"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2

RUMSH, M.A.; LUKIRSKIY, A.P.; SHCHEMELEV, V.N.

Using secondary-electron amplifiers for studying soft X-ray spectra. Izv. AN SSSR. Ser. fiz. 25 no.8:1060-1065 Ag '61. (MIRA 14:8)

1. Fizicheskiy fakul'tet Leningradskogo gosudarstvennogo universiteta im. A.A. Zhdanova.

(X-ray spectroscopy)
(Amplifiers(Electronics))

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RUMSH, M.A.; SHCHEMELEV, V.N.; LUKIRSKIY, A.P.

Quantum sensitivity of photographic materials to X rays ranging from 1.54 to 113 °. Izv. AN SSSR. Ser. fiz. 25 no.8:1066-1068 Ag '61. (MIRA 14:8)

1. Fizicheskiy fakul'tet Leningradskogo gosudarstvennogo universiteta im. A.A. Zhdanova.
(Photographic sensitometry)
(X rays)

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"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2

33343
S/181/62/004/001/010/052
B102/B138

24.2600 (1043,1147,1482)

AUTHORS: Rumsh, M. A., Shchemelev, V. N., and Proys, Kh.

TITLE: Determination of the absorption coefficients of an electron flux in a solid from the regularities of X-ray photoemission of a massive photocathode

PERIODICAL: Fizika tverdogo tela, v. 4, no. 1, 1962, 62 - 68

TEXT: In a previous paper (DAN SSSR, 135, 55, 1960) the authors have shown that X-ray induced external photoeffect may be described by

$$\varkappa = \frac{n}{N_0} = \frac{[1-R(\theta)]hc}{2\varepsilon\lambda}\frac{\mu}{\alpha\sin\theta}\frac{1}{1+\frac{\mu}{\alpha\sin\theta}}, \quad (1)$$

where $\varkappa$ is the quantum yield, which is equal to the ratio between the number n of X-ray photoelectrons emitted into vacuum and number N of incident quanta; $R(\theta)$ is the reflection coefficient which is nonvanishing only for small θ, μ is the linear absorption coefficient for X-rays, ε is the mean energy necessary for release of one electron, λ - X-ray

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B102/B138

Determination of the absorption...

wavelength and α - linear attenuation factor of the electron flux. For $R(\theta) = 0$, $\varkappa\sin\theta = K/(1 + \mu/\alpha\sin\theta)$, where K joins all angle-independent quantities. α can be determined by two independent ways: (a) $\varkappa$ is measured for θ_1 and θ_2, then $\alpha = \mu \dfrac{\frac{A}{\sin\theta_1} - \frac{1}{\sin\theta_2}}{1 - A}$, $A = \varkappa_1\sin\theta_1/\varkappa_2\sin\theta_2$.

(b) A photocathode is used consisting of a piece of substance II coated with a layer, x thick, of substance I. If $\varkappa_\infty^{II} \leqslant \varkappa_\infty^{I}$ ($\varkappa_\infty^{I}$ and $\varkappa_\infty^{II}$ are the quantum yields for massive photocathodes of I and II, respectively),

$$\varkappa = \varkappa_\infty^{I}\left(1 - e^{-\left(\frac{\mu}{\sin\theta} + \alpha\right)x}\right). \tag{4a}$$

$$\ln\left(1 - \frac{\varkappa_x}{\varkappa_\infty^{I}}\right) = \left(\frac{\mu}{\sin\theta} + \alpha\right)x, \tag{4б}$$

$\ln(1-\varkappa_x/\varkappa_\infty)$ can be plotted as a function of x from the results, and a straight line is obtained whose angle with the X-axis, φ, is characteristic for α: $\alpha = -\tan\varphi - \mu/\sin\theta$. Advantages and disadvantages of these

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B102/B138

variants are discussed. They were tested when determining α for electrons of various energies excited in gold by different radiations. For the second method gold was vacuum evaporated to a backing of small $\varkappa$, e. g. amorphous carbon on glass. The curves $\varkappa(\lambda)$ and $\log(1-\varkappa/\varkappa_\infty) = f(x)$ were almost straight lines. α was found to increase monotonically with λ, i. e. the mean energy of mobile electrons decreases monotonically. The first method was used to determine α for a 3000-Å layer of Au, which may be taken as being infinitely thick. The α-values determined by this method were higher by ~30%, the $\alpha(\lambda)$-curves ran in parallel for both methods. It is then shown that Eq. (1) should be replaced by

$$\varkappa = \frac{h\varepsilon[1-R(\theta)]}{2\alpha\lambda}\,\frac{\mu}{\alpha\sin\theta}\,\frac{1}{1+\frac{\mu}{\alpha\sin\theta}}\,\nu(\theta). \qquad (6),$$

and A should be replaced by

$$A' = \frac{\varkappa_1\sin\theta_1\nu(\theta_2)}{\varkappa_2\sin\theta_2\nu(\theta_1)} = \frac{\nu(\theta_2)}{\nu(\theta_1)}A. \qquad (7).$$

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Determination of the absorption...

Academician A. A. Lebedev is thanked for discussions. There are 4 figures and 7 references: 4 Soviet and 3 non-Soviet. The two references to English-language publications read as follows: D. E. Bradly. Brit. J. Appl. Phys., 5, 65, 1954; Tolanski. Multiple Beams Interferometry, London, 1948.

ASSOCIATION: Leningradskiy gosudarstvennyy universitet (Leningrad State University)

SUBMITTED: July 10, 1961

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"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2

33345 S/181/62/004/001/011/052
B102/B138

24,2600 (1043,1147,1482)

AUTHORS: Rumsh, M. A., Shchemelev, V. N., and Proys, Kh.

TITLE: Mechanism of external photoeffect with massive photocathodes under the action of X-rays

PERIODICAL: Fizika tverdogo tela, v. 4, no. 1, 1962, 69 - 73

TEXT:

$$\varkappa = \frac{n}{N_0} = \frac{hc[1-R(\theta)]}{2\varepsilon\lambda} \frac{\mu}{\alpha \sin\theta} \frac{1}{1+\frac{\mu}{\alpha \sin\theta}}, \quad (1)$$

A formula earlier derived (DAN SSSR, 135, 55, 1960) is evaluated. It holds for the quantum yield $\varkappa$ obtained from a massive photocathode irradiated by X-rays. It was derived on the assumption that the radiation energy absorbed in a layer of thickness dx is dissipated in the production of dn free electrons; ε is the energy absorbed per electron, n electrons are emitted when N_0 quanta are incident, their wavelength being λ. In exact presentation, the electrons emitted per sec from dx can be divided

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S/181/62/004/001/011/052
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Mechanism of external...

If an effective value, $\bar{\alpha}$, defined by

$$\frac{\frac{\mu_0}{\alpha_0 \sin\theta}}{1+\frac{\mu}{\alpha_0 \sin\theta}} + P_1 \frac{\frac{\mu}{\alpha_1 \sin\theta}}{1+\frac{\mu}{\alpha_1 \sin\theta}} = \frac{\frac{\mu}{\bar{\alpha} \sin\theta}}{1+\frac{\mu}{\bar{\alpha} \sin\theta}},$$

is used,

$$x = \frac{[1-R(\theta)]}{2} \frac{\mu}{\bar{\alpha} \sin\theta} \frac{1}{1+\frac{\mu}{\bar{\alpha} \sin\theta}}. \qquad (4)$$

holds for any wavelength. The probability for an emission of one electron (photoelectron or primary Auger electron) per absorbed quantum is given by $e^{-\alpha x}$, for an emission of one photoelectron and one primary Auger electron per absorbed quantum it is $\frac{1}{4}e^{-2\alpha x}$. x denotes the depth from which emission occurs. Averaged over the whole layer thickness, these probabilities are $1/\alpha$, and $1/8\alpha$, respectively, i. e. less than 11% electron pairs are emitted. Academician A. A. Lebedev is thanked for dis-

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33345

Mechanism of external... S/181/62/004/001/011/052
B102/B138

cussions. A. S. Ganeyev and I. M. Izrailev (ZhTF, XXXI, 376, 1961) are mentioned. There are 2 figures and 8 references: 7 Soviet and 1 non-Soviet.

ASSOCIATION: Leningradskiy gosudarstvennyy universitet (Leningrad State University)

SUBMITTED: July 10, 1961

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"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2

S/181/62/004/008/008/041
B125/B104

29.6370

AUTHORS: Rumsh, M. A., and Shchemelev, V. N.

