SOV/51-7-3-12/21

Plastic Scintillators with Additions of Aryl Derivatives of 1,3,4-Oxadiazole

prepared by cyclization of the corresponding dihydrazides by heating
with phosphorus oxychloride (Ref 3). All compounds were purified by
re-crystallization and chromatographic treatment. The scintillators
were in the form of polystyrene discs (with the appropriate 1,3,4-oxadiazole
derivative added to them) of 20 mm diameter and 12 mm height; they were
prepared by high temperature polymerization in an atmosphere of nitrogen.
The absorption spectra were recorded by means of a spectrophotometer
SF-4. The luminescence spectra were obtained by means of the same
instrument used as a monochromator; they were recorded photoelectrically.
The scintillation efficiency was deduced from the current of a FEU-19
photomultiplier. A sample of Ag^{110} of 0.1 μcurie intensity was used as
the source of excitation. The absorption spectra of the eight
oxadiazoles are shown in Figs 1 (curves 1-4) and 2 (curves 1-4). The
luminescence spectrum of polystyrene is shown as curve 5 in both
figures. The greatest amount of overlapping of the absorption spectrum
with the luminescence spectrum of polystyrene was exhibited by the
compounds with 1-naphthyl radical, that is the compounds αNPD, αNβND
and αNND. Figs 3 and 4 show the photoluminescence spectra (excited
with 253 and 313 mμ mercury lines). Here again the oxadiazoles with
1-naphthyl radical show the greatest amount of overlap with the maximum
of the FEU-19 sensitivity. The dependence of the scintillation

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SOV/51-7-3-12/21

Plastic Scintillators with Additions of Aryl Derivatives of 1,3,4-Oxadiazole

efficiency on the concentration of the oxadiazoles (Fig 7) shows that the compounds αNPD, αNβND, αNBD and BBD are the most efficient. In a table on p 369 the authors list the absorption and luminescence maxima (cols 3 and 4), the concentration oxadiazole in polystyrene (col 5) and the scintillation efficiency (col 6) of the eight oxadiazole derivatives listed above and eight other 1,3,4-oxadiazole derivatives studied earlier. The authors found that the scintillation efficiency of organic compounds in plastics is determined primarily by their absorption and luminescence spectra and their luminescence yield. The scintillation efficiency may be measured in relative units by Swank and Buck's method (Ref 8), allowing for the overlapping of the luminescence spectrum of the base (polystyrene) and the absorption spectrum of the additive (oxadiazole derivative), the photoluminescence yield of the additive and the efficiency of recording of the emission by the additive. The best scintillation property among the diaryl derivatives of oxadiazole were found in the compounds with 1-naphthyl and biphenylyl radicals. Among the sixteen compounds listed in the table on p 369 the following were found to be most efficient in

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SOV/51-7-3-12/21

Plastic Scintillators with Additions of Aryl Derivatives of 1,3,4-Oxadiazole

plastic scintillators:

2,5-di-(4-biphenylyl)-1,3,4-oxadiazole (BBD);
2,5-di-(1-naphthyl)-1,3,4-oxadiazole (αNQD);
2-phenyl-5-(4-methoxyphenyl)-1,3,4-oxadiazole (MtPPD);
2-(4-biphenylyl)-5-(2-naphthyl)-1,3,4-oxadiazole (αNBD);
2-phenyl-5-(1-naphthyl)-1,3,4-oxadiazole (αNPD).

There are 7 figures, 1 table and 9 references, 3 of which are Soviet, 4 English, 1 German and 1 translation into Russian.

SUBMITTED: December 26, 1958

Card 3/4

5 3610

5 4500

27901
S/079/61/031/010/001/010
D227/D304

AUTHORS: Bezuglyy, V.D., and Shimanskaya, N.P.

TITLE: Polarographic study of some oxozoles

PERIODICAL: Zhurnal obshchey khimii, v. 31, no. 10, 1961,
             3160-3177

TEXT: The investigations were concerned with phenyl-, diphenyl-,
and naphthyl substituted oxozoles, used as luminophores in a scin-
tillator to establish the relation between their polarographic
and optical properties. The measurements were conducted with the
Geyrovsky-Shikal-polarograph using a saturated, high specific re-
sistance solution of $N(C_2H_5)_4$ I in 92% methanol. The solutions of
oxozoles used in the investigation were prepared using 60:40 me-
thanol:dioxane mixtures. The experiments showed that phenyl-,
naphthyl-, and biphenyl- substituted oxozoles undergo reduction at
the cathode giving unique polarographic waves for different sub-
stituents. 2-Methyl-5-phenyl-oxozole did not reduce under the ex-
perimental conditions used,but 2,5-diphenyl oxozole gave two waves
on the polarograph, whose half wave potentials corresponded to
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S/079/61/031/010/001/010
D227/D304

Polarographic study ...

