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Reduction of arsenic by zinc amalgam in the presence of iron and antimony ions. Trudy Inst.khim.nauk AN Kazakh.SSR 6:123-130 '60. (MIRA 14:4)

(Arsenic) (Zinc)

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Effect of temperature on the reduction of arsenic by zinc amalgam.
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(Arsenic) (Zinc)

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Effect on indium ions on the reduction of arsenic by zinc amalgam. Trudy Inst. khim. nauk AN Kazakh. SSR 9:122-130 '62. (MIRA 16:6)

(Arsenic) (Amalgams)
(Indium compounds)

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Electrochemical study of zinc-nickel amalgams. Trudy Inst. khim. nauk AN Kazakh.SSR 12:99-104 '64.

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SO: Monthly list of East European Accessions (EEAL), LC Vol. 4, No. 6, June 1955, Uncl

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TECHNICKA PRACA. Bratislava, Czechoslovakia, Vol. 7, No. 11, Nov. 1955

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Uncl.

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p. 15 (Vynalezy a Normalisace, Ochranne Znamky, Chranene Vzory, Vol. 1. no. 2, Aug. 1957, Praha, Czechoslovakia)

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Women as inventors and improvers of new technology; a few examples of the ingenious work and rsults achieved by woman inventors. p.83.
(Sbirka Vynalezu, Vol. 6, No. 4, Apr. 1957, Praha, Czechoslovakia)

SO: Monthly List of East European Accessions (EEAL) LC. Vol. 6, No. 9, Sept. 1957. Uncl.

NOSEK, S.

The warp tension on the loom.

p. 123. (Veda a Vyzkum v Prumyslu Textilnim. No. 1, 1956, Praha, Czechoslovakia)

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NOSEK, S.

Breaking strength of a skein with threads firmly cramped. p.68.
(Textile, Vol. 12, No. 2, Feb. 1957, Praha, Czechoslovakia)

SO: Monthly List of East European Accessions (EEAL) LC. Vol. 6, No. 9, Sept. 1957. Uncl.

NOSEK, S.

Determining heat conductivity in textile fabrics. p. 13.

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NOSEK, V.

Production of crankshafts. p. 202.

STROJIRENSKA VYROBA. (Ministerstvo tezkeho strojirenstvi, Ministerstvo presneho strojirenstvi a Ministerstvo automobiloveho prumyslu a zemedelskych stroju) Praha, Czechoslovakia. Vol. 7, no. 5, May 1959.

Monthly list of East European Accessions (EEAI), LC, Vol. 8, no. 10, Oct. 1959. Uncl.

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NOSEK, V.

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Bratislava, Farmaceuticky Obzor, No 1, 1963, pp 25-29

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(1)

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[redacted], V.

Developmental Pharmacy Center (Rozvojove lekarnicke stredisko), Prague

Bratislava, Farmaceuticky obzor, No 2, Feb 1966, pp 66-71

"Regulations governing the operation and running of pharmacies."

CZECHOSLOVAKIA

NOSEK, V.

No affiliation given

Bratislava, Farmaceuticky obzor, No 1 [Jan] 1967, pp 46-48

"Report of the joint commission on the technical development of pharmacies in Czechoslovakia."

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NOSEK, V.

VASICEK, M.; KUKACKA, L.; NOSEK, V.

1. Standardization and Development Research Institute for the Construction of Health Centers (Studijni typizacni a vyvojovy ustav pro vystavbu zdravotnickych zarizeni), Prague (for Vasicek?); 2. Pharmacy Development Center (Rozvojove lekarnicke stredisko), Prague (for Nosek?)

Bratislava, Farmaceuticky obzor, No 2 [Feb] 1967, pp 65-76

"Project design of storehouses for supplies of complex health preparations and materials."

NOSEL, J.

Removal of arsenic and antimony from zinc sulfate solutions during electrolysis. Zaklady Cynkowe "Szopienice"-Przeds. Państw. (by Mieczysław Kapczyński, Antoni Król, Damuta Krupkowa, Henryk Łukomski, Jan Nosel, Jerzy Adamiczka, and Zygmunt Bielawski). Pol. 41,257, Sept. 10, 1958. Elimination of As and Sb in the $ZnSO_4$ soln. is simplified by filling the filter press with powd. charcoal 75, Zn powder 10, $ZnSO_4$ 2, and H_2O 13%. This method increases the degree of elimination of As and Sb by 0.4-0.5 and 0.5-0.7 mg./l., resp. B. Hulanicka

CFK

85186
S/135/60/000/003/003/005
A115/A029

1.2300

AUTHORS: Davydenko, I.D., Candidate of Technical Sciences, Koshevoy, V.F., Nosenko, A.I., Graduate Engineers

TITLE: Electric Slag Arc Welding of 1X18H9T (1Kh18N9T) Plate Steel

PERIODICAL: Svarochnoye proizvodstvo, 1960, No. 3, pp. 23-27

TEXT: The authors discuss technological features of electric slag butt welding of 5-m long joints on stainless steel plates. Tests were performed with an A-340 (A-340) single-electrode device fed by a ПСИ-1000 (PSM-1000) welder. АНФ-5 (ANF-5), АН-26 (AN-26), 48-0Ф-6 (48-0F-6) fluxes and 3 mm Св-Х25 Н13 (Sv-Kh25N13), Св-1Х18Н9Т (Sv-1Kh18N9T) and Св-1Х18Н9Б (Sv-1Kh18N9B) filler wires were tested on 36, 60, 75 mm thick and 700-1,400 mm long 1Х18Н9Т (1Kh18N9T) steel plates and on boiler shells of 3,100 mm in diameter composed of 60, 75 and 90 mm thick 700 x 5,200 mm sheets. The length of shells was 700, 1,400 and 2,100 mm. The 36 mm plates were welded at a filled-rod rate of 216 m/h, 500 amp, 40-44 v, welding rate 1,5 m/h, throat depth 4-50 mm, butt distance 28 mm. The variations in the chemical composition of basic metal, filler wire and seam metal are shown in Table 1. Corrosion-resistance of joints was examined accord-

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A115/A029

Electric Slag Arc Welding of 1X18 H9T (1Kh18N9T) Plate Steel

ing to methods A-1 and A-2 of ГОСТ 6032-51 (GOST 6032-51) on 90 x 25 x 3 mm samples shown in Figure 1. After 48 hours of boiling in a copper sulfate and hydrosulfuric acid solution the samples were inspected to the loss of metallic sound and bent at an angle of 90°. Austenization included exposures to 1,050-1,070° C for 15 minutes. Results of these tests are shown in Table 2. The amount of ferrite phase determined with a TsNIITMash magnetic ferrito-meter on samples (Fig. 2) is shown in Table 3. Metallographic examination revealed no cracks or impurities (Figs. 3 and 4). Figure 5 shows hardness zones of the welded joint. Mechanical tests gave satisfactory results, and highest corrosion resistance was established in joints welded by Sv-1Kh18N9B wires with 48-OF-6 flux and Sv-Kh25N13 wires with 48-OF-6 and AN-26 flux. Flux 48-OF-6 is less oxidizing than AN-26, but the latter has superior technological properties. For welding of 60-75 mm thick and 700-1,400 mm long plates the ductility of 48-OF-6 flux was increased by addition of Al_2O_3 and reduction of CaF_2. This modified flux received the designation ТК3-НЖ (TKZ-NZh). Its chemical composition and welding conditions are given. Sv-1Kh18N9B filler wires with TKZ-NZh and 48-OF-6 fluxes, Sv-1Kh18N9T wires with TKZ-NZh fluxes and Sv-Kh25N13 wires with AN-26 fluxes were used. For welding with Sv-1Kh18N9B wires 1 % of aluminum powder was added to the

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flux to reduce niobium waste. This produced good results. For Sv-1Kh18N9T wires the flux was enriched by 15 % titanium aluminate ceramic concentrate bound with water glass. This diminishes titanium wastes but complicates the flux production. The chemical composition of basic metal, filler wire, filler metal and the amount of α-phase are given in Table 4. All tests were made according to methods A-1, A-2 of GOST-6032-51 and AM ГОСТ 6032-58 (AM GOST 6032-58) and revealed high corrosion-resistance of seam metal and fusion zone. Mechanical tests were satisfactory and are given in Table 5. No defects were revealed. A typical macrostructure is shown in Figure 7. The microstructure of all types of surfaced metal were α-phase carbides. A new type jet described by the Plant for this welding method is given. 700-mm shells consisting of two half-shells were welded by longitudinal seams. Others were welded of 2-3 prefabricated sheets which simplified the process. Reinforced joints of welded shells were abraded and then subjected to austenization at 570°C for two hours and at 1,050-1,070°C for 1.5 minutes per 1 mm of weld. At 800-900°C some welds with girth joints fracture and crack during calibration due to heat deformation of the metal. This can possibly be prevented by austenization and subsequent cold cali-

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45232

S/769/61/000/000/001/004

1,2300

AUTHORS: Davydenko, I.D., Koshevoy, V.F., Nosenko, A.I.

TITLE: The metallurgy and technology of submerged electric slag welding of 1X18H9T (1Kh18N9T) steel.