TITLE: The dependence of the quantum yield of the X-ray photoeffect in a solid cathode on the X-ray polarization

PERIODICAL: Fizika tvordogo tela, v. 4, no. 8, 1962, 2050-2058

TEXT: The influence exerted by the directivity of photoelectrons on the quantum yield is studied by observing the variation in the quantum yield caused by a change in X-ray polarization. N quanta of a monochromatic and partly polarized radiation are assumed to hit a photocathode at an angle θ. The range of angles $(\varphi, \varphi + d\varphi)$ characterizes the state of polarization relative to the plane of incidence. Then, allowing for the emission caused by photoelectrons and Auger electrons, the expression

$$\varkappa = \frac{\mu L \operatorname{ctg}\theta}{\pi}\Phi(2\theta) + \frac{1}{2}\left(\frac{\mu}{a_1 \sin\theta}\,\frac{1}{1+\frac{\mu}{a_1\sin\theta}} + \frac{S_k - 1}{S_k}\,w_e\,\frac{\mu}{a_2\sin\theta}\cdot\frac{1}{1+\frac{\mu}{a_2\sin\theta}}\right), \qquad (11)$$

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is obtained for the quantum yield. Here, α_1 and α_2 are the attenuation factors of electron currents with the energy of photoelectrons and Auger electrons, respectively; S_k is the K-absorption edge of the photocathode material; α_1 is the Auger yield of the K-shell. At $2\theta = 90^0$, α reaches its minimum value α_{min}, and $\alpha = \alpha_{min} + \frac{aL\cos\theta}{\pi}\varphi(2\theta)$ is valid instead of (11). $\varphi(2\theta)$ describes the effect of polarization of the incident radiation. (11) is to be replaced by a more general formula if the wavelength of the incident radiation is shorter than that of the K-absorption edge of the photocathode material. After determining the first and n-th order reflection quantum yields α_1 and α_n, respectively, the tabulated slowing-down lengths $\bar{L}$ and the mean photoelectron energies are obtained with the aid of the expression

$$\Delta H = \frac{aL\,\mathrm{ctg}\,\theta}{\pi}[\Phi(2\theta_1) - \Phi(2\theta_n)], \qquad (15)$$

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for the difference in the quantum yields of 1-st and n-th orders. Any change in the polarization of photoelectrons will change the emission from the photocathode. If the photoeffect is produced chiefly by Auger electrons, the quantum yield will be virtually independent of the X-ray polarization. There are 4 figures and 1 table.

ASSOCIATION: Leningradskiy gosudarstvennyy universitet (Leningrad State University)

SUBMITTED: February 27, 1962

Table. Measured and calculated data.

Legend: (1) material of photocathode; (2) radiation.

Материал фотокатода (1)	Излучение (2)	$x_1 \cdot 10^3$	$\frac{x_1}{x_n}$	$\Delta x \cdot 10^3$	L, Å	λ, мм
Ti	Fe K_α	0.90	1.12±0.07	10±6	80±50	1400
	Ti K_α	0.55	1.05±0.02	2±0.7	50±20	4970
Cr	Fe K_α	1.35	1.007±0.020	0	0	420
	Ti K_α	0.45	1.11±0.06	5±2.5	60±30	5800

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S/181/62/004/008/039/041
B106/B102

AUTHORS: Ramsh, M. A., and Shchemelev, V. N.

TITLE: The Auger effect yield from the chlorine and potassium K-shells and its determination from the quantum yield jumps of the x-ray photoeffect in a massive KCl cathode

PERIODICAL: Fizika tverdogo tela, v. 4, no. 8, 1962, 2281 - 2282

TEXT: In previous work (ZhETF, 42, 727, 1962) the authors have established a theory of determining the Auger effect yields w_e from the quantum yield jumps in the x-ray photoeffect of elemental photocathodes. This theory is expanded to compound photocathodes, in particular to KCl. The quantum yield jump corresponding to the K absorption edge of chlorine involves only one unknown, namely the Auger effect yield $w_e^{(Cl)}$ from the chlorine K-shell. In the case of potassium, this jump involves two unknowns: $w_e^{(Cl)}$ and $w_e^{(K)}$. Thus, $w_e^{(Cl)}$ can be determined from the measured quantum yield jump in chlorine, and $w_e^{(K)}$ can be calculated from $w_e^{(Cl)}$ and from the

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"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2

S/056/62/042/003/014/049
B104/B102

AUTHORS: Rumsh, M. A., Shchemelev, V. N.

TITLE: Determination of the fluorescence yield by measuring the extrinsic X-ray photoeffect on a massive cathode

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 42, no. 3, 1962, 727 - 735

TEXT: The various groups of photoelectrons in the extrinsic X-ray photoeffect of a massive cathode are analyzed. The role of the various groups of electrons changes with the X-ray wavelength. When the wavelength of the X-ray emission passes the wavelength of the K-absorption edge, the contribution of certain electron groups to the extrinsic emission vanishes, and the quantum yield changes discretely. It is shown experimentally that the discontinuous change of the quantum yield is directly related to the yield of the Auger effect, and that by measuring the quantum yield jump of the extrinsic photoeffect it is possible to calculate the Auger effect yield or the fluorescence yield. By an example it is shown that the Auger effect yield of Cr, Ti, V, and Mn, or the fluorescence yield, are in good agreement with the experimental data:

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Element	K jump of absorption	K jump of quantum yield	Fluorescence yield
Ti	9.2	5.9	0.22
V	9.1	5.75	0.24
Cr	8.9	5.55	0.26
Mn	8.8	5.36	0.28

These data are given in the units as stated in the experimental investigations (F. Susor, G. Charpak, J. Phys. et Radium, 20, 462, 1959; W. F. Frey et al., Phys. Rev., 113, 1057, 1959; H. Hagedorn, T. Konijn, Physica, 23, 1069, 1957; A. A. Konstantinov, Tezisy X Vsesoyuznogo soveshchaniya po yadernoy spektroskopii, M., Izd. AN SSSR, 1960). Academician A. A. Lebedev is thanked for his interest. There are 5 figures, 1 table, and 14 references: 8 Soviet and 6 non-Soviet.

ASSOCIATION: Leningradskiy gosudarstvennyy universitet (Leningrad State University)

SUBMITTED: October 21, 1961

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RUMSH, M.A.; SHCHEMELEV, V.N.; PROYS, Kh.

Determining the absorption coefficients for an electron stream in a solid on the basis of regular features of the X-ray photoemission from a massive photocathode. Fiz. tver. tela 4 no.1: 63-68 Ja '62. (MIRA 15:2)

1. Leningradskiy gosudarstvennyy universitet.
(Cathode rays) (Electrons--Capture)
(Photoelectricity)

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2

RUMSH, M.A.; SHCHEMELEV, V.N.; PROYS, Kh.

Mechanism of the external photoeffect emanating from massive photocathodes under the action of X rays. Fiz. tver. tela 4 no.1:69-73 Ja '62. (MIRA 15:2)

1. Leningradskiy gosudarstvennyy universitet.
(Cathode rays)
(Photoelectricity)

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2

S/054/62/000/004/004/017
B104/B186

AUTHORS: Rumsh, M. A., Shchemelev, V. N.

TITLE: X-ray photoeffect of a massive photocathode and determination of the rules governing the K fluorescence yields of the elements in the photocathode

PERIODICAL: Leningrad. Universitet. Vestnik. Seriya fiziki i khimii, no. 4, 1962, 63 - 71

TEXT: A previous paper (M. A. Rumsh, V. N. Shchemelev, ZhETF, 42, no. 3, 727, 1962) dealt with determining the fluorescence yield from a study of the jump of the quantum yield of the extrinsic photoeffect caused by X-rays falling on a massive photocathode consisting of one element. For a photocathode of a two-component compound AB it is assumed that $\mu = \mu_a + \mu_b$ holds for the X-ray attenuation factor. On this assumption the X-ray quanta and fluorescence quanta absorbed by the components A and B are calculated by a method of M. A. Rumsh et al. (DAN SSSR, 135, no. 1, 55, 1960).