-2.10 and -2.33V, referred to the standard calomel electrode. Substitution of the 2-phenyl radical with 2α-naphthyl displaces the first half-wave potential to -1.85V; β-naphthyl substitution displaces $E_{1/2}$ of the first wave to -2.02V. $E_{1/2}$ of the second wave for 1-naphthyl derivative is -2.23 and for 2-naphthyl derivative -2.23, i.e. very near the value for the second wave of 2,5-diphenyloxozole. A greater effect may be obtained by introducing into position 2 of the diphenyloxozole radical, when $E_{1/2}$ of the first wave = -1.77 with $E_{1/2}$ for the second wave -2.18V and $E_{1/2}$ for the third wave -2.28V. This compound may be considered composed of two 5-phenyloxozole groups joined by a phenyl radical forming a bridge between the electron interaction of the two groups. If the bridge is provided by -CH=CH-, a group containing π electrons, $E_{1/2}$ is displaced towards less negative values and is equal to -1.36V. Introduction of a $-CH_2-CH_2-$ bridging group causes the loss of the polarographic activity of 1,2 - di

Card 2/6

Polarographic study ...

(5 phenyloxozole)-ethane. To investigate the effect of 5-position substituted derivatives, 2,5-di-(4-biphenylyl) oxozole and 2-(4-biphenylyl)-5-(1-naphthyl)- had $E^1_{1/2}$ = -2.00V, $E^2_{1/2}$ = 2,22V and $E^1_{1/2}$ = -1.97V, and $E^2_{1/2}$ = 2,22V respectively. From the experimental results it follows that the 5-membered oxozole ring undergoes reduction, under specific conditions, at the mercury dropping cathode and the ease of reduction depends on the substituent, and its position in the ring. Substitution of phenyl instead of methyl group in 2-position gives rise to unique polarographic waves. Substituents in position-5 have a smaller effect and the introduction of 1-naphthyl in place of biphenyl in the 5-position (substituents in position-2 remaining the same) changes the half-wave potential very little. It follows then that the most readily reducible is the C=N- bond and only after its reduction can the link between position-2 substituents and $>$C=C$<$ bond (between 4th and 5th C) be broken; the substituent has practically no effect on the $E_{1/2}$ of the second wave. The electro-negative effect of   乂

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S/079/61/031/010/001/010
D227/D304

Polarographic study ...

aromatic radicals, no reduction occurring with alkyl substituents
joined to $>C=N-$ group, is presumably due to the lengthening of the
chain of the conjugated double bonds. It must be mentioned that
contrary to other investigated oxozole derivates, compound no.
underwent reduction along the $-CH=CH-$ bond and its number of
electrons taking part in the reduction of one molecule of the
compound was equal to 2. It follows from research that the electro-
chemical reaction on the mercury dropping cathode for 1.2-di
(5-phenyloxozolyl)-ethylene may be represented by first wave

Eq.

(1)
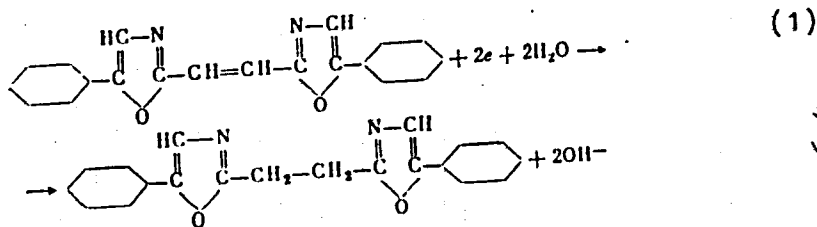
Card 4/6

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S/079/61/031/010/001/010
D227/D304

Polarographic study ...

which explains the absence of second waves. A table also gives the wave lengths in the region of maximum absorption and it may be seen that the character of λ_{max}, in general, corresponds to the variation of $E_{1/2}$ values. The fact also confirms the dependence of polarographic results on the character of the substituent. It was also interesting to compare scintillation effectiveness of the compounds with the polarographic results which shows a certain correlation between these properties. It may be concluded that the polarographic method may be used for determining the effectiveness of a given substance as a scintillator, this effectiveness being higher for less negative $E_{1/2}$ values. There are 1 table, 10 figures and 9 references: 5 Soviet-bloc and 4 non-Soviet-bloc. The references to the English-language publications read as follows: F. Hayes, L. King, J. Am. Chem. Soc. 74, 1106 (1952); E. Hartnell, C. Bricker, J. Am. Chem. Soc. 70, 3385 (1948).

Card 5/6

27901
S/079/61/031/010/001/010
Polarographic study ...   D227/D304

ASSOCIATION: Khar'kovskiy filial vsesoyuznogo nauchno-issledo-
               vatel'skogo instituta khimicheskikh reaktivov
               (Khar'kov branch of All-Union Scientific Research
               Institute for Chemical Reagents)

SUBMITTED: September 10, 1960

Card 6/6

L 13353-63   EWP(J)/EPF(c)/EWT(m)/BDS   AFFTC/ASD   Pc-4/Pr-4   RM/WW

ACCESSION NR: AP3002622   S/0079/63/033/006/1726/1732

66
65

AUTHOR: Shimanskaya, N. P.; Bezugly*, V. D.