SOURCE: Avtomatizatsiya i mekhanizatsiya svarki; novoye v svarochnom proizvodstve na Taganrogskom zavode "Krasnyy kotel'shchik." Comp. by M.V. Korsunov. (Rostov) Rostovskoye knizh. izd-vo, 1961, 3-26.

TEXT: The paper describes the welding of great thicknesses (50-100 mm and more) of stainless steel for petrochemical and chemical installations. Steel 1Kh18N9T of up to 20-mm thickness is welded in two-sided automatic electric arc welding under flux. Ordinary one-pass electric-slag (ES) welding (W), such as is practiced on structural steels of great thickness (Th), is not practicable with 1Kh18N9T steel, because it has an austenitic structure and its linear expansion coefficient is so great that joint-gap problems arise during W, and the maintenance of a steady arc (A) is uncertain. The single-pass automatic ES W was perfected to obviate the danger of A failures. 5-m test W were performed with the self-propelled single-electrode A-340 reverse-polarity a.c. equipment, supplied from a ПСМ (PSM) arc welder. Metallurgy: 4 fluxes and 3 W rods were tested (full-page tabulation). The basic W-process parameters were held constant in all tests. In no instance did the steel develop either hot or cold cracks. The newly developed ТК3 - НЖ (TKZ-NZh) flux was found to be more suitable for ES W than the АНФ-6 (ANF-6) and 48-ОФ-6

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45234

S/769/61/000/000/004/004

1,2300

AUTHORS: Koshevoy, V.F., Nosenko, A.I.

TITLE: Welding of vessels made of stainless steel 1X18H9T (1Kh18N9T) 6 mm thick.

SOURCE: Avtomatizatsiya i mekhanizatsiya svarki; novoye v svarochnom proizvodstve na Taganrogskom zavode "Krasnyy kotel'shchik." Comp. by M.V. Korsunov. (Rostov) Rostovskoye knizh. izd-vo, 1961, 82-93.

TEXT: The paper describes a process of single-pass automatic and multipass manual arc welding of 6-mm thick 1Kh18N9T stainless steel, with especial application to 100-m^3 vessels for use at extremely low temperatures (below -180°C). The problem is to find a welding procedure that would produce welds comparable in low-temperature-plasticity properties to those of the 1Kh18N9T steel. Development of submerged-automatic-flux-welding process: 2-m long welds were made; the initial butt-joint gap was 4 mm wide. The TC-32 (TS-32) welding machine of the Institute of Electric Welding imeni Ye.O.Paton was utilized. Welding wire Cв-0X18H9 (Sv-0Kh18N9) 3-mm and 4-mm diam and Sv-1Kh18N9T 4-mm diam was used with AH-26 (AN-26) flux. A steady arc was achieved at all times (the electric characteristics of the machine are described). Welding was done with

...-shaped edge

...electrodes of ЦЛ-2 (TsL-...ing on a Sv-Kh25N13 wire. 110-1...

...passes were made on the groove side, on...

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pass on the opposite side. Non-fused areas were removed by grinding and chipping. Chemical composition and α-phase content of the welded-on metal are tabulated. Metallography did not reveal any defects. The weld metal had a large-grain dendritic structure which was austenitic with ferrite and carbide inclusions. Fully satisfactory mechanical test results were obtained at +20 and -180°C (tabulation). Back-up-bar problems: In order to prevent the "freezing-on" of Cu back-up bars at the moment of opening of the welding circuit at the end of a butt joint and to eliminate inaccessible undercuts along the edges of the reverse side of a seam it is indispensable that (a) more massive back-up bars with dependable water cooling be used; (b) welding be done by direct-polarity d.c.; (c) the groove in the back-up bar be circular. For 6-mm-thick material the groove should be 25 mm wide and 1.5 mm deep. Welding of 100-m^3 vessels: The vessels consisted of cylinders with spherical ends. The procedure, comprising automatic welding of individual plates into large flats and manual welding of the closing longitudinal weld and the annular welds, is described in detail. There are 6 figures, 4 tables, and 3 Russian-language Soviet references.

ASSOCIATION: None given.

38263

S/135/62/000/006/005/014
A006/A106

12300

AUTHORS: Koshevoy, V. F., Nosenko, A. I., Engineers

TITLE: Automatic submerged-arc welding of 1X18H9T (1Kh18N9T) steel plate

PERIODICAL: Svarochnoye proizvodstvo, no. 6, 1962, 15-18

TEXT: The Institute of Electric Welding imeni Ye. O. Paton and the Taganrog "Krasnyy kotel'shchik" Plant carried out investigations to develop a technique for the automatic multi-pass submerged-arc welding of 1Kh18N9T steel plate. In preliminary tests 700 x 400 x 73 mm plates were welded with 4 and 5 mm diameter СВ-04Х19Н9 (Sv-04Kh19N9) wire under fluxes АН-26 (AN-26), АНФ-14 (ANF-14) and АНФ-16 (ANF-16), and circumferential welds were produced on forged rings, 895 mm in diameter and 85 mm thick, with СВ-04Х19Н9 (Sv-04Kh19N9) 5-mm-diameter wire under AN26 and ANF-14 flux and with СВ-06Х19Н9Т (Sv-06Kh19N9T) wire under ANF-14 flux. The results obtained were used for the manufacture of containers from 895-mm-diameter forgings with 80 mm thick walls and from 45 and 28 mm thick 1Kh18N9T steel sheets intended to operate at temperatures not over 360°C. The edges of the circumferential seams were U-shaped. Welding conditions for the two initial layers were 500 - 550 amps

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Automatic submerged-arc welding ...

current; 34 - 36 v arc voltage, and for the following passes 600 - 700 amps and 36 - 38 v, respectively. Electric slag welding was used for the longitudinal welds. After welding the shells were austenized and stabilized, and then subjected to mechanical tests. The results obtained are given in table 4. The investigations lead to the following conclusions: In automatic welding 1Kh18N9T steel plate with the use of Sv-04Kh19N9 wire (with a Cr-Ni ratio $\geqslant 1.95$) and Sv-06Kh19N9T were combined with ANF-14 flux, high-quality weld joints, resistant to hot cracks, are obtained. Satisfactory formation of circumferential welds is assured at a welding current not over 700 amps. AN-26 flux can be used in combination with Sv-04Kh19N9 wire for multi-pass welding, but the phosphorus content must then be controlled and the hot-crack sensitivity of the wire verified. In all welding variants the weld metal and the joint showed high strength and ductility characteristics in both heat-treated and initial state.

Card 2/3

NOSENKO, A.S. [Nosenko, O.S.]

Ranges of values of Stiltjes functionals with equality type bounds.
Dop. AN URSR no.12:1563-1567 '63. (MIRA 17:9)

1. Zaporozhskiy mashinostroitel'nyy institut. Predstavleno akademikom AN UkrSSR Yu.A. Mitropol'skim [Mytropol's'kyi, IU.O.].

NOSENKO, A.S. [Nosenko, O.S.]

Some features of the conformal mappings of a circular ring.
Dop.AN URSR no.3:279-284 '60. (MIRA 13:7)

1. Zaporozhskiy mashinostroitel'nyy institut. Predstavleno akademikom AN USSR B.V.Gnedenko [B.V.Hniedenko].
(Conformal mapping)

NOSENKO, A.S. [Nosenko, O.S.]

Region of the values of the derivatives of a convex function univalent outside a unit circle. Dop. AN URSR no.8:1001-1005 '63. (MIRA 16:10)

1. Zaporozhskiy mashinostroitel'nyy institut. Predstavleno akademikom AN UkrSSR Yu.A. Mitropol'skim [Mytropol's'kyi, IU.O.]
(Functions)

NOSENKO, Anatoliy Yefimovich; VLADIMIROV, G.A., red.

[High-speed boring] Skorostnaia rastochka. Khar'kov, Khar'kovskoe knizhnoe izd-vo, 1963. 17 p. (MIRA 17:10)

1. Rastochnik Khar'kovskogo zavoda pod"yemno-transportnogo oborudovaniya imeni Lenina (for Nosenko).

NOSENKO, Aleksey Yermolayevich; VERKHOVTSEV, I., red.; MUKHIN, Yu., tekhn. red.

[Stars over the steppe] Zvezdy nad step'iu. Moskva, Gospolitizdat, 1961. 54 p. (MIRA 15:11)
(Collective farms—Officials and employees)

MOSENKO, Aleksey Yermolayevich; VERKHOVTSEV, I., red.; KLIMOVA, T., tekhn. red.

[A son of our great people] Naroda velikogo syn. Moskva, Gos. izd-vo polit. lit-ry, 1961. 47 p. (MIRA 14:8)
(Collective farms—Officials and employees)

BILEN'KIY, B.F. [Bilen'kyi, B.F.]; PASHKOVSKIY, M.V. [Pashkovs'kyi, M.V.]; NOSENKO, A.Ye. [Nosenko, A.IE.]; GRECHUKH, Z.G. [Hrechukh, Z.H.]

Optical properties of mercury sulfide. Ukr. fiz. zhur. 8 no.8: 913-915 Ag '63. (MIRA 16:11)

1. L'vovskiy gosudarstvennyy universitet im. Iv. Franko.

L 33595-66 EWT(m)/EWP(t)/ETI IJP(c) JD

ACC NR: AR6016203 SOURCE CODE: UR/0058/65/000/011/D035/D035

51
B

AUTHORS: Bilan'kyy, B. F.; Mosenko, A. Ye.