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$$\varkappa = \frac{1}{2\sin\theta}\left\{\frac{\mu_a}{\alpha_1}\frac{s_{ka}-1}{s_{ka}} + \frac{\mu_a}{\alpha_2}\frac{s_{ka}-1}{s_{ka}}w_{ea} + \frac{\mu_a}{\alpha_3}\frac{1}{s_{ka}} + \frac{\mu_b}{\alpha_4}\frac{s_{kb}-1}{s_{kb}} + \right.$$
$$+ \frac{\mu_b}{\alpha_5}\frac{s_{kb}-1}{s_{kb}}w_{eb} + \frac{\mu_b}{\alpha_6 s_{kb}} + (1-w_{ea})\gamma_a^{(A)}\frac{1}{\alpha_7} + (1-w_{ea})\gamma_b^{(A)}\left[\frac{s_{kb}-1}{s_{kb}}\frac{1}{\alpha_8} + \right. \qquad (6)$$
$$\left.\left. + \frac{s_{kb}-1}{s_{kb}}w_{eb}\frac{1}{\alpha_9} + \frac{1}{s_{kb}}\frac{1}{\alpha_{10}}\right] + \gamma_a^{(B)}\frac{(1-w_{eb})}{\alpha_{11}} + \gamma_b^{(B)}\frac{(1-w_{eb})}{\alpha_{12}}\right\},$$

is obtained for the quantum yield. s_k is the ratio between the total absorption by an atom and the absorption by all its shells other than the K shell. The indices a and b refer to the components A and B. w_{ei} (i=a,b) is the Auger yield; $\gamma_i^{(K)}$ is a function of the angle of incidence and the attenuation factor. $\varkappa$ shows a jump

$$\sigma_k^B = \frac{\frac{\mu_a}{s_{ka}}E_3^2 + \frac{\mu_b(s_{kb}-1)}{s_{kb}}E_4^2 + \frac{\mu_b(s_{kb}-1)w_{eb}}{s_{kb}}E_5^2 + \frac{\mu_b}{s_{kb}}E_6^2 + \gamma_a^{(B)}(1-w_{eb})E_{11}^2}{\frac{\mu_a}{s_{ka}}E_3^2 + \frac{\mu_b}{s_{kb}}E_6^2} + \qquad (7)$$
$$+ \frac{+\gamma_b^{(B)}(1-w_{eb})E_{12}^2}{\frac{\mu_a}{s_{ka}}E_3^2 + \frac{\mu_b}{s_{kb}}E_6^2}.$$

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at each absorption edge. From this jump

$$w_{eb}=\frac{\left(\sigma_k^{(B)}-1\right)\left(\frac{\mu_a}{s_{ka}}E_3^2+\frac{\mu_b}{s_{kb}}E_6^2\right)-\gamma_a^{(B)}E_{11}^2-\gamma_b^{(B)}E_{12}^2}{\frac{\mu_b(s_{kb}-1)}{s_{kb}}E_5^2-\gamma_a^{(B)}E_{11}^2-\gamma_b^{(B)}E_{12}^2}. \quad (8), \qquad w_{ea}=\frac{\left(\sigma_k^{(A)}-1\right)F+\sigma_k^{(A)}G-G'-H}{\mu_a\frac{s_{ka}-1}{s_{ka}}E_2^2-H}$$

$$\left.\begin{aligned} F&=\frac{\mu_a}{s_{ka}}E_3^2+\frac{\mu_b(s_{kb}-1)}{s_{kb}}E_4^2+\frac{\mu_b(s_{kb}-1)}{s_{kb}}w_{eb}E_5^2+\frac{\mu_b}{s_{kb}}E_6^2,\\ H&=\gamma_a^{(A)}E_7^2+\gamma_b^{(A)}\left(\frac{s_{kb}-1}{s_{kb}}E_8^2+\frac{s_{kb}-1}{s_{kb}}w_{eb}E_9^2+\frac{1}{s_{kb}}E_{10}^2\right),\\ \left.\begin{matrix}G'\\G\end{matrix}\right\}&=(1-w_{eb})\left(\gamma_a^{(B)}E_{11}^2+\gamma_b^{(B)}E_{12}^2\right), \end{aligned}\right\} \quad (9)$$

are obtained for the Auger yields. $w_{eCl} = 0.896 \pm 0.017$ and $w_{eK} = 0.870 \pm 0.41$ is obtained for the Auger yield from the experimentally determined jumps $\sigma_k^K = 2.23 \pm 0.05$ and $\sigma_k^{Cl} = 3.91 \pm 0.05$ of the quantum yield of a K and Cl photocathode. The linear X-ray attenuation factors were determined according to Johnson. If they are determined with the aid of a formula of

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M. A. Blokhin (Fizika rentgenovskikh lucney - X-ray Physics, Gostekhizdat, 1953) then $w_{eCl} = 0.906 \pm 0.018$ and $w_{eK} = 0.887 \pm 0.042$ is obtained for the Auger yield. Hence, the accuracy of the Auger yields is not governed by the accuracy of the quantum yield jump determination but by the inaccuracies of the linear absorption factors. There is 1 figure.

SUBMITTED: May 22, 1962

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"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2

RUMSH, M.A.; SHCHEMELEV, V.N.

Dependence of the quantum yield of the X-ray photoeffect from a massive cathode on the X-ray polarization state. Fiz. tver. tela 4 no.8:2050-2058 Ag '62. (MIRA 15:11)

1. Leningradskiy gosudarstvennyy universitet.
(Photoelectricity) (X rays) (Quantum theory)

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2

S/181/62/004/010/023/063
B108/B104

AUTHORS: Shchemelev, V. N., and Rumsh, M. A.

TITLE: Study of the elementary process of the X-ray photoeffect by the analysis of pulse-height distribution at the output of a secondary electron multiplier

PERIODICAL: Fizika tverdogo tela, v. 4, no. 10, 1962, 2795 - 2801

TEXT: A primary electron released in the X-ray photoeffect will release a bunch of secondary electrons. The mean number of electrons in such a bunch is determined here by means of an open secondary-electron multiplier. The mean number of electron in a bunch, i.e., of those released in one elementary process of the X-ray photoeffect, is the ratio which the mean amplitude of the pulses produced by the bunch on the photocathode to be examined bears to the mean amplitude of the pulses produced by one electron in the multiplier. Experiments were made with photocathodes of Al, Cu, Au, NaCl, KCl, MgO, LiF. In X-ray photoemission, the photoelectron is accompanied by a group of secondary electrons which differ considerably for metallic and nonmetallic photocathodes. For metal photocathodes, the mean

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number of electrons in a group is 2 - 3, for nonmetallic it amounts to 4 - 7. This number increases when the wavelength of the primary X-radiation increases. This increase, however, ceases as soon as the absorption edge is reached. The pulses coming from NaCl and KCl photocathodes are indicative of two different groups of electrons. These are associated with the surface layer acquiring a charge and consequently auto-emitting electrons. There are 3 figures and 1 table.

ASSOCIATION: Leningradskiy gosudarstvennyy universitet (Leningrad State University)

SUBMITTED: May 22, 1962

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"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2

S/181/63/005/001/010/064
B102/B186

X-ray photo effect of ...

of the curve is explained by assuming that the X-ray electrons are emitted from a depth equal to the X-ray penetration depth, and that an additional electron mechanism exists furnishing slow electrons. If the results of the analysis of the volt-ampere delay curves are compared with the pulse values (definitions cf Ref. 1) of the quantum yield, which can exceed 100% for some dielectrics, then it is possible to determine the contribution of this additional mechanism to the total effect and to calculate the number of electrons emitted per X-ray photo-emission event. These numbers for NaCl, KCl, MgF_2 and CaF_2 worked out at 13.2, 11.4, 2.55 and 5.7. The X-ray quantum yields $\varepsilon_r = i_r/Ne$ amounted to 0.57, 0.77, 0.18 and 0.44 (in the same sequence); i_r is the current of the X-ray electrons, e the electron charge and N the number of quanta; the quantum yields of the additional mechanism were 2.07, 2.63, 0.17 and 0.86. It can be shown that the multi-electron effects are connected with secondary emission effects. There are 2 figures and 2 tables.

Card 2/2

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2

S/181/63/005/001/011/064
B102/B186

AUTHORS: Rumsh, M. A., and [illegible], V. N.