TITLE: Polarographic investigation of oxadiazole derivatives

SOURCE: Zhurnal obshchey khimii, v. 33, no. 6, 1963, 1726-1732

TOPIC TAGS: polarographic investigation, oxadiazole derivative, half-wave potential, polystyrene

ABSTRACT: The polarographic properties of oxadiazole derivatives such as phenyl, biphenyl, naphthyl and others used as luminescent additives in plastics were determined. It was found that substituents in the 2 and 5 positions influenced advantageously the reducibility of the oxadiazole ring. The polarographic data are compared with some optical properties. The half-wave potential values are tabulated. A correlation is found between the half-wave potential (diffusion and catalytic) and the scintillating effectiveness of the substances. On the basis of the polarographic data, the possible scintillating effectiveness of these substances can be determined. The polarographic properties are influenced by the effect of conjugation. Polystyrene was used as an experimental substance. Orig. art. has: 4 figures and 1 table.

Card 1/2

L 13353-63
ACCESSION NR: AP3002622

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut monokristallov
i osobo chisty*kh khimicheskikh veshchestv, Kharkov (All-Union Scientific
Research Institute of Monocrystals and Ultrapure Chemical Substances)

SUBMITTED: 29Jun62   DATE ACQ: 20Jul63   ENCL: 00

SUB CODE: 00   NO REF SOV: 004   OTHER: 009

Card   2/2

SOURCE Ref. zh. Khimiya, Abs. 3S356

AUTHOR Shimanskaya, N. P.; Bezuglyy, V. D.

TAGS plastic scintillator, electrochemical property, optical property, polystyrene analysis

TRANSLATION The authors evolved a procedure for the polarographic analysis of plastic scintillators. This enabled them to define the electrochemical proper-

vanometer (sensitivity

Card   1/2

L 43130-65
ACCESSION NR: AX5006436

pounds in polystyrene was carried out polarographically, making possible a study
of aging in plastic scintillators. Studied was the stability of luminescent
compounds the influence of temperature and exposure to radiation or
violet illumination. Experimental results are cited and evaluated.

BEZUGLYY, V.D.; SHIMANSKAYA, N.P.; PERESLENI, Ye.M.

Mechanism of reduction of 1,3-oxazole and 1,3,4-oxadiazole
derivatives. Zhur. ob. khim. 34 no.11:3540-3545 N '64
                                            (MIRA 18:1)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut monokristallov,
Khar'kov.

BEZUGLYY, V.D.;   [illegible], I.I.

     Polarographic behavior [illegible] azi[illegible], [illegible], [illegible], min., 95 [illegible]:
     17-22 [illegible] '60.   (M[illegible] 14 12:2)

L 02421-67   EWT(m)/EWP(j)/T   WW/RM/JW

ACC NR: AP6031380   SOURCE CODE: UR/0079/66/036/009/1601/1603

AUTHOR: Shimanskaya, N. P., Malkes, L. Ya.; Bezuglyy, V. D. $5^0 B$

ORG: All Union Scientific Research Institute of Monocrystals, Scintillating Materials and High Purity Chemicals (Vsesoyuznyy nauchno-issledovatel'skiy institut monokristallov, stsintillyatsionnykh materialov i osobo chistykh khimicheskikh veshchestv)

TITLE: Reaction rate of thermal decomposition of some azines

TOPIC TAGS: ~~azine~~, thermal decomposition, reaction rate ~~constant~~, ORGANIC AZINE COMPOUND

ABSTRACT: Polarographic studies were made of the effect of the structure of azines (I) on the reaction rate constants of their thermal decomposition at 300C.

$$R-CH=N-N=CH-R \xrightarrow{t} R-CH=CH-R + N_2.$$
$$(I)$$
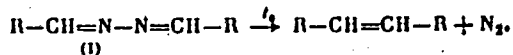
The results showed that the decomposition of azines is a first-order reaction. Reaction rate constants calculated for some azines from the experimental data are given in the table:

Card 1/2   UDC: 57.8524

SHIMANSKAJA, N. S.

SUBJECT   USSR / PHYSICS
AUTHOR   GORŠKOV,G.V., SIMANSKAJA,N.S.
TITLE   On Calorimetric Measurements of Preparations of Naturally Radio-
              active Families.

PERIODICAL   Atomnaja Energija, 1, fasc.5, 86-93 (1956)
              Issued: 1 / 1957

CARD 1 / 2   PA - 1803

The preparations themselves can be liquid or mixed with other non-active sub-
stances which, in some cases, are highly absorbent. The effect of absorption and
of self-absorption can mostly not be estimated, for which reason the accuracy of
measurements mostly does not go beyond from 2 to 3%. Even greater errors are
committed on the occasion of the determination of the radioactivity of prepara-
tions by comparison with a gauging preparation of different origin.