TITLE: Temperature dependence of optical activation energy of mercury sulfide

SOURCE: Ref. zh. Fizika, Abs. 11D272

REF SOURCE: Sb. Probl. rozvytku pryrodn. i tochn. nauk. L'viv, L'vivs'k. un-t, 1964, 46-48

TOPIC TAGS: mercury compound, sulfide, temperature dependence, activation energy, absorption edge, activated crystal

ABSTRACT: The authors investigated the temperature dependence of the main absorption edge of synthetic α-HgS crystals. At room temperature the main absorption edge is located near 590 nm, and shifts with increasing temperature to the long-wave region, i.e., the optic activation energy decreases. The average change of the optical activation energy with temperature in the interval 273 - 394K is found to be -8.1×10^{-4} ev/deg. [Translation of abstract]

SUB CODE: 20

Card 1/1 JT

ACC NR: AP5023923 (N) SOURCE CODE: UR/0185/65/010/011/1222/1226

AUTHORS: Alekseyevenko, L. I. (Alekseyenko, L. I.); Zhomnir, S. V.; Chedzhemova, I. L.; Nosenko, A. Ye.; Lymarenko, L. M. (Limarenko, L. M.); Pashkovs'kyy, M. V. (Pashkovskiy, M. V.) 61

ORG: L'vov State University im. I. Franko (L'vivs'kyy derzhuniversytet) B

TITLE: Growth of zinc tungstate crystals and investigation of their optical properties 27 27

SOURCE: Ukrayins'kyy fizychnyy zhurnal, v. 10, no. 11, 1965, 1222-1226

TOPIC TAGS: optic spectrum, light absorption, luminescence spectrum, uv spectrum, ir spectrum, zinc compound optic material, single crystal

ABSTRACT: Zinc tungstate single crystals were grown from the melt by the Czochralski method. The crystals were grown in air in platinum crucibles using high-frequency heating. To provide the necessary temperature for crystal growth and further annealing above the platinum crucible a furnace with a nichrome heater was set up, making it possible to maintain a temperature of about 1000C. All crystals were annealed and cooled at room temperature, at which all investigations were made. The conditions were studied for obtaining crystals with chromium acti-

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L 13125-66

ACC NR: AP5028923

vator concentrations up to 2 at.% by adding Cr_2O_3 and CrC_3. The penetration of the activator and the stoichiometry of the crystals were controlled by chemical analysis. The mosaicity angle increases on increasing the activator concentration from 8' up to 1°16' at a concentration of 2 at.% . Optical absorption spectra were obtained in the ultraviolet, visible, and near infrared. Luminescence spectra were obtained in the visible. Orig. art. has: 3 figures.

SUB CODE: 20/ SUBM DATE: 21Dec64/ NR REF SOV: 001/ OTH REF: 007

Card 2/2 HW

L 24205-66 FBD/EWT(l)/EWT(m)/EEC(k)-2/T/EWP(t)/EWP(k)/EWA(h) IJP(c) WG/

ACC NR: AP6013077 JD/JG SOURCE CODE: UR/0048/66/030/004/0671/0674

AUTHOR: Limarenko, L. N.; Nosenko, A. Ye.; Pashkovskiy, M. V.; Furtak, S. P.

ORG: none

TITLE: Effects of x irradiation and heat treatment in different atmospheres on the optical and luminescence properties of cadmium tungstate [Report, Fourteenth Conference on Luminescence held in Riga 16-23 September 1965]

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 30, no. 4, 1966, 671-674

TOPIC TAGS: laser optic material, cadmium compound, terbium, luminescence, crystal phosphor, thermoluminescence

ABSTRACT: In view of the fact that most solid laser materials emit in the red and infrared, it is of interest to develop materials that emit in the other parts of the visible region. Among the rare earths that can form visible radiation emitting centers are terbium, europium, and dysprosium. The problem in forming new laser materials consists in incorporating these desirable ions into the lattice. In the present work $ZnWO_4$ and $CdWO_4$ single crystals were grown from melts by the Czochralski technique; reagent grade and spectroscopically pure raw materials were employed. The activator was Tb with one-tenth as much lithium added to the batch to facilitate incorporation of the Tb into the tungstate lattice. In some cases CaO was employed to "loosen" the lattice.

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L 24205-66 2
ACC NR: AP6013077

The best results were obtained with the $CdWO_4$. The luminescence measurements were performed on plates cleaved from the single crystals parallel to the (010) planes. UV stimulated luminescence curves are presented for "pure" and Tb-doped (1% Tb + 3% CaO) $CdWO_4$ specimens; the doped specimens at liquid nitrogen temperature have a high double peak at about 540 mμ, whereas the pure compound has a broad peak centered at about 500 mμ. The x-ray stimulated spectra were also investigated; these indicate that different excitation mechanisms are involved. This is substantiated by the glow curves (presented in a figure) recorded for doped crystals after UV and after x-ray excitation. $CdWO_4:Tb^{3+}$ crystals grown in air were slightly smoky. X irradiation of clear crystals at room temperature resulted in light coloring, but no significant change of the photoluminescence. Annealing in oxygen led to bleaching, also with no significant change in luminescence properties. Annealing in vacuum (1 hour at 700°C) resulted in noticeable darkening of the crystals and reduction of the luminescence intensity by a factor of about three. The probable reasons for this are suggested. The changes in the glow curves as a result of doping with Tb and Ca are briefly described. Orig. art. has: 2 figures. [15]

SUB CODE: 20/ SUBM DATE: none/ ORIG REF: 001/ OTH REF: 005/
ATD PRESS: 4245

Card 2/2 BLG

NOSENKO, B. M.

Gubin, V. I. and Nosenko, B. M. "On the theory of the Hebbel effect," Trudy Fiz.-takhn. in-ta (Akad. nauk Uzbek SSR), Vol. II, Issue 2, 1949, P. 45-49

SO: U-5241, 17 December 1953, (Letopis 'Zhurnal 'nykh Statey, No. 26, 1949)

NOSENKO, B. M.

"Fluorescence of Some Crystal Phosphors Due to the Action of Ions of Medium Energies and Its Application to Some Problems of Electronics." Uzbek U, Samarkand, 1954. (RZhFiz, Jan 55)

Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (12)
SO: Sum. No. 556, 24 Jun 55

NOSENKO,B.M., STARODUBTSEV,S.V., VOSZNESENSKIY, V.L.

"Reaction Depth of an Ionic Stream on aCrystal" Dokl. AN Uz SSR, No 8, 1954, 9-14

A method of determining the penetration depth of an ionic stream was suggested by using the properties of weakenes luminescence in the crystallophor layer deteriorated by ionic penetration. Zn_2SiO_4 Mn was studied. The initial behavior of luminescence curves under electron excitation shows that no sharp boundary of deterioration layer exists. The relation of penetration depth to ion energy is nearly linear and only slightly depends on the type of ions. (RZhFiz, No 11, 1955)

NOSENKO, B.M.

C-2

Category : USSR/Nuclear Physics - Instruments and Installations. Methods of Measurement and Investigation

Abs Jour : Ref Zhur - Fizika, No 2, 1957 No 3070

Author : Nosenko, B.M., Revzin, L.S., Yaskolko. V.Ya.
Inst : Central Asia State University
Title : The Use of $CaSO_4Mn$ for Dosimetry

Orig Pub : Dokl. AN UzSSR, 1956, No 4, 3-4

Abstract : It was established that flashing phosphor $CaSO_4Mn$ makes it possible to record doses from 0.005 to 40 roentgens; within these limits the reserve of the sum of light proportional to the dose. The advantages of the above phosphor are insensitivity to invisible light and less tendency to hardness thatn Sr, Sm, and Eu; another advantage is the freedom from need for thermal glow. Its principal shortcoming is the great loss in light sum with time.

Card : 1/1

NOSENKO, B.M.

51-4-8/26

AUTHORS: Nosenko, B. M., Revzin, L. S. and Yaskolko, V. Ya.

TITLE: On Phosphors Based on $CaSO_4$. (O fosforakh na osnove $CaSO_4$).

PERIODICAL: Optika i Spektroskopiya, 1957, Vol.III, Nr. 4, pp.345-350. (USSR)

ABSTRACT: The phosphor $CaSO_4$-Mn was used to study far ultraviolet radiation of the sun (Ref.5). The property of storing the light-sum on excitation by short ultraviolet wavelengths and emitting it on heating, possessed by this phosphor, was found to be very useful.(Refs.5 and 7). The present authors found that $CaSO_4$-Mn can store light-sum on excitation with electrons (cathodoluminescence), X-rays, β-rays and γ-rays. This property makes it possible to use the phosphor as a dosimeter of radioactive radiations. The present paper reports results of a more detailed investigation of the properties of $CaSO_4$-Mn, some of which have already been published (Refs. 8, 9). The emission spectrum on electron excitation was recorded by a spectrograph ИСП-51 .

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51-4-8/26

On Phosphors Based on $CaSO_4$.