TITLE: Part played by the secondary emission phenomena in the X-ray photoeffect of metallic cathodes

PERIODICAL: Fizika tverdogo tela, v. 5, no. 1, 1963, 71-77

TEXT: Earlier, the authors have shown (FTT, 4,2795,1962) that in the case of X-ray induced photoemission not one but several electrons are emitted per absorbed quantum, this being due to secondary emission. Two quantum yields are distinguished. One, designated as pulse quantum yield, is the ratio between emission events and quantum number ($\varkappa_{\nu} = n/N$). The other, called current quantum yield, is given by $\varkappa_{c} = n\bar{\nu}/N$ where $\bar{\nu}$ is the mean number of electrons emitted per event. A special instrument was developed for measuring $\varkappa_{c}$ consisting in principle of a quasispherical capacitor with a central plane cathode. A spherical molybdenum grid with a nickel cylinder is used as collector. The entire system is contained in a steel vacuum chamber with two windows closed by beryllium plates for

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S/181/63/005/001/011/064
B102/B186

Part played by the secondary ...

the exit and the entrance of the X-rays. The operating pressure in the chamber was not higher than $5 \cdot 10^{-6}$ mm Hg. The current was determined by measuring a compensation current, with an accuracy of 10^{-14}a. The studies were made with Cu-K_α radiation from a BSV-7 (BSV-I) X-ray tube. Numerous experiments showed that reproducible results were obtained only when metals were vacuum-sputtered onto polished glass plates. The following results were obtained:

Photocathodes	Si	Pb	Au	Sn	Ge	Cu	Co	Cr	Al
[illegible]	-	3.0	2.5	2.4	2.4	-	-	1	0.5
[illegible]	2.4	4.5	7.5	6.7	5.5	1.2	5.0	3.8	0.7
[illegible]	-	2.2	3.0	2.8	2.3	-	-	3.7	2.3

In addition the energy spectrum of the X-ray induced electron emission was investigated. The course of the volt-ampere characteristics of these metals is typical. With positive voltages the current is constant and of the order of 10^{-13}a, at zero voltage it is steeper and decreases almost step-wise, at -40 to -50v the current becomes constant again. It remains

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"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2

L 17507-63 EPF(c)/EWP(q)/EWT(m)/BDS AFFTC/ASD/APGC Pr-4 JD/DJ

ACCESSION NR: AP3004537 S/0065/63/000/008/0064/0069 68 66

AUTHORS: Demchenko, V. S.; Shchemelev, V. N. 18

TITLE: Electron diffraction analysis of films formed on lead by anticorrosion additives.

SOURCE: Khimiya i tekhnologiya topliv i masel, no. 8, 1963, 64-69

TOPIC TAGS: electron diffraction analysis, lead, anticorrosion additive, dimethylsulfide, DF-1 additive, DF-8 additive, TsIATIM-339 additive, VNII-additive, NP-371 additive, BFK-1 additive

ABSTRACT: The effect of anticorrosion additives, which are added to lubricating oils, depends to a great extent upon the properties and structure of the protective films formed by these additives. The films formed on the metal surface are very thin. The thickness of the film formed with diphenylsulfide on the surface of lead is only 300 angstrom. These films were analyzed by electron-diffraction method. It was found that the films formed by the studied anticorrosion additives DF-1, DF-8, TsIATIM-339 consist of a multitude of disarranged fine crystals and the films from additives VNII, NP-371, and BFK-1 consist of crystals oriented in a definite direction. Destruction of the protective film apparently takes place

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L 17507-63

ACCESSION NR: AP3004537

not only by means of solvational disruption of the additive radicals with acids, but also as the result of loose property of the surface-active oxidation products of the lubricating oil which penetrate into the crystal micro-interspace resulting in the separation of the entire crystal from the film. Orig. art. has: 1 table and 1 figure.

ASSOCIATION: none

SUBMITTED: 00 DATE ACQ: 27Aug63 ENCL: 00

SUB CODE: CH NO REF SOV: 011 OTHER: 002

Card 2/2

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2

S/181/63/005/004/026/047
B102/B186

AUTHORS: Shchemelev, V. N., Rumsh, M. A., and Denisov, Ye. P.

TITLE: Determination of thickness and efficiency of the yield zone of true secondary electron emission based on an investigation of the energy spectrum of X-ray photoemission

PERIODICAL: Fizika tverdogo tela, v. 5, no. 4, 1963, 1132 - 1137

TEXT: The X-ray photoemission energy spectrum of NaCl, KCl and KBr photocathodes, condensed in vacuo onto Al or Au substrata were analyzed in order to determine the thickness of the yield zone l and its efficiency $S=\nu-1$, where ν is the mean number of electrons contained in the wave packet (cf. FTT, 4, 2795, 1962), $\nu = I/i_r$, I being the total current in the case of zero delay, and i_r the current due to X-ray photoelectrons. The layer thicknesses investigated were between several tens and several thousands of Å about ten different cathodes were measured for each pair substratum-salt, placed in a spherical capacitor. The electrometer used had a sensitivity of 10^{-14}a so that $\nu = I/i_r$ obtained from the volt-ampere characteristics was

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very accurate. The results were found to be affected by an additional mechanism of emission which had to be taken into account when determining S. The current due to this mechanism was calculated using the relation $i_{add} = \frac{\varkappa_i - \varkappa_r}{\varkappa_r} i_r$, where $\varkappa_i$ is the quantum yield determined by the ratio number of emission events/ number of absorbed quanta; $\varkappa_r$ is the X-ray quantum yield, the ratio number of X-ray electrons emitted into vacuum/number of quanta. For metals $\varkappa_i = \varkappa_r$, but for dielectrics $\varkappa_i > \varkappa_r$. The additional mechanism most probably becomes apparent only when besides irradiation also an electric field acts on the cathode; in the present case this field was $\sim$1 kv/cm. The following results were obtained:

	l	ν	S	S'	
NaCl	1000±100 Å	22	21	18	$S = (I-i_r)/i_r$
KCl	600±100 Å	18	17	15	$S' = (I-i_{add}-i_r)/i_r$
KBr	500±100 Å	24	23	21	

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Determination of thickness and... S/181/63/005/004/026/047
B102/B186

Only if the salt layer thickness is smaller than the Debye radius, S depends on the substratum properties. There are 5 figures and 1 table.

ASSOCIATION: Leningradskiy gosudarstvennyy universitet (Leningrad State University)

SUBMITTED: November 21, 1962

Card 3/3

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2

L 10183-63 EWT(1)/BDS—AFFTC/ASD/SSD

ACCESSION NR: AP3001362 S/0048/63/027/006/0821/0828

54

52

AUTHOR: Rumsh, M. A.; Shchemelev, V. N.

TITLE: Determination of x-ray fluorescence yields from the jump-like discontinuities in x-ray photoemission

SOURCE: AN SSSR. Izv. Seriya fizicheskaya, v. 27, no. 6, 1963, 821-828

TOPIC TAGS: k-fluorescence yields, massive-cathode method, x-rays

ABSTRACT: A method developed by the authors (Fiz. tver. tela, 4, 69, 1962; ZhETF, 42, 727, 1962) for obtaining the k-fluorescence yields of elements by measuring the x-ray photoeffect of a massive cathode is reviewed. On the basis of an unsuccessful attempt to determine the k-fluorescence yields of Mg, Al, and Si it is concluded that this method can be used only if a photocathode can be made of the element under investigation in such a manner as to contain an insignificant amount of impurities. It cannot be used if impurities with a higher atomic number than the element whose fluorescence yield is being determined are present or if the impurities are concentrated near the surface. Although the technique of

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L 10183-63
ACCESSION NR: AP3001362

2

determining the fluorescence yields of elements forming binary compounds was also worked out earlier, the analysis conducted in the present article shows it to be much less reliable than in the case of pure elements. "The authors express thanks to Academician A. A. Lebedev for his interest in the work and a discussion of the results." Orig. art. has: 9 formulas, 3 tables, and 2 figures.

ASSOCIATION: Fizicheskiy fakul'tet Leningradskogo gos. universiteta im. A. A. Zhdanova (Physics Faculty, Leningrad State University)

SUBMITTED: 00 DATE ACQ: 01Jul63 ENCL: 00

SUB CODE: 00 NO REF SOV: 007 OTHER: 003

jk/ae

Card 2/2

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2

L 12645-65 EWA(k)/EWT(1)/EPA(s)-2/EWG(k)/EWT(m)/T/EEC(t)/EPR/EWP(b) Pz-6/
Ps-4/Pt-10 IJP(c) JD/JG/AT

ACCESSION NR: AP4044922 S/0181/64/006/009/2569/2573

AUTHORS: Denisov, Ye. P.; Shchemelev, V. N.; Mezhevich, A. N.; Rumsh, M. A.