On the occasion of calorimetric measurements of naturally radioactive preparations
the authors were faced with the lack of complete data in modern tables of radio-
active constants (e.g. J.HOLLANDER, J.PERLMAN, G.SEABORG, Rev.Mod.Phys. 25, 429,
(1953). The tables above all contain no detailed information concerning the ener-
gies of gamma rays and their relative and absolute intensities. Furthermore, there
are no data concerning the number of conversion electrons and the average ener-
gies of β-spectra. It is for this reason that the authors carefully analyzed
all existing data on energies and on the radiation yields of the elements of the
three naturally radioactive families. By the critical investigation of a great
number of experimental works it was possible to determine the energy E_i for each

Atomnaja Energija, 1, fasc. 5, 86-93 (1956) CARD 2 / 2   PA - 1803

element as well as to determine the total "thermal" energies.corresponding to
one act of decay of the preparations of Ra, MsTh, RaTh, and Ac which are in
equilibrium. For the radium preparations also the corrections for the increase
of the heat effect caused by the accumulation of RaE and Po^{210} was computed.

Knowledge of all these quantities made calorimetric measuring of the absolute
activity of many different preparations of naturally radioactive families
possible. For this purpose double calorimeters of the static type were used.
A table shows the measuring results of some Ra-, RaTh- and Ac-preparations.
The following measurements were furthermore carried out by the calorimetric
method: The relations between the milligram equivalent and the data in milli-
curie for the RaTh- and Ac-isotopes which are in equilibrium; these relations
are of importance in the practice of ionization measuring. With the conditions
usual in the USSR for ionization measuring (lead filter of 5 mm thickness and
standard chamber SGM-1) the following results are obtained: 1 mg-equ RaTh =
1,29 + 0,02 millicurie RaTh, 1 mg-equ. Ac = 10,0 + 0,5 millicurie Ac), the con-
tent of radioactive substances on neutron sources of the type $(x_\alpha + Be)$, the
content of Ra and MsTh in radium-mesothorium preparations. The calorimetric
method is not suited for radium-mesothorium preparations with unknown time of
production ("age"), but it is well suited for the determination of the. compo-
sition of "young" preparations.

INSTITUTION:

SHMIANSKAYA, N.S.

CARD 1 / 2   PA - 1759

SUBJECT   USSR / PHYSICS
AUTHOR   SIMANSKAJA,N.S., JASUGINA,E.A.
TITLE   Determination of the Half-Life of Ac^{227} by the calorimetrical
             Method.
PERIODICAL   Atomnaja Energija, 1, fasc.5, 133-133 (1956)
             Issued: 1 / 1957

As the authors had a weighable quantity of pure Ac^{227} available, they attempted
to measure its half-life calorimetrically. The calorimetrical measuring of half-
life of long-lived isotopes is known to be reduced to the determination of the
heat generated in the calorimeter by a known quantity of the radioactive iso-
tope. The formula for the computation of the half-life is written down.
The preparation used here for investigations was first chemically purified.
The preparation (Ac$_2^{227}$O$_3$) had a weight of 2,01 $\pm$ 0,02 milligrams. The impuri-
ties in the preparation are quantitatively mentioned. The preparation con-
tained no radioactive impurities. On the occasion of the purification of the
preparation also its isotope, RdAc, a daughter-product of Ac^{227}, was deposited
together with Th. Therefore all basic calorimetrical measurements were carried
out after 6 months, i.e. after establishment of radioactive equilibrium in the
preparation. Measurements were carried out in a double static calorimeter, which
is being used in the Radium Institute of the Academy of Science of the USSR for
the calorimetrical measuring of radioactive substances. The thermal efficiency
of the preparation was 23,7 milliwatts ($\pm$ 0,5%). Then determining its activity

SIMANSKAYA, N.S.

CARD 1 / 2   PA - 1532

SUBJECT   USSR / PHYSICS
AUTHOR   SIMANSKAJA,N.S.
TITLE   The Determination of the Bifurcation Ratio in the Decay Scheme
             of Po210 .

PERIODICAL   Zurn.eksp.i teor.fis,31,fasc.2, 174-177 (1956)
             Issued: 5.10.1956

At first several previous works dealing with the same subject are discussed.
When this bifurcation ratio is determined the number of γ-quanta emitted by
the Po210 source per time unit must be estimated, and absolute activity must
be measured with sufficient accuracy.Attention is drawn to the frequently
occurring grave errors committed when measuring α-intensity with the help of
ionization chambers, impulse chambers and luminescence counters.

The authors used a pure Po210 preparation. The number of γ-quanta emitted per
second was determined by comparison with a Co60 source of known intensity
$(N_0 = 19.3 \pm 0,8).10^3$ acts of decay per second. These measurements were carried
out by means of a standard-β-counter with an additional 2 mm aluminium filter,
and the results of two measuring series are shown in a diagram. If the ratio
k of the intensity of the γ-radiation of the gauged Co60 source and of the
Po210 preparation to be measured as well as their absolute activities N_1 and N_2
are known, the number n_γ of the 800 keV- γ-quanta emitted by the Po210 per
act of decay can be determined. The correction coefficients yet to be intro-

SHIMANSKAYA. N.S.