Photometric measurements of spectrograms were carried out using a microphotometer MΦ-2. Pure $CaSO_4$ did not emit even when strong electron beams were directed on to it. Activation (from 0.1 to 10 mol.%) with Co, Fe, Mg, Tl, Ag, Pb, Zn, Ni and Mn made it possible to obtain emission in any region of the visible spectrum. Fine-grain structure, good binding properties and stability under ionic bombardment and thermal treatment, make $CaSO_4$ of special interest. Brightness of thermo-luminescence of the phosphors studied was measured by means of photo-multiplier. The magnitude of the photo-current was recorded on a film, together with temperature of the screen to which the phosphor was attached. The stored light-sum was found by integration of the area under the thermoluminescence curves. All the phosphors prepared could store light energy on excitation with electrons, X-rays, β-rays and γ-rays, emitting this energy on heating. $CaSO_4$-Mn was studied in greatest detail. Magnitude of the light-sum stored

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On Phosphor Based on $CaSO_4$.

was no less than that stored on photo-excitation. On cathodo-excitation (i.e. by electrons) the light-sum stored depends on: duration of excitation, electron-current density and electron energy. At small charge densities produced by electrons the light-sum is approximately proportional to this charge density. At higher charge densities saturation of the light-sum occurs. At small charge densities the light-sum is also proportional to the electron energy, while in the region of saturation the light-sum varies as the square of the electron energy. If the phosphor is kept for a long time it gradually loses its stored light energy. An absolute value quoted by the authors for the light-sum stored on excitation with 5 keV energy is about 20 apostilb-minutes in the region close to saturation. The mechanism of the described storage effect in $CaSO_4$-Mn is undoubtedly of a recombination type, since Lepper (Ref.11) has showed that capture centres belong to $CaSO_4$ lattice and are not due to the activator. To find whether the mechanism of emission is mono- or bimolecular, $CaSO_4$-Mn was irradiated with β-rays from W^{185} and by

On Phosphors Based on $CaSO_4$.

Co^{60} γ-rays. The phosphor layer on the screen was 2-3 mg/cm^2 thick. The authors consider various criteria put forward in Refs. 13-15, and come to the conclusion that the emission mechanism in $CaSO_4$-Mn is bimolecular. To test the $CaSO_4$-Mn phosphor as a radioactive dosimeter it was deposited on metal screens in layers 2.6 mg/cm^2 thick, and was irradiated with γ-rays from Co^{60} and Ir^{192}, as well as with β-rays from W^{185}. The light-sum stored on irradiation with β- and γ-rays was recorded by means of a photo-multiplier ФЭУ-19 and a galvanometer. From 0.005 to 50 rontgens the light-sum is proportional to the irradiation dose. At higher doses this proportionality is not obeyed, but saturation is not reached even at 1000 rontgens. The main disadvantage of the $CaSO_4$-Mn phosphor as a dosimeter is its loss with time of the light energy stored. For durations of storage not greater than 8 hours, $CaSO_4$-Mn is not inferior to SrS-Sm,Eu, and the accuracy of dosimeters made from $CaSO_4$-Mn and SrS-Sm,Eu is of the same order. The advantages of $CaSO_4$-Mn are as follows:

On Phosphors Based on $CaSO_4$.

(A) Inability to store light energy under the action of visible light. (B) No special apparatus is needed to remove the residual light energy before next use. (C) The effective atomic number of $CaSO_4$ is closer to the effective atomic number of air than that of SrS. The authors thank Professor S. V. Starodubtsev for help in this work. There are 17 references, 8 of which are Slavic.

ASSOCIATION: Central Asia State University imeni V. I. Lenin, Chair of General Physics.
(Sredneaziatskiy gosudarstvennyy universitet imeni V. I. Lenina, Kafedra obshchey fiziki).

SUBMITTED: January 31, 1957; submitted to the Editor of "Izvestiya AN SSSR" on December 8, 1956.

AVAILABLE: Library of Congress.

Card 5/5

NOSENKO, B.M.

51-4-9/26

AUTHORS: Nosenko, B. M., Strukov, K.A. and Yagudayev, M. D.

TITLE: Luminescence of Crystal Phosphors on Excitation with Ions. (Lyuminestsentsiya kristallofosforov pri vozbuzhdenii ionami.)

PERIODICAL: Optika i Spektroskopiya., 1957, Vol.III, Nr.4, pp.351-355. (USSR).

ABSTRACT: This paper was read at the Fifth All-Union Conference on Luminescence (Tartu, June 1956). It reports results of the work on luminescence on excitation with ions, carried out in the Department of Physics in Mid-Asian State University imeni V.I. Lenin, in Tashkent. The work was partly published in the local journals (Refs.1-4). Ions of "medium" energies were employed. These "medium" energies are defined as the energies at which no ionization occurs due to the Coulomb interaction in the motion of the particles. The upper limit of such "medium" energies is of the order of 5-100 keV, depending on the ionic mass. Only a small number of papers have appeared so far on luminescence due to ionic excitation

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Luminescence of Crystal Phosphors on Excitation with Ions.

(Refs.5-8). The present authors used comparison of ionoluminescence with cathodoluminescence as the basis of their measurement. The same place on the screen was irradiated by an ion beam and an electron beam. One source of ions and electrons was used, together with a focussing system and a receiver, which included the screen. Uniformity of the ionic beam was controlled by magnetic analysis. To avoid charging of the screen (on which phosphor was placed) by the ion beam, the phosphor was a thin layer (0.3-0.5 mg/cm^2) on an aluminium base, and it was excited by ion pulses of low density. To improve the conductivity of the phosphor it was heated during measurement. The main series of measurement was made on willemite. Ionoluminescence of ZnS-Ag, ZnS ZnSCdS-Cu, $CaSO_4$-Mn, $CaMgSi_2O_6$-Ti, and sublimates KI-Tl, NaI-Tl, $CdBr_2$ and CdI_2, activated with Mn and Pb. The phosphors were excited with positive ions of alkali metals of energies from 0.5-6 keV. The spectral distribution and brightness of emission, and their dependences on the type of exciting ion, on its energy and on the degree of irradiation (ageing effect) were studied.

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Luminescence of Crystal Phosphors on Excitation with Ions.

The spectral distribution of emission was the same for iono- and cathodoluminescence. Ageing of phosphors under the action of ions does not change the spectral distribution of emission. Brightness of emission is proportional to ionic-current density (from 10^{-10} to 10^{-6} A/cm^2). The light yield on ionoluminescence depends on the type of ion (heavier ions excite the phosphor less). Table 1 gives values of the ratio of the light yield of ionoluminescence to the light yield of cathodoluminescence (at the same energies) for the phosphor Zn_2SiO_4-Mn, using Li, Na, K and Cs ions of 1.2-6.0 keV. For other phosphors the values of this ratio are of the same order. Under the action of ions the phosphor is decomposed and its luminescent properties deteriorate. The rate of decomposition of a phosphor by various ions of the same energy is the same; it rises with the ion energy. The rate of decomposition of various phosphors is very different. Riehl (Ref.9) found that the rate of ageing on ion irradiation in phosphors based on zinc sulphide does not depend on the activator concentration. The present

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authors found the same to be true for the phosphor $CaSO_4$-Mn. Decomposition (ageing) due to Na, K and Cs ions is irreversible. Decomposition by Li ions is partly reversible. The process of ageing is due to structural damage produced by the moving ion in the crystal. The results obtained in the study of ionoluminescence may be used to explain certain aspects of interaction of ions with solids. Although the path of an ion in a crystal is much less than the path of an electron of the same energy, the density of ionization (or, more correctly, the density of excitation) due to an ion is of the same order as that of an electron. The mechanism of ionization proposed is that on approach of an ion to an atom in a crystal, and on displacement of such an atom, a strong deformation of the electron clouds occurs. In such a process the excess of potential energy may be transferred as the energy of excitation to the electrons in such clouds. Depth of the action of the ions in a crystal can also be found from ionoluminescence. This was done as follows. First the phosphor was irradiated with ions until luminescence was

Luminescence of Crystal Phosphors on Excitation with Ions.

destroyed (the ageing effect discussed above) in the layer penetrated by ions. The depth of this layer was measured by comparing cathodoluminescence on a fresh and an aged phosphor; in the latter case electrons had to traverse the layer in which luminescence was destroyed by ions before they (electrons) could excite the phosphor. Table 2 shows the estimates of depth of penetration (in Å) of Li, Na, K and Cs ions of 2.4-6.0 keV in willemite. This depth of penetration by ions is found to increase with ion energy. Once again the behaviour of lithium was quite different from that of the other three ions. A method similar to that just described for measurement of the penetration depth can be used to find thickness of the layer removed (pulverized) by irradiation of a phosphor with ions. There are 2 tables and 11 references, 5 of which are Slavic.

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51-4-9/26

Luminescence of Crystal Phosphors on Excitation with Ions.

ASSOCIATION: Chair of General Physics, Central Asia State University, Tashkent. (Kafedra obshchey fiziki Sredneaziatskogo gosudarstvennogo universiteta, Tashkent.)

SUBMITTED: January 31, 1957; submitted to the Editor of "Izvestiya AN SSSR" on December 8, 1956.

AVAILABLE: Library of Congress.

Card 6/6

NOSENKO B.M.

48-5-26/56

SUBJECT: USSR/Luminescence

AUTHORS: Nosenko B.M., Revzin L.S. and Yaskolko V. Ya.