B

TITLE: Analysis of the energy composition of x-ray photoemission from a bulky cathode

21

SOURCE: Fizika tverdogo tela, v. 6, no. 9, 1964, 2569-2573

TOPIC TAGS: x ray emission, x ray spectrum, photoemission, cathode, K band, L band

ABSTRACT: The purpose of the investigation was to separate the parts connected with the K, L, Auger, and secondary electrons from the total photoemission, and to compare the relative number of electrons in each group with the corresponding coefficients in the formula for the quantum yield. To this end, the method of spherical capacitor was used to study the energy composition of the x-ray pho-

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ACCESSION NR: AP4044922

toemission for aluminum, chromium, titanium, and iron photocathodes. The setup used was described by two of the authors (Rumsh and Shchemelev, FTT v. 5, 71, 1963). A graphic procedure for separating the various components is described. The results confirm the validity of the equation derived previously by the Rumsh and Shchemelev (ZhETF v. 42, 727, 1962) for the quantum yield of the external photoeffect. "The authors thank Academician A. A. Lebedev for interest in the work and for a discussion of the results." Orig. art. has: 3 figures, 1 formula, and 1 table.

ASSOCIATION: Leningradskiy gosudarstvenny*y universitet (Leningrad State University)

SUBMITTED: 28Nov63 ENCL: 00

SUB CODE: OP, SS NR REF SOV: 008 OTHER: 000

Card 2/2

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"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2

L 12640-65 EWA(k)/EWT(1)/EWG(k)/EWT(m)/EPA(sp)-2/EPF(n)-2/EPA(w)-2/
EEC(t)/T/EWP(t)/EWA/EWP(b) Pz-6/Pab-10/Pu-4 IJP(c) AT/RWH/JD

ACCESSION NR: AP4044923 S/0181/64/006/009/2574/2579

AUTHORS: Shchemelev, V. N.; Yeliseyenko, L. G.; Denisov, Ye. P.; Rumsh, M. A.

B

TITLE: Current and pulse measurements of x-ray photoemission of a bulky cathode

SOURCE: Fizika tverdogo tela, v. 6, no. 9, 1964, 2574-2579

TOPIC TAGS: x ray emission, photoemission, cathode, metallic photocathode, dielectric photocathode, electron multiplier, secondary electron multiplier

ABSTRACT: It is shown, after reviewing the earlier literature and the various measurement methods, that the discrepancies in the results obtained from metals and dielectrics are due to certain peculiarities in emission from these substances. Metallic photocathodes are characterized by emission of fast x-ray electrons unaccompanied

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by slow truly secondary satellites, so that measurement of emission with the aid of secondary-electron multipliers of the open type fails to record an appreciable part of this emission. In the case of dielectric photocathodes, an appreciable fraction of the emission acts consists of purely secondary events, the number of which increases as the thicknesses for the yield of x-ray and secondary electrons become equalized and as the secondary emissivity of the dielectric medium increases. It is therefore possible to explain the discrepancy between the number of x-ray electrons emitted into vacuum from a dielectric and the number of produced x-ray electrons in dielectrics without resorting to an additional emission mechanism. Experimental data are presented for the average number of electrons per emission act. The corresponding emission coefficients and frequencies of emission acts are tabulated for various dielectrics (NaCl, KCl, KBr, CsCl, CsI) and metals (Al, Ti, Cr, Fe, Co, Sn, Au, Pb, and Bi). The effect of coating metals with dielectrics is also briefly discussed. "The authors thank Academician A. A. Lebedev for

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L 12640-65

ACCESSION NR: AP4044923

interest in the work and for a discussion of the results." Orig. art. has: 2 formulas and 3 tables.

ASSOCIATION: Leningradskiy gosudarstvenny*y universitet (Leningrad State University)

SUBMITTED: 28Nov63 ENCL: 00

SUB CODE: SS, OP NR REF SOV: 007 OTHER: 000

Card 3/3

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2

L 16339-65 EWA(k)/EWT(1)/EWG(k)/EEC(t) Pz-6 IJP(c)/ESD(t)/ESD(gs)/ASD(a)-5/AS(mp)-2 AT

ACCESSION NR: AP5000678 S/0181/64/006/012/3711/3712

AUTHORS: Yeliseyenko, L. G.; Shchemelev, V. N.; Rumsh, M. A.

TITLE: Spectral variation of the x-ray photoeffect and determination of the laws governing the Lenard constants on its basis

SOURCE: Fizika tverdogo tela, v. 6, no. 12, 1964, 3711-3712

TOPIC TAGS: x ray effect, photoeffect, photocathode, electron emission

ABSTRACT: By plotting the experimental spectrum of the x-ray photoeffect from a titanium photocathode and comparing the plot with the theoretical values, it is shown that the Lenard equation $1/\alpha = C_2E^2$ (α -- coefficient of linear attention of the electrons by the cathode material, C -- constant) should be replaced by the formula $1/\alpha = C_2E^n$, with $n < 2$. The experimental data were obtained with an instrument previously described by some of the authors (PTE, No. 5,

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L 16339-65

ACCESSION NR: AP5000678

67, 1960) by a procedure described elsewhere (FTT v. 6, 2574, 1964). For Al, Ti, Fe, Ni, and Cu the respective values of n are 1.3, 1.3, 1.4, 1.35, and 1.44 and the values of C_2 are 100, 65, 42, 43, and 36. The values obtained for n agree well with the exponents obtained in the energy dependence of the mean free paths of the materials. It is shown that a formula previously proposed by two of the authors (Rumsh and Shchemelev, ZhETF, v. 42, 727, 1962) does not agree with the experimental data, owing to the use of the original Lenard formula in the latter case. Orig. art. has: 1 figure, 1 table, and 4 formulas.

ASSOCIATION: Leningradskiy gosudarstvenny*y universitet (Leningrad State University)

SUBMITTED: 06Jul64

ENCL: 00

SUB CODE: SS, OP

NR REF SOV: 007

OTHER: 002

Card 2/2

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2

ACCESSION NR: AP4009988 S/0109/64/009/001/0148/0154

AUTHOR: Rumsh, M. A.; Tyutikov, A. M.; Shchemelev, V. N.

TITLE: X-ray photoelectric effect of a multilayer cathode

SOURCE: Radiotekhnika i elektronika, v. 9, no. 1, 1964, 148-154

TOPIC TAGS: secondary electron multiplier, multilayer cathode, photoelectric effect, x-ray photoelectric effect, BeO cathode coating, MgO cathode coating

ABSTRACT: An experimental investigation of the effect of the thickness of MgO and BeO passivating layers upon the quantum yield of the photoelectric effect (or the efficiency of a secondary-electron multiplier) is reported. Wedge-type (from tens Å to 7,000 Å) MgO and BeO coatings on Au, Cr, Al, and SrF_2 backings were tested. It was found that: (1) The above effect is not a monotonous function: thickness curves may have maxima and minima; (2) The changing shape of the thickness curves can be explained by (a) groups of electrons with different

Card 1/2

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[illegible], [illegible]; [illegible], [illegible]; [illegible], [illegible]; [illegible], [illegible].

Measuring X-ray photoemission from metals by means of open type secondary-electron multipliers. Prib. i tekh. eksp. 9 no.6:114-118 N-D '64. (MIRA 18:3)

1. Leningradskiy gosudarstvennyy universitet.

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[illegible] [illegible], [illegible], [illegible]

[illegible] the X-ray photoelectron method in studying the passage of [illegible] electrons through material media. Vest. LGU [illegible] '65. (MIRA 18:9)

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"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2

[illegible]

[illegible] of the distribution of iodine and bromine in underground waters of the outer zone of the Carpathian piedmont [illegible]. Nefteгаз. geol. i geofiz. no.3:44-47 '65. (MIRA 18:7)

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"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2

ACC NR: AP7005862

soidal law obtained in the other measurements. This demonstrates that the energy composition of the integral emission can be obtained by investigating the energy distribution (by plotting the delay curves) in a narrow solid angle. The authors thank A. A. Lebedev for interest in the work and a discussion of the results. Orig. art. has: 2 figures.

SUB CODE: 20/ SUBM DATE: 10Jun66/ ORIG REF: 003/ OTH REF: 001

Card 2/2

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"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2

ACC NR: AP7005863

agreement, from which it follows that the mean free path and the practical path in the spherically symmetric experiment virtually coincide and are equal to the free path as determined experimentally in a thin film. This in turn shows that the attenuation at film thicknesses smaller than the practical path is associated with scattering by angles close to and larger than 90°, which results in reflected electrons and electrons which escape along the layer where they are retarded. The authors thank A. A. Lebedev for his interest in the work and for discussing the results. Orig. art. has: 2 formulas and 1 table. [JA]

SUB CODE: 20/ SUBM DATE: none/ ATD PRESS: 5116

Card 2/2

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2

ACC NR: AP7005342

than that of the absorption events. The absolute values of the quantum yields for a number of alkali-halide compounds are summarized for quantum energies ranging from 1200 to 8070 ev. The authors thank A. A. Lebedev for a discussion of the results. Orig. art. has: 1 figure and 1 table.