SHIMANSKAYA, N.S.

In memory of Nikolai Ivanovich Dobronravov. Trudy Radiev.inst.
AN SSSR 6:20-23 '57.   (MIRA 11:2)
                 (Dobronravov, Nikolai Ivanovich, 1891-1949)

SOV/120-58-2-23/37

AUTHOR: Shimanskaya, N. S.

TITLE: The Determination of Half-Lives of Radioactive Isotopes
Using a Double Static Calorimeter (Opredeleniye periodov
poluraspada radioaktivnykh izotopov s pomoshch'yu
dvoynogo staticheskogo kalorimetra)

PERIODICAL: Pribory i Tekhnika Eksperimenta, 1958, Nr 2, pp 95-97
(USSR)

ABSTRACT: The calorimeter is shown in Fig.1 and consists of two
identical internal calorimetric cylinders A and B placed in-
side the screen C whose temperature T_o is kept constant. If
the radioactive sample is placed, for example, in A then
after a certain interval of time a temperature difference
is established between A and B. This temperature difference
is a function of the heating power of the radioactive sample
only, for a given calorimeter system. The calorimeter is
calibrated in a preliminary experiment by a special heater
placed in the same cylinder A. A particularly useful
variant of this apparatus is the case when the radioactive
sample is placed in the cylinder A and the heater in the other

Card 1/2

The Determination of Half-Lives of Radioactive Isotopes Using a
Double Static Calorimeter.

cylinder B . The heater is adjusted so that the tempera-
ture difference is reduced to zero. The device was used to
measure the half-life of Rn^{222} . The half-life was found
to be $T = 3.83 \pm 0.03$ days, which is in good agreement with
the accepted value which is $T = 3.825 \pm 0.005$ days. There
are 2 figures, no tables and 8 references, 4 of which are
English, 1 French and 3 Soviet.

ASSOCIATION: Radiyevyy institut AN SSSR (Radium Institute of the
        Academy of Sciences of the USSR)

SUBMITTED: July 2, 1956.

Card 2/2   1. Radioisotopes--Half life   2. Half life--Measurement
                3. Calorimeters--Applications

SOV/48-22-7-19/36

Grigor'ev, G. I., Kuznetsov, B. S., Shimanskaya, N. S.,
Alexeev, I. A.

Determination of the Ratio L/K in Dy^{159} and Dy^{165} and on the
estimation of the Transmutation Energies of $Dy^{159} \longrightarrow Tb^{159}$
and $Dy^{165} \longrightarrow Ho^{165}$ (Opredeleniye otnosheniya L/K dlya
Dy^{159} i Dy^{165} i otsenka energii perekhodov $Dy^{159} \longrightarrow Tb^{159}$
i $Dy^{165} \longrightarrow Ho^{165}$)

The decay energy $\mathcal{E}_0$ of radioactive isotopes, which are sub-
jected to an electron capture can be determined by 5 different
methods. They are described. From the evidence given it is
concluded, that the 5th method, that utilizing the ratio L/K
is very convenient in the determination of small transmutation
energies (< 200 keV) in isotopes with a relatively single
decay scheme, which do not exhibit a considerable converting
cascade γ-radiation. The application of this method is limit-
ed by the imperfections still inherent in the modern theory

Card 1/4

Determination of the Ratio L/K in Dy^{159} and Er^{165} and an Estimation of the
Transmutation Energies of $Dy^{159} \longrightarrow Tb^{159}$ and $Er^{165} \longrightarrow Ho^{165}$

of K-capture and by the incomplete knowledge of the qualitative
and quantitative rules governing the processes of the re-
arrangement of the electron shell of the atom. L/K was de-
termined for two isotopes of rare earths, Dy^{159} and Er^{165},
both having a neutron deficit. Proceeding from the results
the transmutation energies of the processes $Dy^{159} \longrightarrow Tb^{159}$
and $Er^{165} \longrightarrow Ho^{165}$ were estimated. A γ-spectrometer combined
with a proportional counter was used for measuring the
energies and the intensities of an X-ray K- and L-radiation.
The proportional counter (Ref 20) permitted to measure the
γ- and X-ray radiation of small energies, which is quite im-
possible with other methods. The proportional counter with
a cylindrical aluminum cathode and its circuit diagram is
described. The recording power of the counter for γ- and
X-ray-radiation of varying energy is computed according to
the known absorption coefficients for this radiation in argon
and beryllium (Ref 22), taking into account the geometry of
the experimental arrangement. The electronic circuit diagram