TITLE: On Phosphors Based on $CaSO_4$ (O fosforakh na osnove $CaSO_4$)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, 1957, Vol 21, #5, pp 691-692 (USSR)

ABSTRACT: Properties of phosphors based on $CaSO_4$ were studied at electronic excitation and also at gamma- and beta-irradiation. The thermal luminescence of $CaSO_4$-Mn was investigated in detail.

The activation of $CaSO_4$ by Co, Fe, Mg, Tl and Ag produced a weekly greenish luminescence, the activation by Pb produced dark blue, by Zn - sky-blue, by Ni - orange-red, and by Mn - bright light-green luminescence.

The $CaSO_4$ luminophore activated by any activator possessed thermal luminescence after electronic, gamma- and beta-excitation. The highest ability of storing was shown by $CaSO_4$-Mn.

The $CaSO_4$ phosphor was used as a dosage meter. Dosages from

Card 1/2

48-5-26/56

TITLE: On Phosphors Based on $CaSO_4$ (O fosforakh na osnove $CaSO_4$)

0.005 to hundreds of roentgens could be measured by using a photomultiplier with a galvanometer for determination of brightness with a screen of 1.5 cm^2 area. One of the advantages of applying $CaSO_4$ for this purpose is its non-sensitivity to visual light.

The report was followed by a discussion.

Two Russian references are cited.

INSTITUTION: Central-Asian State University im.Lenin

PRESENTED BY:

SUBMITTED: No date indicated

AVAILABLE: At the Library of Congress.

Card 2/2

48-5-31/36

SUBJECT: USSR/Luminescence

AUTHORS: Nosenko, B.M., Strukov, N.A. and Yagudayev, M.D.

TITLE: Luminescence of Crystallophosphors Excited by Ions (Lyuminestsentsiya kristallofosforov pri vozbuzhdenii ionami)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, 1957, Vol 21, #5, pp 701-703 (USSR)

ABSTRACT: The following phosphors: Zn_2SiO_4-Mn; ZnS-Ag; $CaSO_4$-Mn; CuS; CdS-Cu, and sublimate phosphors: KJ-Tl; NaJ-Tl; $CdBr_2$; CdJ_2, activated by Mn and Pb were investigated. The excitation was performed by positive ions of Li, Na, K, Pb and Cs with energies from 0.5 to 6 kev.

The basic method of investigation was comparison of ionoluminescence with cathodoluminescence.

Results of this investigation are as follows:
The spectral composition of ionoluminescence does not differ from that obtained by electronic excitation.

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48-5-31/56

TITLE: Luminescence of Crystallophosphors Excited by Ions (Lyuminestsentsiya kristallofosforov pri vozbuzhdenii ionami)

The luminescence spectra of a "fresh" phosphor and a phosphor subjected to a prolonged irradiation by an ion beam are the same. The brightness of luminescence is proportional to the density of ion current and linearly depends on ion energy.

The light output of ionoluminescence depends on the mass of ions. For willemite it amounts to 4 % of cathodoluminescence output at excitation by Li^+ and about 0.5 % at excitation by Cs^+. This quantity is different for various phosphors.

The deterioration of luminescence (aging) of a phosphor is determined by the density of irradiation. The speed of aging is different with various phosphors and does not depend on the concentration of activator. Zinc-sulfides are most liable to aging, and alkali-haloid sublimate-phosphors are the least liable.

A scheme of the aging process and mechanism of ionization, which is brought about by a heavy particle in the solid body, is suggested by the authors.

The report was followed by a discussion.

Card 2/5

48-5-31/56

TITLE: Luminescence of Crystallophosphors Excited by Ions (Lyuminestsentsiya kristallofosforov pri vozbuzhdenii ionami)

One Russian reference is cited.

INSTITUTION: Central-Asian State University im.Lenin

PRESENTED BY:

SUBMITTED: No date indicated

AVAILABLE: At the Library of Congress.

Card 3/3

-HOSENKO, B.M., REVSIN, L.S., YASKOLKO, V.Ya.

Determination of the characteristics of trapping centers of crystalline phosphors. Trudy SAGU no.148:85-90 '59.
(MIRA 13:7)

(Phosphors)

23742
S/089/61/010/006/008/011
B102/B212

21. P100 (1138, 1033, 1558)

AUTHORS: Krasnaya, A. R., Nosenko, B. M., Revzin, L. S., Yaskolko, V. Ya.

TITLE: Use of a $CaSO_4$ - Sm phosphor in dosimetry

PERIODICAL: Atomnaya energiya, v. 10, no. 6, 1961, 630 - 631

TEXT: The authors suggested a dosimeter (Zh. Tekhn. fiz., 26, 2046 (1956)), which will operate with $CaSO_4$-Sm phosphor and exhibits a limited ability for the conservation of the light sum stored. For this purpose $CaSO_4$-based phosphors with a plurality of activators have been investigated with respect to their luminescent properties. It was found that $CaSO_4$-Sm only will combine the properties of a good storage ability of the light sum with sufficient sensitivity. This phosphor has been further investigated. The thermal - deexcitation curve of this phosphor shows three peaks: at 65, 120 and 200°C (at a heating rate of 40 deg/sec.). The light sum of the last peak amounts to 90 % of the total light sum.

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S/089/61/010/006/008/011
B102/B212

Use of a $CaSO_4$ - ...

The thermoluminescence spectrum of the phosphor consists of three narrow bands having maxima at 6200, 5900 and 5600 Å; their intensities behave like 56 : 43 : 1; the spectrum does not change during extinction. The light sum stored by the phosphor is a linear function of the radiation dose of 0.1 - 25 000 r; the dose rate (0.005 - 10^4 r/hr) influences the stored light sum not directly. The sensitivity of the $CaSO_4$-Sm phosphor amounts to about 1/10 of that of the $CaSO_4$-Mn phosphor. A comparison of the stored light sums of these phosphors (by blackening of a photographic plate) shows that the "absolute" sensitivity of the $CaSO_4$-Sm phosphor is 2.5 times greater than that of $CaSO_4$-Mn phosphor if the spectral sensitivity is taken into account. Keeping the phosphor at an increased temperature (40 - 120°C) will decrease the light sum and change the spectrum (at the beginning the first two peaks become weaker, at 70°C the de-excitation of the third peak also starts). At a weak but long radiation of the phosphor practically no losses of the light sum will occur; this has been found in a 42 days long radiation with 0.005 r/hr.

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Use of a $CaSO_4$ - ...

The stored light sum measured was equal to that calculated (corresponding to a dose of 5r). This property of the phosphor makes it possible to employ it for dosimetric purposes, even at small doses. This phosphor (like $CaSO_4$-Mn) cannot be excited by visible light (direct solar radiation) but in contrast to $CaSO_4$-Mn visible light is causing de-excitation (0.5 lux for 4 hrs will cause a 25 % loss of the stored light sum). Since $CaSO_4$-Sm is keeping the stored light sum much longer than $CaSO_4$-Mn, this phosphor is very well suited for permanent measurements, even at higher temperature (up to 100°C). There are 1 figure and 1 Soviet-bloc reference.

SUBMITTED: December 15, 1960

Card 3/3

20813

S/048/61/025/003/001/047
B104/B201

9.6150
24.3500 (1137, 1138, 1395)

AUTHORS: Rosenko, E.M., and Strukov, N.A.

TITLE: Excitation of crystal phosphors by ions

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, v. 25, no. 3, 1961, 314 - 317

TEXT: This is a reproduction of a lecture delivered at the 9th Conference on Luminescence (Crystal Phosphors), which took place in Kiyev from June 20 to 25, 1960. The authors examined the luminescence and the change of properties of the following phosphors: ZnS-Ag (K-5), 55% ZnS·45% CdS-Ag (L-4), 62%ZnS·38%CdS-Ag (K-38), 90%ZnS·10%CdS-Cu (L-10), ZnO-Zn$_{+}$ (K-20), Zn_2SiO_4-Mn (K-35), $CaWO_4$ and $CaSO_4$-Mn. These phosphors with Li^+-, Na^+-, K^+-, Rb^+- and Cs^+-ions were excited with energies of up to 6 kev. The brightness of luminescence was proportional to the current density (10^{-10} - 10^{-8} a/cm^2). At low ion energies, the brightness E is a parabolic function, while at high ion energies it is a linear function of the ion energy. The threshold energy is between 1.5 and 0.7 kev. Table 1 gives the

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Excitation of crystal phosphors ...

values $B = E_H/E_3$ (in %) for an ion energy of 6 kev. Here, E_H is the brightness at ion excitation, E_3 the one at cathode luminescence under otherwise equal conditions. Phosphor aging caused by ion excitation leads to a drop of brightness; the individual phosphors differ by the course of the aging process. On irradiation by a charge of $Q_{1/2} = 6 \cdot 10^{-8}$ Coulomb/cm^2 $= 5 \cdot 10^{11}$ particle/cm^2 the brightness of the second and third abovementioned phosphor (Group 1) drops to 50%, while it drops to 2 - 5% at a radiation dose of $5Q_{1/2}$. The last three phosphors possess a $Q_{1/2} = 4.5 \cdot 10^{12}$ particle/cm^2, and the aging process of these three phosphors, which form group 2, has a hyperbolic course. The remaining phosphors form group 3. They possess a $Q_{1/2} = (0.5 - 1.5) \cdot 10^{12}$ particle/cm^2, and aging stops at about $5Q_{1/2}$, where brightness then amounts to 15 - 30%. In ZnO-Zn and $CaWO_4$ phosphors, energy and mass of the ions make themselves noticeable with aging. A study of the excitation depth of a crystal and the depth of crystal destruction, as a consequence of which aging occurs, showed that

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Excitation of crystal phosphors ...

the inequality $d_e > d_d$ holds, where d_e is the excitation depth and d_d the destruction depth. This is explained by the fact that any luminescence vanishes under sufficiently long ion irradiation. Relation $d_{od} = bV_n^{\beta}$ is obtained in an estimation of the depth of the complete crystal destruction. In this relation, V is the ion energy, d_{od} in Mg/cm^2, b and β being given in Table 2. This relation exhibits an error of 5 - 30% and is derived from the threshold energy of cathodoluminescence. There are 2 tables and 6 references: 3 Soviet-bloc and 3 non-Soviet-bloc. The 3 references to English language publications read as follows: Young J.R., J.Appl.Phys., 27, 1 (1956), Young, J.Appl.Phys., 28, 524 (1958), Ehrenberg W. et al., Proc. Phys.Soc. B., 60, 1059 (1953).