SUB CODE: 20/ SUBM DATE: 10Jun66/ ORIG REF: 005/ OTH REF: 002

Card 2/2

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2

BORISOV, P.A., doktor geologo-mineralog.nauk, nauchnyy red.; SALO, I.V., red.; SHCHEMELEVA, A.V., red.; SHEVCHENKO, L.V., tekhn.red.

[Mineral resources in the Karelian A.S.S.R. and their development] Mineral'nye resursy Karel'skoi ASSR i puti ikh promyshlennogo osvoeniia. Petrozavodsk, Gos.izd-vo Karel'skoi ASSR, 1960. 50 p. (MIRA 13:9)

1. Akademiya nauk SSSR. Karel'skiy filial, Petrozavodsk.
(Karelia--Mines and mineral resources)

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2"

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SKOROPANOV, S.G., red.; DADYKIN, V.P., doktor biol. nauk, red.; LEBEDEVA, N.V., kand. bil. nauk, red.; RAYEVSKAYA, V.S., red.; SALO, I.V., red.; SHCHEMELEVA, A.V., red.; GREYVER, I.K., tekhn. red.

[Improvement of farm and forest lands in northwestern U.S.S.R.] Melioratsiia sel'skokhoziaistvennykh i lesnykh ugodii Severo-Zapada SSSR; materialy konferentsii. Petrozavodsk, Gos. izd-vo Karel'skoi ASSR, 1962. 253 p. (MIRA 15:6)

1. Nauchno-tekhnicheskaya konferentsiya po voprosam osusheniya i osvoyeniya bolot i zabolochennykh zemel' Karelii, Petrozavodsk. 1961. 2. Chlen-korrespondent Akademii nauk Belorusskoy SSR, Ministerstvo sel'skogo khozyaystva Belorusskoy SSR (for Skoropanov).
(Russia, Northwestern—Soils)

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VASIL'[illegible], [illegible], red.; [illegible], [illegible], red.; [illegible], [illegible], red.; [illegible], [illegible], red.; [illegible], [illegible], red.; [illegible], [illegible], red.; KIKIN[illegible], G.V., red.; [illegible], [illegible], red.; SHCHEMELEVA, A.V., red.

[Materials of the Conference on the Overall Use of Wood] Materialy Konferentsii po kompleksnomu ispol'zovaniiu drevesiny. Petrozavodsk, Karel'skoe knizhnoe izd-vo, 19[illegible]. [illegible] p. (MIRA 18:1)

1. Konferentsiya po kompleksnomu ispol'zovaniyu drevesiny, Petrozavodsk, 19[illegible].

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2

USSR/ Analytical Chemistry. Analysis of Inorganic Substances. G-2

Abs Jour: Referat. Zhur.-Khimiya, No. 8, 1957, 27164

Author : G.G. Shchemeleva, V.I. Petrashen'.

Inst : Novocherkassk Polytechnical Institute.

Title : Photocolorimetric Determination of Thallium with Application of Methyl Violet. (Abridged Report).

Orig Pub: Tr. Novocherkas. politekh. in-ta, 1955, 31, 87-88.

Abstract: This method is based on the colored solid phase reaction of complex anions $[TlCl_4]^-$ and $[TlBr_4]^-$ with methyl violet; the produced suspension dissolves well in toluene coloring the toluene layer into a bluish-violet hue. The color is stable 6 to 7 hours and does not depend on the temperature in the range from 15 to 70°; the maximum luminous

Card 1/3

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"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2

USSR/ Analytical Chemistry. Analysis of Inorganic Substances. G-2

Abs Jour: Referat. Zhur.-Khimiya, No. 8, 1957, 27164.

absorption is at 530 to 620 mμ ; the mol extinction factor is 50,000; the fluctuation of acidity within the limits from 0.02 to 0.2 n. does not influence the optical density, further rise of the acidity decreases the optical density, and at 2 n. (H_2SO_4) it drops to a half; Beer's law is complied with at 0.2 to 2.5 mg/ml of Tl. For the determination of Tl, 0.01%-ual solution of methyl violet (2.3 ml per 10 ml of the resulting solution) is added to the analyzed solution, the acidity of which has been made o.1 n (by HCl), the mixture is extracted with an equal volume of toluene and photocolorimetered with a photocolorimeter FEK-M with a green light filter. 0.2 mg of Tl per ml is determined by this method. The results are reproducible; the error determination is 0.5 mg of

Card 2/3

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"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2

USSR/ Analytical Chemistry. Analysis of Inorganic Substances. G-2

Abs Jour: Referat. Zhur.-Khimiya, No. 8, 1957, 27164.

Tl per ml or $\leqslant$ 2%. The presence of 500 mg of Fe^{3+} and Pb^{2+} per ml does not interfere.

Card 3/3

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2

SHCHERBELEVA, G. G.

SHCHERBELEVA, G. G. -- "Colorimetric Determination of Thallium with the Use of Methyl Violet." Min Higher Education USSR, Novocherkassk Polytechnical Inst imeni Sergo Ordzhonikidze, Chair of Analytical Chemistry, Novocherkassk, 1956. (Dissertation for the Degree of Candidate of Chemical Sciences)

SO: Knizhnaya Letopis' No 44, October 1956

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2

IL'YASOV, I.I.; SHCHEMELEVA, G.G.; BERGMAN, A.G.

Fusibility in the system of sodium and lead bromides and chlorides.
Zhur.neorg.khim. 2 no.9:2168-2173 S '57. (MIRA 10:12)
(Fusion) (Chemistry (Systems))

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2

SOV/137-59-1-2176

Translation from: Referativnyy zhurnal. Metallurgiya, 1959, Nr 1, p 286 (USSR)

AUTHOR: Shchemeleva, G. G.

TITLE: New Colorimetric Method for Determination of Small Amounts of Thallium (Novyy kolorimetricheskiy metod opredeleniya malykh kolichestv talliya)

PERIODICAL: Tr. Komis. po analit. khimii AN SSSR, 1958, Vol 8(11), pp 135-140

ABSTRACT: The author developed a colorimetric method for the determination of Tl with methyl violet (I). In an acid medium Tl^{3+} with I produces a blue-violet color, caused by the formation of a crystalline suspension which can be extracted with toluene (which is also colored in the same tint); the coloring is stable for 16-20 hours. 0.2-5 γ/cc Tl can be determined visually. For this purpose to 1-3 cc of solution are added 0.7 cc 1N HCl, 1 cc 0.02% solution of I, and enough water to make 5 cc. The whole is shaken for 20-30 sec with 5 cc toluene and, after a short settling period, the toluene layer is read on the colorimeter. To prepare a standard solution Tl^{+} is oxidized in HCl solution with fresh $HClO_4$ to Tl^{3+}, the excess Cl_2 is removed by boiling

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SOV/137-59-1-2176

New Colorimetric Method for Determination of Small Amounts of Thallium

(testing with a starch-iodide paper), then built up to the necessary volume with water. 0.1-2.5 γ/cc Tl can be determined by the photocolorimetric method. To achieve this the final 10-cc volume should contain 1 cc 1N HCl and 2.8 cc 0.01% I solution. Toluene serves as the null (blanc) solution; a green light filter is used. Elements usually associated with Tl do not impede the determination. Sb, Sn, and Bi are removed by hydrolysis. To determine Tl in metallic Cd a 2-4 g sample is dissolved in H_2SO_4 (1:9) with 15-20 drops of HNO_3. The solution is neutralized, HCl is added drop by drop until cloudiness is dissolved, then the oxidation is performed. An aliquot part of the solution is taken for the colorimetric determination. Tl determination in metallic Zn is carried out in the same manner, but the specimen is dissolved without HNO_3. The determination lasts 25-30 min, precision is 3%.

N. G.

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APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2

IL'YASOV, I.I.; SHCHEMELEVA, G.G.; BERGMAN, A.G.

Fusibility of a ternary system of sodium, cadmium and lead bromides. Zhur. neorg. khim. 4 no.4:906-908 Ap '59. (MIRA 12:5)

(Systems (Chemistry))

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2

SOV/78-4-4-33/44

5(4)

AUTHORS: Il'yasov, I. I., Shchemeleva, G. G., Bergman, A. G.