Card 2/4

SOV/48-22-7-1)/26

Determination of the Ratio L/K in Dy^{159} and Er^{165} and an Estimation of the Transmutation Energies of $Dy^{159} \longrightarrow Tb^{159}$ and $Er^{165} \longrightarrow Ho^{165}$

and the calibration of the device is described. The Dy^{159} source was obtained from a tantalum target, which was irradiated in the synchrocyclotron of the "United Institute of Nuclear Research" with 660 MeV protons. The ratio L/K was computed according to formula (3). It is shown that the transition $Dy^{159} \longrightarrow Tb^{159}$ must be classified as being superforbidden. Marshak's formula was used, giving an energy value of 79^{+10}_{-5} keV for this transition. The lowest level of Tb^{159} at 57 keV is apparently not excited in the decay of Dy^{159}. An estimation of the quantity ft on the basis of the decay energy of 79 keV and a half-life of 156 days furnishes a value for lg ft of about 6,2. According to the classification of King (Ref 32) this value agrees with the assumption, that this transmutation is a superforbidden one. The Er^{165}-sources were also obtained from tantalum irradiated with fast protons (E_o = 660 MeV). The X-ray radiation

Card 3/4

SOV/48-22-7-19/26

Determination of the Ratio L/K in Dy^{159} and Er^{165} and an Estimation of the Transmutation Energies of $Dy^{159} \longrightarrow Tb^{159}$ and $Er^{165} \longrightarrow Ho^{165}$

of a series of tantalum targets irradiated for different periods was measured. The ratio I_L/I_K (for the intensities of these radiations) was equal to 0,40. From this value for L/K a result of $1,2 \pm 0,4$ was obtained. Using Marshak's formula and the experimentally found value of L/K (Er^{165}) 82^{+10}_{-5} keV were found for the transmutation energy of the process $Er^{165} \longrightarrow Ho^{165}$. The value of lg ft was 5,1 with a half-life of 10,5 hours, which is in agreement with the permitted character of the transmutation. There are 9 figures, 1 table, and 35 references, 3 of which are Soviet.

ASSOCIATION: Radiyevyy institut im. V. G. Khlopina Akademii nauk SSSR
(Radium Institute imeni V. G. Khlopin, AS USSR)

Card 4/4

SOV/56-34-3-39/55

AUTHORS: Gorshkov, G. V. , Gritchenko, Z. G. , Shimanskaya, N. S.

TITLE: The Calorimetric Determination of the Half-Life of Ra^{226}
             (Kalorimetricheskoye opredeleniye perioda poluraspada Ra^{226})

PERIODICAL: Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, 1958,
             Vol. 34, Nr 3, pp. 756 - 757 (USSR)

ABSTRACT: First, brief reference is made to some previous works deal-
             ing with the same subject. The authors of the present re-
             port carried out careful calorimetric measurements on 3
             equilibrated radium preparations which were liberated from
             possible contaminations by means of additional crystalliza-
             tion. The purity of these preparations was controlled by
             means of the spectroscopic method. The results of the imme-
             diate weighing of the radium preparations prior to their
             sealing, their radium-content and the results of the calori-
             metric measurements carried out by means of a double static
             calorimeter, are contained in a table. The last column of
             the table contains the values found here for $Q_{\alpha+\beta}/p$ - the

Card 1/3

The Calorimetric Determination of the Half-Life of Ra^{226} SOV/56-34-3-39/55

thermal effect of the α- and β-radiation of 1 g radium. Cal-
culating these values, the absorption of the γ-rays in the
preparation itself (self-absorption), in the protective
container, in the glass of the ampules and within the walls
of the calorimetric cylinder, were taken into consideration.
Also the increase of the thermal effect due to the accumu-
lation of Po^{210} and RaE in the preparations was taken into
account. ε (the energy liberated in the calorimeter in a
process of decay) was calculated on the basis of the last
experimental data on the α- and β-spectra of the elements
of the radium-series for an equilibrated preparation of
Ra^{226}. This energy amounted to 25.335 MeV ($\pm$ 0.3 %). Utiliz-
ing this value, the authors found the value T = 1577$\pm$9
years for the half life of Ra^{226}. Hence results the value
z = 3.71 $\pm$ 0.02.10^{10} decay-processes/sec.g. for the specific
activity.   Further measurements of these important values
z and T for Ra^{226} with the methods discussed here and also
by other methods, would be desirable. There are 1 table
and 10 references, 4 of which are Soviet.

Card 2/3

SOV/56-34-3-39/55

.The Calorimetric Determination of the Half-Life of Ra^{226}

ASSOCIATION: Radiyevyy institut Akademii nauk SSSR
                (Radium Institute AS USSR)

SUBMITTED: December 6, 1957

Card 3/3

SHIMANSKAYA, N.S.

21(8)
AUTHORS: Gorshkov, G.V., Karavayev, F.M., and Shimanskaya, N.S.