ASSOCIATION: Kafedra optiki Tashkentskogo gos. universiteta im. V.I. Lenina (Department of Optics of Tashkent State University imeni V.I. Lenin)

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S/048/61/025/003/002/047
B104/B201

9.6150
24.3500 (1137, 1138, 1395)

AUTHORS: Nosenko, B.M., Revzin, L.S., Yaskolko, V.Ya., and Krasnaya, A.P.

TITLE: Thermoluminescence with different modes of excitation

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, v. 25, no. 3, 1961, 31[illegible] - 321

TEXT: This is a reproduction of a lecture delivered at the 9th Conference on Luminescence (Crystal Phosphors), which took place in Kiyev from June 20 to 25, 1960. The authors used $CaSO_4$-Mn, $PbSO_4$-Mn, Zn_2SiO_4-Mn, ZnS-Ag and ZnS-Cu phosphors to find the light sums of steady luminescence S_{st}, afterglow S_a, and thermoluminescence S_{th}, produced by electron excitation (V = 0.5 - 7 kev, $j = 10^{-5} - 10^{-10}$ a/cm^2), beta radiation (S^{35}; 40-500 μC) and photo-irradiation (ПРК-2 (PRK-2)-tube with filter). The specific light sums γ_{st}, γ_a and γ_{th} were also determined. Measurements were made in the temperature range from -180° to +30°C at heating rates of 60°C/min

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and 150°C/min. The excitation densities were intercompared on the basis of the number of the excited ion pairs $\bar{n}$, produced per unit volume and per unit time. The measurement results are discussed for every phosphor, separately. $CaSO_4$-Mn has at 90°C a main peak of thermoluminescence; measured values corresponding to this peak are listed in Table 1. Table 2 gives the dependences of the specific light sums on temperature. $PbSO_4$-Mn has one peak of thermoluminescence at 54°C, the relative light sums being equal under beta excitation and electron excitation, and about 2.5 times as large as in the case of photoexcitation. On a temperature rise up to room temperature, the relative light sum produced by beta excitation increases by the sixfold at the expense of steady luminescence. The spectrum has two bands, an orange band of manganese (λ_m = 615 mμ), and a blue band of $PbSO_4$ (λ_m = 425 mμ). A photoexcitation yields an orange luminescence at all temperatures, and also an orange thermoluminescence. An electron excitation gives rise to an orange luminescence at room temperature, which turns blue on a temperature drop. Beta excitation produces a blue luminescence with a small orange portion. Zn_2SiO_4-Mn has two peaks of

Thermoluminescence with ...

thermoluminescence (a complicated one at - 88°C, and one at 75°C). ZnS-Cu has a green band and two peaks of thermoluminescence (at -53°C and 22°C). More details are given in Table 3. ZnS-Ag has a complicated peak of thermoluminescence, which can be separated into two maxima: one at -103°C and one at -64°C. More data are given in Table 4. A fluorescence effect of the cathode rays is observed on thin layers of the said phosphor, which are practically transparent to the exciting light. The phosphor is excited up to saturation by an ultraviolet radiation with λ = 365 mμ. The final part of the paper deals with differences between excitation by corpuscular radiation and by photons; it is stated in this connection, that a consideration of excitation density and excitation depth well explains the differences observed. The appearance of the fluorescence effect of the cathode rays is explained by the fact that on an excitation of luminescence by electrons the electric field produced by particle charges in the crystal leads to a fluorescence. There are 4 tables and 6 Soviet-bloc references.

ASSOCIATION: Kafedra optiki Tashkentskogo gos. universiteta im. V. I. Lenina (Department of Optics of Tashkent State University imeni V. I. Lenin)

Card 3/7

KRASNAYA, A.R.; NOSENKO, B.M.; REVZIN, L.S.; YASKOLKO, V.Ya.

Exoelectronic emission of $CaSO_4$-Mn, and $CaSO_4$-Sm phosphors.
Opt. i spektr. 7 no.4:526-528 Ap '62. (MIRA 15:5)
(Electrons--Emission) (Phosphors)

37224
S/051/62/012/004/012/015
E039/E485

24.3500

AUTHORS: Krasnaya, A.R., Nosanko, B.M., Revzin, L.S., Yaskolko, V.Ya.

TITLE: On the exoelectronic emission of the phosphors $CaSO_4$, $CaSO_4$ - Mn, $CaSO_4$ - Sm

PERIODICAL: Optika i spektroskopiya, v.12, no.4, 1962, 526-528

TEXT: Earlier work on this subject is reviewed and the results shown to lack agreement. An investigation of the exoemission of the phosphors $CaSO_4$, $CaSO_4$ - Mn and $CaSO_4$ - Sm was therefore undertaken. The apparatus used and method of measurement are described briefly. The phosphors were excited by a Sr^{90} β source and the results are shown graphically; exoemission plotted against temperature for each phosphor. The exoemission for $CaSO_4$ - Mn has two peaks with maxima at 100 and 144°C, while the thermo-luminescence curve shows only one peak. $CaSO_4$ has only one peak on its exoemission curve with a maximum at 134°C. When Mn is added, new capture centres are formed and the general intensity of emission is increased. In the case of $CaSO_4$ - Sm exoemission is not observed while its thermoluminescence curve

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shows three peaks. This shows that exoemission from $CaSO_4$ is strongly influenced by the activator and that there is no correspondence between thermoluminescence and exoemission. The difference between these results and those of earlier workers appears to be due to differences in the method of preparation of the phosphors. The results are compared with a model suggested by A. Bogun and it is shown that the absence of a second peak in the thermoluminescence curve for $CaSO_4$ - Mn can only be explained on the basis of the temperature of quenching (luminescence). In $CaSO_4$ - Mn this occurs at 200°C. The full suppression of exoemission by Sm requires the assumption of pure hole characteristics for the luminescence of $CaSO_4$ - Sm on this model which is contrary to the results obtained. The effect of electron diffusion length is also discussed. It is concluded that exoemission is due mainly to defects in the non-luminescent surface layers while the thermoluminescence is due to defects in the volume of the crystal. Further experiments are required for the verification of these results. It is suggested that the

On the exoelectronic ... S/051/62/012/004/012/015
E039/E485

method is a valuable one for the study of the surface layers of crystals. There is 1 figure.

SUBMITTED: September 26, 1961

J

Card 3/3

ORLOV, B.M.; NOSENKO, B.M.

Discussion of V.L.Levshin's report. Izv. AN SSSR. Ser. fiz. 26 no.4:458-459 Ap '62. (MIRA 15:4)
(Quantum theory) (Phosphors)

AYVAZOVA, A.A.; NOSENKO, B.M.

Dielectric losses in benzene and paradichlorobenzene. Nauch. trudy TashGu no.221. Fiz. nauki no.21:53-60 '63. (MIRA 17:4)

ACCESSION NR: AR4022450 S/0058/64/000/001/E008/E008

SOURCE: RZh. Fizika, Abs. 1E72

AUTHOR: Ayvazova, A. A.; Den'gina, S. V.; Nosenko, B. M.

TITLE: Orientation order in para-dichloro-benzene near the crystallization point

CITED SOURCE: Nauchn. tr. Tashkentsk. un-t, vy*p. 221, 1963, 61-64

TOPIC TAGS: paradichlorobenzene, orientation order, crystallization point, scattered light depolarization, molecule orientation, precrystallization region, depolarization temperature dependence

TRANSLATION: The temperature dependence of the degree of depolarization of scattered light in n-$C_6H_4Cl_2$ is investigated. It is found that an anomalously steep temperature dependence occurs in the precrystallization region (53-60C), t is being attributed to the change in the mutual orientation of the molecules.

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NOSENKO, B.M.; YASKOLKO, V.Ya.

Relation between recombination luminescence and exoelectronic emission. Nauch. trudy TashGu no.221.Fiz. nauki no.21:84-96 '63.