TITLE: The Behavior of the Ternary System of Sodium, Cadmium and Lead Bromides in the Melting Process (Plavkost' troynoy sistemy iz bromidov natriya, kadmiya i svintsa)

PERIODICAL: Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 4, pp 906-908 (USSR)

ABSTRACT: The system Na, Cd, Pb ‖ Br was investigated by a visual polythermal method. The binary systems Na_2Br_2-$PbBr_2$, Na_2Br_2-$CdBr_2$ and $CdBr_2$-$PbBr_2$ were checked and completed. Six internal sections of the ternary system were investigated; the results are contained in figure 1 and table 2. The melting diagram of this system consists of three main crystallization ranges. A range with α- and β-homeomorphous differences appears within the range of Na_2Br_2. In the system Na_2Br_2-$PbBr_2$ a eutectic occurs at 324° with 9.7% Na_2Br_2. The transition point of the α- and β-homeomorphous form is located at 380° with 17% Na_2Br_2. The system $CdBr_2$-$PbBr_2$ forms a eutectic at 340° with

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SOV/78-4-4-33/44

The Behavior of the Ternary System of Sodium, Cadmium and Lead Bromides in the Melting Process

[illegible]% $CdBr_2$. The melting points within the binary systems $PbBr_2$-$NaBr_2$ and $PbBr_2$-$CdBr_2$ are given in a table. There are 2 figures, 2 tables, and 8 references, 7 of which are Soviet.

SUBMITTED: December 26, 1957

Card 2/2

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2

IL'YASOV, I.I.; SHCHEMELEVA, G.G.; BERGMAN, A.G.

Fusibility diagram of a ternary system consisting of sodium, potassium, and lead bromides. Zhur.neorg.khim. 5 no.6:1254-1256 Je '60. (MIRA 13:7)

1. Rostovskiy-na-Donu inzhenerno-stroitel'nyy institut.
(Sodium bromide)
(Potassium bromide)
(Lead bromide)

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2

S/137/61/000/011/122/123
A060/A101

AUTHOR: Shchemeleva, G. G.

TITLE: Determination of thallium in metallic cadmium

PERIODICAL: Referativnyy zhurnal. Metallurgiya, no. 11, 1961, 13, abstract 11K79 (V sb.: "Fiz.-khim. metody analiza i kontrolya proiz-va", Rostov-na-Donu, Rostovsk. un-t, 1961, 151 - 154)

TEXT: The method of determining microgram quantities of Tl in metallic Cd is based on the photometry of a stained Tl complex with methyl-violet. 4 g Cd is dissolved in 20 ml H_2SO_4 (1:9) in the presence of a minimum quantity of concentrated HNO_3. The solution is evaporated. To the SO_3 vapors one adds 10 ml water, cools, and neutralizes the solution with 15% solution of NaOH or KOH. Then the solution is diluted with an equal quantity of water and the precipitate of the basic salts of Sb, Sn, and Bi is filtered off. 20 - 30 drops of 1 N HCl is added and the solution is transferred to a 50-ml flask. Then one adds 10 - 20 drops of freshly prepared Cl-water, the Cl excess is eliminated by boiling, controlling the completeness of Cl_2 elimination with a starch iodide paper. The solution is watered up to the mark and the aliquot part is transferred to a fractionating

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"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2

Determination of thallium in metallic cadmium

S/137/61/000/011/122/123
A060/A101

funnel, where one first adds 10 ml of toluene, 1 ml of 1 N HCl, and 2.8 ml of 0.01% methyl-violet solution. One shakes for 30 - 40 sec, after 10 min the toluene layer is transferred to a cuvette and photocolorimetric determination is made at a green light filter. For a Tl content of 0.002%, one reduces the amount to 2 g. The relative error of determination is ~2%. The analysis takes 40 - 45 min. There are 11 references.

B. Melent'yev

[Abstracter's note: Complete translation]

Card 2/2

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"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2

IL'YASOV, I.I.; SHCHEMELEVA, G.G.; BERGMAN, A.G.

Fusibility of a ternary system of sodium, potassium, and thallium iodides. Zhur. neorg. khim. 6 no.3:699-701 Mr '61. (MIRA 14:3)

1. Rostovskiy-na-Donu filial Vsesoyuznogo zaochnogo instituta pishchevoy promyshlennosti.
(Sodium iodide) (Potassium iodide)(Thallium iodide)

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2

ACCESSION NR: AR4015653 S/0081/63/000/021/0094/0094

SOURCE: RZh. Khimiya, Abs. 21G47

AUTHOR: Kovalenko, N. P.; Shchemeleva, G. G.; Bagdasarov, K. N.; Starodubskaya, A. A.

TITLE: Electrolytic separation of lead and uranyl, and the subsequent photocolorimetric determination of uranyl

CITED SOURCE: Sb. Elektrokhim. i optich. metody* analiza. Rostov-na-Donu, Rostovsk. un-t, 1963, 153-159

TOPIC TAGS: lead, uranyl, electrolytic lead separation, electrolytic uranyl separation, photometric analysis, photometric uranyl determination

ABSTRACT: It was established that UO_2^{2+} can be separated quantitatively from 2500 times the amount of Pb^{2+} by electrodeposition of Pb from a hydrochloric acid solution, containing NH_2OH, on a copperplated Pt cathode (75-80C, 2 amps, 2 v). The determination of UO_2^{2+} is completed photometrically, using an arsenazo dye. It was shown that UO_2^{2+} forms a colored compound (1:1) with the latter with a peak light absorption at 584 mμ (molecular absorption coefficient $1.9 \cdot 10^4$). The color intensity of the compound is maximal at pH 4.4-7.0. The color develops

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ACCESSION NR: AR4015653

instantly and does not vary over the course of an hour. The color intensity drops as the temperature increases, Beer's law being observed at UO_2^{2+} concentrations of 0.2-2.4 γ/ml. Zn, SO_4^{2-}, NO_3^- and Cl^- do not interfere with the photometric determination described, using arsenazo, while Fe^{3+}, Cu^{2+}, Sb^{3+}, Pb^{2+}, Bi^{3+}, citrate, tartrate and NH_2OH do interfere. To determine Pb and UO_2^{2+} when both are present, 120 ml of the solution to be analyzed (containing 5 ml of concentrated HCl and 2 g of $NH_2OH \cdot HCL$) is heated to 75-80C and subjected to electrolysis while stirring. The current intensity is increased gradually from 1.4 to 2 amps and the voltage from 1.4 to 2 v. The electrolysis lasts 50 minutes. After separation is complete, the cathode with the precipitate of Pb is rinsed first in running water, then in alcohol and ethyl ether, and finally dried and suspended. The electrolyte is evaporated to a concentration of about 60 ml, 18 ml of 4 N KOH are added, and the solution is cooled and diluted to 100 ml. Ten ml of the resulting solution are again treated with 3 ml of a 25% solution of urotropin and 2.5 ml of a 0.02% solution of arsenazo, then heated for 3-5 minutes over a boiling water bath, cooled, diluted with water to a volume of 50 ml and measured photometrically with an orange filter in 3 cm cuvettes. The error in determining 10-100 γ UO_2^{2+} and 100-250 mg Pb in 50 ml of solution was 2%. The analysis takes 2.5-3 hours. N. Chudinova

DATE ACQ: 09Dec63 SUB CODE: CH ENCL: 00

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APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2

FOK, Vladimir Aleksandrovich, akademik; SHCHEMELEVA, Ye.V., redaktor; VODOLAGINA, S.D., tekhnicheskiy redaktor

[Studies in quantum theory of fields] Raboty po kvantovoi teorii polia. Leningrad, Izd-vo Leningr. univ., 1957. 157 p. (MLRA 10:5)

(Quantum theory)

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2

GOLODNIKOV, Gennadiy Vladimirovich; NIZOVKINA, Tat'yan Vsevolodovna; RYSKAL'CHUK, Apollinariya Terent'yevna; DOLGOV, B.N., prof., red.; SHCHEMELEVA, Ye.V., red.; VODOLAGINA, S.D., tekhn.red.

[Practical work in organic synthesis] Praktikum po organicheskomu sintezu. Pod red. B.N.Dolgova. [Leningrad] Izd-vo Leningr.univ., 1957. 187 p. (MIRA 11:3)

(Chemistry, Organic--Synthesis)

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2

GINZBURG, Isaak Pavlovich; SHCHEMELEVA, Ye.V., red.; VODOLAGINA, S.D., tekhn.red.