TITLE: The Determination of the Radium Content in Radium Compounds (Ob opredelenii soderzhaniya radiya v radiyevykh preparatakh)

PERIODICAL: Izmeritel'naya tekhnika, 1959, Nr 3, pp 52-53 (USSR)

ABSTRACT: The radium content of radium compounds is mainly determined by the ionization method, or more exactly, its gamma equivalent is determined. The ionization effect of the radiation of the compound under investigation is compared to that of a standard with a known radium content. At VNIIM, two state standards, X and XI, are used, whose radium content was set equal (for 1957) to 29.37 and 14.27 mg radium elements. The self-absorption of the gamma radiation within the radiation source itself is not considered sufficiently. Although lead filters are used, which are 2 cm thick at VNIIM, whereby the soft gamma radiation is eliminated, the error can attain a consider-

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SOV/115-59-3-24/29

The Determination of the Radium Content in Radium Compounds

able magnitude, if the differences of self-absorp-
tion are not taken into consideration. The authors
determined the accuracy of contemporary ionization
methods used for determining the radium content.
For this purpose, three pure radium compounds were
available which were to be used for the calorimetric
determination of the radium half decay period (Ra^{226}).
The results of these investigations and measurement
results of VNIIM and the Radiyevyy institut AN SSSR
-RIAN- (Radium Institute AS USSR) are shown in one
table. The calculations performed by the authors
show that the difference of the self-absorption of
the gamma radiation of radium in 15 mg $RaCl_2$ and 150
mg $RaBr_2$ is of a considerable magnitude. The effect-
ive self-absorption in standard XI was found to be
0.9% while it was 1.7% in 150 mg $RaBr_2$, whereby the
difference was 0.8%. The authors recommend to estab-
lish new standards in the USSR with a radium content

Card 2/3   of 1, 5, 10, 25, 100, 200, 500 mg, whereby the error

SOV/115-59-3-24/29

The Determination of the Radium Content in Radium Compounds

caused by the different self-absorption were reduced to a greater extent. In addition they recommend the application of lead filters with thicknesses of not less than 1-1.5 cm. Until new state standards are created the authors recommend the application of a formula for obtaining an accuracy of 0.3-0.5%

$$p = I\ (1.006 + 3.6 \cdot 10^{-3}\ \sqrt[3]{I})$$

where I is the milligram-equivalent of the compound under investigation. A footnote says that the standards X and XI are regarded also as secondary international standards. There are: 1 table and 6 references, 3 of which are Soviet and 3 English.

Card 3/3

BAK, M.A.; GORSHKOV, G.V.; MATVIYENKO, V.I.; PETRZHAK, K.A.; SHIMANSKAYA, N.S.

Determination of the neutron yields of the sources Ra + Be, Ac + Be, MsTh + Be, and P + Be. Trudy Radiev.inst.AN SSSR 9:120-125

'59.
(MIRA 14:6)

(Neutrons)

SHIMANSKAYA, N.S.

Determination of the correction for the thermal inertia of the
calorimeter in calorimetric measurements of radioactive preparations.
Trudy Radiev.inst.AN SSSR 9:126-130 '59.   (MIRA 14:6)
            (Calorimetry) (Radioactive substances)

SHIMANSKAYA, N.S.

Role of physicochemical processes in calorimetric measurements of
radioactive substances. Trudy Radiev.inst.AN SSSR 9:131-133 '59.
(MIRA 14:6)

(Radioactive substances) (Calorimetry)

21(8)

SOV/89-6-4-14/27

AUTHORS: Gorshkov, G. V., Shimanskaya, N. S.

TITLE: Total Energy of the Radioactive Radiation of a Radium
            Preparation (Ra226) in Equilibrium (Polnaya energiya radio-
            aktivnogo izlucheniya ravnovesnogo preparata radiya (Ra226)

ABSTRACT: In 1935 I. Zlotovskiy calorimetrically measured the total
            energy of all radioactive radiations radiated from a radium
            preparation in equilibrium. This value was now checked with
            the help of 3 sources the exact radium content (Ref 4) of
            which was known. This measurement was carried out with the static
            γ-calorimeter (Ref 5) the tungsten walls of which absorbed
            ~93% of the γ-radiation of Ra-Ra(B+C). For q (total energy)
            the value 138.9 ± 0.7 cal/h.1g Ra was measured. It is by
            0.7% lower than that obtained by Zlotovskiy. This lower
            value agrees well with expectations. Individual data, from
            which q was calculated, are shown by a table. Ye. K. Smirnova
            produced the radium preparations. Yu. S. Martynov took part
            in the measurements. There are 1 table and 6 references,
            4 of which are Soviet.