Interaction of the Mn and Sm activators in $CaSO_4$. Ibid.:97-99 (MIRA 17:4)

ACCESSION NR: AR4032175 S/0058/64/000/002/D055/D055

SOURCE: Ref. zh. Fiz., Abs. 2D435

AUTHORS: Nosenko, B. M.; Yaskolko, V. Ya.

TITLE: Interaction of the activators Mn and Sm in $CaSO_4$

CITED SOURCE: Nauchn. tr. Tashkentsk. un-t, vy*p. 221, 1963, 97-99

TOPIC TAGS: thermoluminescence, calcium sulfate manganese phosphor, calcium sulfate samarium phosphor, two activator phosphor, glow center, capture center, prior irradiation effect

TRANSLATION: The authors measured in the 20--300°C the thermoluminescence (TL) of the phosphors $CaSO_4$.Mn, $CaSO_4$.Sm, and $CaSO_4$.Mn,Sm, which glow under the influence of visible light, and the effect on TL due to prior irradiation of the phosphor with a large dose of ionizing radiation. It is established that some fraction of "foreign"

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ACCESSION NR: AR4032175

glow is present in each band of the TL of the two-activator phosphor, indicating transfer of energy from the Sm capture center to the Mn glow center, and to a greater degree from the Mn capture center to the Sm glow center. From an investigation of the exciting action of the light it is established that the absorption center for the visible light is connected with a definite capture center and a glow center.

DATE ACQ: 31Mar64 SUB CODE: PH ENCL: 00

Card 2/2

AYVAZOVA, I.A., NESMEYANOV, B.M.

Use of the relaxation theory of the contour of anisotropic scattering in studying the structure of liquids. Nauch. trudy TashGU no.262 Fiz. nauki no.22:59-70 '64. (MIRA 18:5)

NOSENKO, B.M.; REVZIN, L.S.; YASKOLKO, V.Ya.

Structure of phosphors on the basis of $CaSO_4$. Nauch. trudy TashGU no.262 Fiz. nauki no.22:71-75. '64. (MIRA 18:5)

L 33148-66 EWT(m)/EWP(j) RM

ACC NR: AR6016216 SOURCE CODE: UR/0058/65/000/011/D069/D069

57

AUTHOR: Ayvazova, A. A.; Nosenko, B. M.

TITLE: On the contour of the anisotropic scattering of light in benzene and para-dichlorobenzene

SOURCE: Ref. zh. Fizika, Abs. 11D536

REF SOURCE: Tr. Komis. po spektroskopii. AN SSSR, t. 3, vyp. 1, 1964, 180-184

TOPIC TAGS: light scattering, temperature dependence, relaxation process, molecular spectrum, spectral line

ABSTRACT: The authors investigated the contour of the lines of anisotropic scattering of light in benzene and para-dichlorobenzene. The contour is well represented by two Lorentz curves with half-widths σ_1 and σ_2 and weights g_1 and g_2: for benzene $\sigma_1 \approx 1\ cm^{-1}$, $\sigma_2 \approx 15\ cm^{-1}$, and $g_1 \approx g_2 \approx 0.5$; for para-dichlorobenzene $\sigma_1 \approx 0.5\ cm^{-1}$, $\sigma_2 \approx 10\ cm^{-1}$, $g_1 \approx 0.2$, and $g_2 \approx 0.8$. The temperature variation of these parameters from the crystallization point to 90C was determined. The anisotropic relaxation times, corresponding to the rotation about the principal inertia axes of the molecule, were determined. The use of the correlation theory makes it possible to estimate the correlation factors of molecules relative to the individual axes. [Translation of abstract]

SUB CODE: 20/

LS
Card 1/1

KRASNAYA, A.R.; NOSENKO, B.M.; YASKOLKO, V.Ya.

Exoelectronic emission from $CaSO_4$-based phosphors. Izv. AN SSSR. Ser.fiz. 29 no.3:483-485 Mr '65. (MIRA 18:4)

1. Kafedra optiki Tashkentskogo gosudarstvennogo universiteta im. V.I.Lenina.

L 11915-66 EWT(m)/EWP(t)/EWP(b) DIAAP/IJP(c) JD
ACC NR: AP6001659 SOURCE CODE: UR/0051/65/019/006/0980/0982

AUTHOR: Nosenko, B. M.; Revzin, L. S.; Yaskolko, V. Ya.

ORG: None

TITLE: Determination of some parameters of beta-particle tracks in $CaSO_4$-Mn

SOURCE: Optika i spektroskopiya, v. 19, no. 6, 1965, 980-982

TOPIC TAGS: beta particle, luminescent material, luminescence

ABSTRACT: The authors note that when a luminescent material is excited by ionizing radiation, the true density is not the mean density of excitation, but the excitation density in the track (the quantity of ionized energy losses per unit of track volume). However, the establishment of the true density entails the difficulty of determining the track volume. For this reason, the authors propose a method of estimating the excitation density in the track which does not require a knowledge of the track volume and which makes use only of luminescence experiments. The method described is based on the fact that there is always a certain overlapping of the branches of a beta-particle track and, consequently, an increase in the mean excitation density in the track. It is shown that the mean excitation density in the track of a beta-particle is equal to the effective density of cathode excitation (in the same luminescent material) when the value of the relative storage is $g = g_\beta$. The dependence of the relative storage factor on the density of cathode excitation is studied for $CaSO_4$-Mn (1 mol. %). Orig. art. has: 5 formulas.

UDC: 535.373.1:548.0

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L 11215-66
ACC NR: AP6001659

SUB CODE: 20 / SUBM DATE: 10Apr65 / ORIG REF: 005 / OTH REF: 002

Card 2/2

L 28328-66 EWT(1) IJP(c) AT

ACC NR: AP6013080 SOURCE CODE: UR/0048/66/030/004/0681/0683

41
AUTHOR: Krasnaya, A.R.; Nosenko, B.M.; Yaskolko, V.Ya.; Sokolov, G.V. B

ORG: Tashkent State University im. Lenin (Tashkentskiy gosudarstvennyy universitet)

TITLE: Parallel investigation of the luminescence and exoelectronic emission of $CaSO_4$:Mn /Report, Fourteenth Conference on Luminescence held in Riga 16-23 September 1965/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 30, no. 4, 1966, 681-683

TOPIC TAGS: crystal phosphor, luminescence, calcium sulfate, electron emission, thermoluminescence, beta radiation

ABSTRACT: For the purpose of clarifying the mechanism of exoelectronic emission the dissipation with time of the stored emission sum S_e and of the stored light sum S_l was investigated at constant temperature. Then the storage curves were converted to decay curves by differentiation with respect to time. The experiments were carried out on $CaSO_4$:Mn (0.1 mole percent) phosphor at fixed temperatures in the range from 20 to 60°C. The phosphor was excited by β-particles from an Sr^{90} source. The results are presented in the figure. Similar curves were obtained at other temperatures in the 20 to 50° range. The S_e curve for $CaSO_4$:Mn is rather distinctive: it exhibits an inflexion point, so that the I_e curve has a distinct maximum. The afteremission curve

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L 28328-66

ACC NR: AP6013080

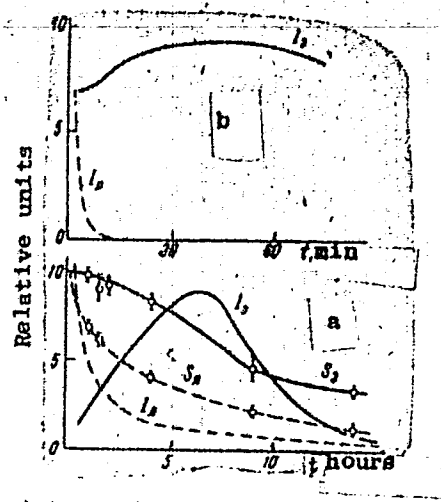


Figure caption: a - time variation of loss of the emission sum S_0 and the light sum S_1 at 40°C; deduced variation of the afteremission I_0 and afterglow I_1. b - curves for I_0 and I_1 obtained in preliminary experiments employing a new vacuum setup.

is reminiscent of curves characterizing the build-up of the daughter nuclide in radioactive decays. Accordingly, it is hypothesized that in the case of $CaSO_4$:Mn (in which different centers are involved in the exoelectronic emission and in the luminescence), in analogy with radioactive decay, the surface centers emitting the exoelectrons from as a result of disintegration of the "primary" trapping centers. An analytic expression for I_e is adduced; this is consistent with the experimental results. To eliminate some of the shortcomings of the experiments involving measurements of S, there was designed and assembled a more sophisticated vacuum setup for direct measurements of I_e and I_1. The results of preliminary (test) experiments employing the new setup are shown in figure b. The agreement with the earlier results is only qualitative; the possible reasons for the disparity are discussed. Orig. art. has: 4 formulas and 2 figures.

SUB CODE: 20/ SUBM DATE: 00/ ORIG REF: 005/ OTH REF: 004

Card 2/2

NOSENKO, F.V.