[Applied hydroaerodynamics] Prikladnaia gidrogazodinamika. Izd-vo Leningr.univ., 1958. 337 p. (MIRA 12:3)
(Aerodynamics) (Hydrodynamics)

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2

ZAKHAR'YEVSKIY, Mstislav Sergeyevich; NIKOL'SKIY, B.P., prof., otv.red.; DOBYCHIN, [illegible] P., kand.khim.nauk, otv.red.; SHCHEMELEVA, Ye.V., red.; ZHUKOVA, Ye.G., tekhn.red.

[Kinetics of chemical reactions] Kinetika khimicheskikh reaktsii. Leningrad, Izd-vo Leningr.univ., 1959. 165 p. (MIRA 12:12)

1. Chlen-korrespondent AN SSSR (for Nikol'skiy).
(Chemical reaction, Rate of)

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2

BOLOTOV, Boris Aleksandrovich, starshiy nauchnyy sotrudnik, prepodavatel'; KOMAROV, Vyacheslav Aleksandrovich, dotsent, prepodavatel'; NIZOVKINA, Tat'yana Vsevolodovna, dotsent, prepodavatel'; DOLGOV, B.N., prof., otv.red.; SHCHEMELEVA, Ye.V., red.; ZHUKOVA, Ye.G., tekhn.red.

[Practical studies in organic catalysis] Prakticheskie raboty po organicheskomu katalizu. Izd-vo Leningr.univ., 1959. 194 p. (MIRA 12:6)

1. Kafedra organicheskoy khimii khimicheskogo fakul'teta Leningradskogo gosudarstvennogo universiteta (for Bolotov, Komarov, Nizovkina).
(Catalysis)

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2

POLYAKHOV, Nikolay Nikolayevich; SHCHEMELEVA, Ye.V., red.; ZHUKOVA, Ye.G., tekhn.red.

[Airfoil theory for non-stationary motion] Teoriia nestatsionarnykh dvizhenii nesushchei poverkhnosti. Leningrad, Izd-vo Leningr.univ., 1960. 82 p. (MIRA 13:3)
(Airfoils)

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2

SKRIPOV, F.I., otv.red.; SHCHEMELEVA, Ye.V., red.; PIASTRO, V.D., red.; VODOLAGINA, S.D., tekhn.red.

[Molecular spectroscopy] Molekuliarnaia spektroskopiia. Leningrad, Izd-vo Leningr.univ., 1960. 198 p. (MIRA 14:1)

1. Leningrad. Universitet.
(Spectrum, Molecular)

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2

MEYYER, Vladimir Aleksandrovich; SHCHEMELEVA, Ye.V., red.; ZHUKOVA, Ye.G., tekhn.red.

[Borehole logging in prospecting for complex ore deposits] Karotazh skvazhin pri razvedke polimetallicheskikh mestorozhdenii. Leningrad, Izd-vo Leningr.univ., 1960. 207 p. (MIRA 13:7)

(Prospecting--Geophysical methods) (Ore deposits)

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2

SHIKHOBALOV, S.P., otv.red.; GUTMAN, S.G., red.; KACHANOV, L.M., red.; KRASNOV, V.M., red.; MAKSUTOVA, T.D., red.; PRIGOROVSKIY, N.I., red.; PROSHKO, V.M., red.; ROZANOV, N.S., red.; EDEL'SHTEYN, Ye.I., red.; SHCHEMELEVA, Ye.V., red.; VODOLAGINA, S.D., tekhn.red.

[Polarization optical method for stress analysis; proceedings of the conference of February 13-21, 1958] Poliarizatsionno-opticheskii metod issledovaniia napriazhenii; trudy konferentsii 13-21 fevralia 1958 goda. Leningrad, Izd-vo Leningr.univ., 1960. 450 p. (MIRA 13:6)

(Strains and stresses) (Optical measurements)

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2

[illegible], [illegible], [illegible] (diss) -- "The weather in the Lithuanian SSR". Vil'nyus, [illegible]. 17 pp (Min Higher and Inter Spec Educ [illegible], Vil'nyus State [illegible] Kapsukas), 285 copies ([illegible], No 14, [illegible], 12[illegible])

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2

SHCHEMELININ, A., inzh.

Safe operation of heavy automobile trains. Avt. transp. 36 no.3: 9-10 Mr '58. (MIRA 11:3)

1. Minskiy avtozavod.

(Automobile trains)

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2

L 07334-67 EWT(d)/EWT(m)/EWP(v)/EWP(k)/EWP(h)/EWP(i) DJ

ACC NR: AP6012162 (A,N) SOURCE CODE: UR/0413/66/000/007/0086/0087

41 B

AUTHORS: Shchemelinin, A. A.; Umarov, A. S.; Topolov, A. A.; Kuznetsov, V. S.

ORG: none

14

TITLE: Pendulum vibration preventer. Class 46, No. 180430 [announced by Kolomna Diesel Construction Plant im. V. V. Kuybyshev (Kolomenskiy teplovozostroitel'nyy zavod)]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 7, 1966, 86-87

TOPIC TAGS: vibration, vibration damping, pendulum

ABSTRACT: This Author Certificate presents a pendulum vibration preventer, for instance, for a diesel engine. The preventer contains a hub on a knuckle roller. The hub carries a set of pendula suspended through fingers. These pendula are made in the form of weights rocking in the plane perpendicular to the axis of the roller and diminishing its rotational vibrations. To eliminate the longitudinal and the transverse vibrations, a second set of pendula is so placed that the plane of its movement lies on the rotation axis of the roller (see Fig. 1). This second set of pendula may be made in the form of weights held by the fingers on bearings fixed to

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"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2

SHCHEMELININ, S.P.

It is still too soon to forget malaria. Med.paraz. i paraz.bol. 28 no.4:482-483 Jl-Ag '59. (MIRA 12:12)

1. Iz Bryanskoy oblastnoy sanitarno-epidemiologicheskoy stantsii (glav. vrach. L.A. Bogacheva).
(MALARIA epidemiology)

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2

LUR'YE, V.A., inzh.; SHCHEMILINSKIY, L.A., inzh.

Calculations for a reelless reaper. Trakt. i sel'khozmash. no.5:19-21 My '65. (MIRA 18:6)

1. Gosudarstvennoye spetsial'noye konstruktorskoye byuro Pridneprovskogo soveta narodnogo khozyaystva.

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2

TUBENSHLYAK, Z.L.; SHCHENEV, I.S.; SOKOLOVA, L.M.

Automatic sorting of piston pins into select groups by detecting errors of shape. Trakt. i sel'khozmash. 30 no.11:39-41 N '60. (MIRA 13:12)

1. Nauchno-issledovatel'skiy institut Traktorosel'khozmash.
(Pistons)

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2

SHCHENEV, P. T.

7

4E3d
4E4j

Tin dioxide. 27 I. A. Gil'denblat, P. T. Shchenev, B. D. Stepin, S. N. Arbatskii, G. A. Grusha, and D. L. Eselev. U.S.S.R. 106,688, Aug. 25, 1957. Molten Sn heated to 350–400° is atomized with O preheated to 230–50° into a furnace held at 1100°. M. Hosch

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APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2

STEPIN, B.D.; GIL'DENBLAT, I.A.; SHCHENEV, P.T.

Production of stannic oxide by direct oxidation of the metal.
Khim.nauka i prom. 4 no.4:549-551 '59. (MIRA 13:8)

1. Khimicheskiy zavod imeni Voykova.
(Tin oxide)

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2

STE IN, B.D.; GIL'DEBRAT, I.A.; [illegible]EV, [illegible].

Production of stannic oxide by the direct high temperature oxidation of metallic tin. Trudy MNIITI no.35:162-170 '61. (MIRA 14:10)

(Tin oxide)

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2"

"APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001548810020-2

SHCHENEV, V.

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30(5) PHASE I BOOK EXPLOITATION SOV/1953

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Otchetnost' promyshlennykh predpriyatiy; ob osnovnoy deyatel'nosti (Accounting in Industrial Enterprises; Basic Activity) 2d ed., rev. Moscow, Gosstatizdat, 1958. [illegible] p. Errata slip inserted. 10,500 copies printed.

Ed.: M.Ya. Tsigel'nik; Tech. Ed.: N.D. Pyatakova.

PURPOSE: This book is intended for managers of industrial enterprises, economists and economic statisticians engaged in production control, and industrial efficiency experts. The book can also be used by students of production economics.

COVERAGE: The book explains the fundamentals of performance measurement in industrial operation and describes methods for the measurement of costs and output. These measurements later become the foundation of official reports to supervisory administrations. The analysis of quantitative aspects and labor efficiency figures is presented. Methods and examples cited

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