid"

Moscow, Zaschita Metallov, Vol 9, No 1, Jan-Feb 73, pp 103-105

Abstract: A gravimetric investigation was made of the affect of some nitroso- and nitro-compounds on the corrosion properties of OT_4 titanium alloy in solutions of hydrochloric acid of different concentrations and temperatures. Data show that the most effective inhibitor among the investigated compounds is n-nitroso-dimenthylaniline, which protects the OT_4 alloy in a wide temperature and acid concentration interval. Inhibitors which protect the alloy against corrosion displace the stationary corrosion potentials into the region of high positive values. Retarders, the effectiveness of which is low, have practically no effect on stationary potentials. An explanation is givem of the low protective properties of some nitro-compounds and of the high effectiveness of other inhibitors. One table, six bibliographic references.

1/1

THE STRUCTURE AND CHEMICAL COMPOSITION OF COMPOUNDS FORMED ON THE SURFACE OF METALS IN THE PRESENCE OF COMPLEX-FORMING REAGENTS

N.G. Klyuchnikov et al.

Uch.Zap.Mosk.Gos.Pedagog. Inst. 340 (1971) 278-285

In a study of the protective properties of organic complex-forming reagents - cupferron, 8-hydroxyquinoline, benzotriazole and α-nitroso-β-naphthol - in relation to Armco iron, zinc, copper and cobalt in appropriate media[1] it was found by us[2] that in the majority of cases obvious phase compounds are formed on the surface of the metals. Some of them by forming thick films with good adhesion to the metal considerably reduce the rate of the corrosive process.

The object of the work was to establish the chemical composition and structure of phase compounds formed in a heterogeneous reaction of metals with complex-forming reagents. The reagents mentioned above have hardly been studied as corrosion inhibitors, except for benzotriazole which is an effective inhibitor of copper and its alloys. The protective properties of this compound as explained by the authors of references[3-6] are due to its ability to form an insoluble chelate compound with copper ions. However this compound was not discovered directly on the surface of the metal.

In the work in question the identification of the phase compounds was done by the X-ray structural method. The diffraction diagrams of compounds formed on the metal surface under the effect of appropriate reagents were compared with those of standard samples taken in the same conditions.

The standard samples used were chelate compounds obtained by us as a result of reactions in solutions by a method described in references[7,8].

In order to take the diffraction diagrams samples of the metals studied of 18 x 22 x 2 mm were used. Diagrams were obtained from the complex-forming reagents (cupferron, 8-hydroxyquinoline, benzotriazole and α-nitroso-β-naphthol)[1]; from standard sample complex or chelate compounds [11]; from powdered phase compounds formed on the surface of the metals under

USSR UDC 620.197.3:669.29

TUPIKIN, YE. I., KLYUCHNIKOV, N. G., Moscow Pedagogic Institute imeni V. I. Lenin

"Effect of Cupferron, Dinitrobenzene, and Picric Acid on the Corrosion of OT4 Titanium Alloy in Hydrochloric and Sulfuric Acid"

Moscow, Zashchita Metallov, Vol 8, No 6, 1972, pp 713-714

Abstract: In connection with the fact that oxidizing agents are effective inhibitors of acid corrosion of titanium, m-dinitrobenzene, picric acid, and cupferron in concentrations of 3 millimoles/liter were investigated as inhibitors of OT4 titanium alloy corrosion in solutions of sulfuric and hydrochloric acids of different concentration and at different temperatures. At room temperature the experiments lasted 24 hours, and at higher temperatures, 6 hours. The corrosion rate was determined by the gravimetric method by 3-5 parallel measurements the accuracy of which was ±10%. The experimental data are tabulated. After holding for 6 hours in 3 and 5 normal solutions of hydrochloric acid inhibited by picric acid at 80° the specimens were coated with a yellow brown film. After holding the specimens in inhibited solutions of the investigated acids at other temperatures where the inhibitors protect the OT4 alloy well, they have the same color as before the experiment. The investigated compounds shift the stationary corrosion potentials noticeably toward the positive values only

1/2