We will increase the output of bricks to 500,000 per year. Sel'. stroi. 10 no.3:10 Mr '55. (MIRA 8:6)

1. Master kirpichnogo zavoda kolkhoza "Ateist" Klitsovskogo rayona Bryanskoy oblasti.
(Bricks)

L 01087-67

ACC NR: AP6026309 (A) SOURCE CODE: UR/0113/66/000/005/0008/0011

AUTHOR: D'yakov, I. Ya. (Candidate of technical sciences); Nosenkov, M. A. 22

ORG: Moscow Automobile Factory im. Likhachev (Moskovskiy avtozavod) B

TITLE: Effect of an interlocking differential on the skid resistance of a 4×2 truck

SOURCE: Avtomobil'naya promyshlennost', no. 5, 1966, 8-11

TOPIC TAGS: industrial truck, highway vehicle data, motion stability

ABSTRACT: An analysis of conventional methods for determining the resultant forces acting on the drive axle of a truck during skidding shows that these methods give stability indices lower than the actual values and that this divergence increases with the interlocking coefficient of the differential. A method is proposed for theoretically analyzing the skid resistance of a ZIL-130 truck with an interlocking clutch differential. The results show that the stability index is considerably dependent on road conditions. The use of an interlocking differential results in a slight improvement of skid resistance in the rear axle of the truck although the maximum improvement is only 4.5% so that the behavior of the vehicle is practically unaffected. The use of this type of differential improves the dynamic possibilities of the vehicle during motion on a turn since the entire trailer weight may be used for generating traction. An analysis of the theoretical stability characteristics shows that the coefficient

Card 1/2 UDC: 629.11.013:629.116.2.001.5

L 01087-67

ACC NR: AP6026309

for disruption of lateral stability reaches a maximum in 4th and 5th gears only on roads with an adhesion factor of less than 0.25. The theoretical data were verified by operational testing of ZIL-164 and ZIL-130 trucks with interlocking clutch differentials. The results indicate that replacement of bevel differentials with interlocking differentials has practically no effect on the stability of the vehicle. Orig. art. has: 5 figures, 20 formulas.

SUB CODE: 13/ SUBM DATE: None/ ORIG REF: 005

Card 2/2 vlr

B. DEL RIO, kandidat tekhnicheskikh nauk; MOSKVKO, M.S., inzhener.

Problems of planning operations in train management. Trudy RIIZHT no.20:13-26 '56. (MLRA 9:10)
(Railroads--Management)

LIKHODED, L.S.; MOSHENKO, N.I.

Quantitative spectrum analysis of cements for Al_2O_3, Fe_2O_3, SiO_2, MgO and CaO. Fiz.sbor. no.4:471-474 '58. (MIRA 12:5)

1. Kiyevskiy ordena Lenina politekhnicheskiy institut.
(Cement--Spectra)

06396
SOV/170-59-2-14/23

15(2)

AUTHORS: Likhoded, L.S., Nosenko, N.I.

TITLE: The Quantitative Spectral Analysis of Various Glasses

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, 1959, Nr 2, pp 99-102 (USSR)

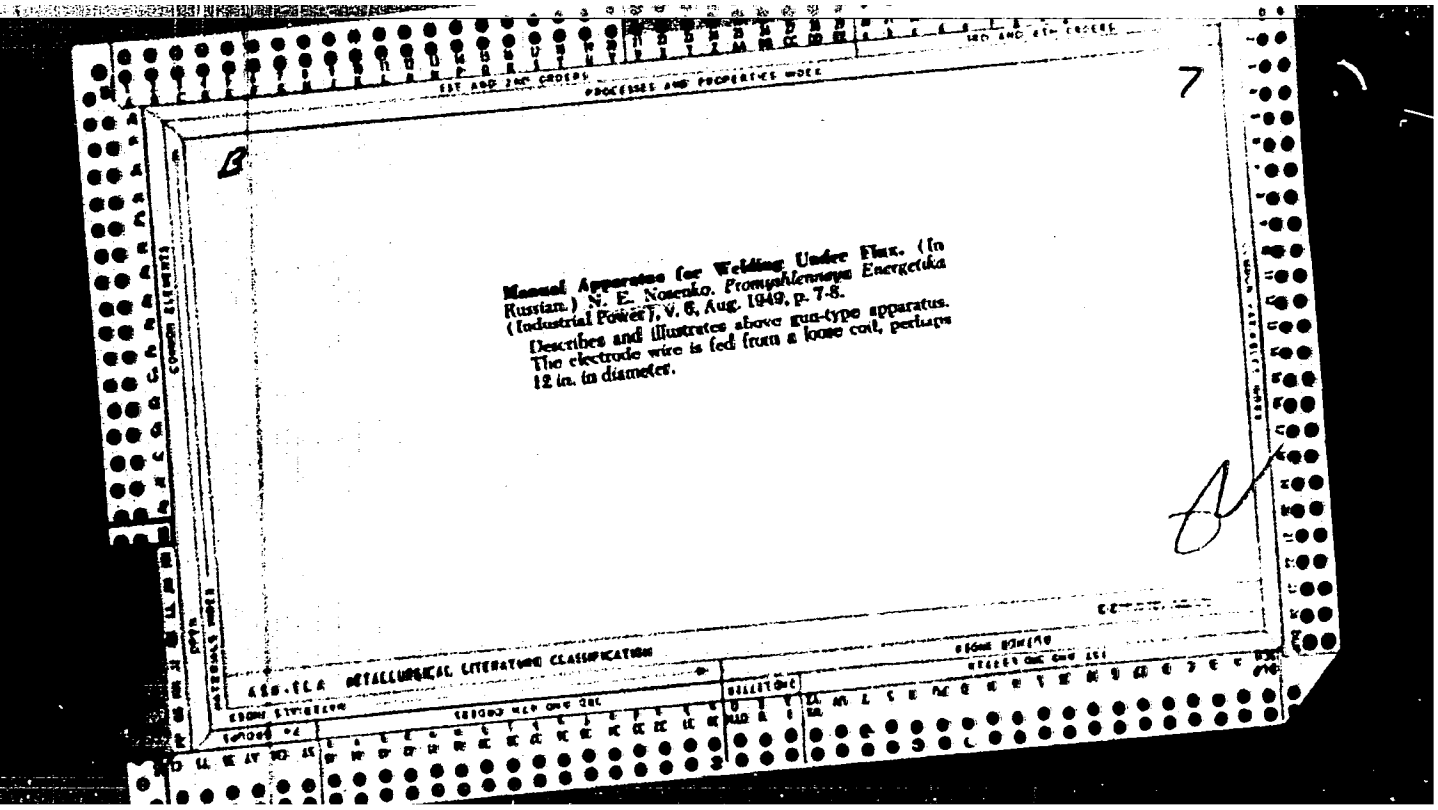
ABSTRACT: Chemical analysis of glass lasts from 5 to 7 days. Therefore the authors developed a method of quantitative spectral analysis of various kinds of glass, which is no less accurate than the chemical one. Comparing various methods of spectral analysis the authors chose the method of movable electrode on a small carbon trough which served as a lower electrode. The analysis was performed with a quartz spectrograph of the ISP-22 type and the spectra were analyzed with a microphotometer of the MF-2 type. Graduated graphs were plotted by analytical pairs of lines given in Table 1 for the following oxides: Fe_2O_3, MgO, CaO, Al_2O_3, PbO, SiO_2, ZnO and B_2O_3. It was possible to determine simultaneously the content of these 8 oxides in the glass with an accuracy which met satisfactorily technological requirements.

Card 1/2

NOSENKO, N.M.; KOROVIN, E.P., deyatvitel'nyy chlen.

Bee varieties in Uzbekistan. Dokl.AN Uz.SSR no.4:25-28 '49. (MLRA 6:5)

1. Institut botaniki i zoologii AN Uz.SSR (for Nosenko). 2. Akademiya Nauk Uzbekskoy SSR (for Korovin). (Uzbekistan--Bees)



Manual Apparatus for Welding Under Flux. (In Russian.) N. E. Nosenko. *Promyshlennaya Energetika* (Industrial Power) 7, v. 6, Aug. 1949, p. 7-8.

Describes and illustrates above gun-type apparatus. The electrode wire is fed from a loose coil, perhaps 12 in. in diameter.

NOSENKO, N. E.

A UNIVERSAL MANUAL APPARATUS FOR SUBMERGED ARC WELDING. N. E. NOSENKO. (AVTO. DELO 1949, No. 8, pp. 10-12) (In Russian) In the apparatus for manual submerged-arc welding described, the welding head carries the reel of electrode wire, the motive power for the head and wire being provided by an electric motor and transmitted through a flexible drive. The speed of welding can be continuously varied from 20 to 50m./hr., and by gear changes the ratio of this to the rate of electrode feed could be varied from 0.8 to 2.4 SK

USSR/Engineering - Welding
Flux

Aug 49

"A Hand-Operated Device for Welding Under Flux,"
N. Ye. Nosenko, Sci Res Inst, Min of Constr of Heavy
Ind Enterprises, 1 1/2 pp

"Prom Energet" No 8

Though automatic welding under flux, developed by
Ye. O. Paton in the USSR, is most progressive weld-
ing method now in use, it is applicable mainly to
mass production due to high cost of equipment.
Nosenko designed manual device for automatic welding
which preserves many features of the large machines

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USSR/Engineering - Welding (Contd)

Aug 49

and will expand applications of automatic welding.
Includes photograph of device.

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NOSENKO, N. YE.