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B019/B056

Legend to Table 1: 1) Day of measurement. 2) Number of years between sealing and measuring. 3) Composition of the source as calculated on the various days of measurement. 3a) Ra, millicuries. 3b) Milligram-equivalent of radium. 3c) Millicuries. 3d) Ratio between the number of decaying atoms: $T_t = (\lambda N_t)RdTh/(\lambda N_t)MsTh$, where λ is the decay constant and N_t the atom number. 3e) Millicuries. 3f) Milligram-equivalent of radium. 4) Radium-γ-equivalent, milligram-equivalent of radium. 4a) J_{calc}. 4b) J_{exp}. 4c) $J/J_{0\ calc}$. 4d) $J/J_{0\ exp}$. 5) Relative neutron number. 5a) $A_{n\ calc}$. 5b) $A_{n\ exp}$. 5c) $A_n/A_{n_0\ calc}$. 5d) $A_n/A_{n_0\ exp}$. 6) Q value, cal/h; 6a) Q_{calc}. 6b) Q_{exp}.

Legend to Fig. 3: The curves denoted by 1, 2, 3, 4, and 5 stand for the relative neutron yield and the relative radium-γ-equivalent for five different original compositions of the Ra+MsTh source with 55% Ra+45%MsTh, 60% Ra + 40% MsTh; 65% Ra + 35% MsTh; 70% Ra + 30% MsTh; 75% Ra + 25% MsTh. a) = years.

Card 2/3

BIRYUKOV, Ye.I.; GRIGOR'YEV, O.I.; KUZNETSOV, B.S.; SHIMANSKAYA, N.S.

Decay of Nd^{140} and Pr^{140}. Izv.AN SSSR.Ser.fiz. 24 no.9:
1135-1144 S '60.   (MIRA 13:9)
          (Neodymium--Decay)   (Praseodymium--Decay)

S/048/61/025/001/019/0?
B029/B060

24.6770

AUTHORS: Biryukov, Ye. I., Grigor'yev; O. I., Kuznetsov, B. S.,
Shimanskaya, N. S.

TITLE: Decay of Dy159

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, v. 25,
No. 1, 1961, 109-110

TEXT: The authors studied the electromagnetic radiation of Dy159
($T_{1/2}$ = 144 days) arising from the irradiation of a tantalum target by
Mev protons by means of a spectrometer with proportional counter and a
scintillation gamma spectrometer. The enclosed figure shows the spectrum
of the electromagnetic radiation of Dy159 in the range of 15 to 60 kev,
taken with a filter of 130 mg cm^{-2} Al. The ratio between intensities of
58-kev gamma radiation and the KX radiation of Dy (44.5; 50.4 kev) is
$I_{KX}/I_{\gamma 58}$ = 53. The contribution of the nonconverted 58-kev gamma
radiation amounts to 6.1%, which is also in agreement with the data

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Decay of Dy^{159}

S/048/61/025/001/019/031
B029/B060

relative to gamma decay of Gd^{159}. Apart from the $\gamma 58$ line, a weak line with an energy of 350 kev was also observed (Ref. 2). The intensity of this line amounts to 2.10^{-5} quanta per decay event. Shorter wave lines in the energy range up to 2 Mev were no more observed, or at least not any such with an intensity exceeding 10^{-4} to 10^{-5} quanta per decay event. Simultaneous measurements of the two Dy^{159} sources in the 4π scintillation counter and in the 4π gas counter gave the following ratios between the intensities of the LX and KX radiation and the intensities of the corresponding LX - LX and KX - KX coincidences:

$$\frac{I_{KX}}{I_{KX-KX}} = 6.56 \pm 0.18, \quad \frac{I_{LX}}{I_{LX-LX}} = 48.1 \pm 4.1, \quad \frac{I_{KX-KX}}{I_{LX-LX}} = 37.1 \pm 5.8, \quad \frac{I_{LX}}{I_{KX}} = 0.21 \pm 0.01.$$

One may calculate therefrom the ratio L_1/K_1 for the transition to the first excited 58-kev level of Tb^{159} and the amount $\mathcal{X}$ of the bifurcation. If the value $\bar{\omega} = 0.18 \pm 0.02$ is assumed for the L fluorescence yield of Tb, one obtains $L_1/K_1 = 0.58$ and $\mathcal{X} = 0.32 \pm 0.08$. The article under consideration is the reproduction of a lecture delivered at the 10th All-Union Conference on Nuclear Spectroscopy, which took place in Moscow

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S/048/61/025/001/019/031
B029/3060

Decay of Dy^{159}

from January 19 to 27, 1960. There are 1 figure and 3 non-Soviet-bloc references.

ASSOCIATION: Radiyevyy institut im. V. G. Khlopina Akademii nauk SSSR
(Radium Institute imeni V. G. Khlopin, Academy of Sciences USSR)

Card 3/4

BIRYUKOV, Ye.I.; KUZNETSOV, B.S.; SHIMANSKAYA, N.S.

Mean energy of the β -spectrum of Y^{90}. Zhur.eksp.i teor.fiz. 41
no.1:22-23 Jl '61.   (MIRA 14:7)

1. Radiyevyy institut AN SSSR.
   (Beta rays—Spectra)   (Yttrium—Isotopes)

S/048/62/026/002/008/032
B101/B102

AUTHORS: Biryukov, Ye. I., and Shimanskaya, N. S.

TITLE: K/β^{+} ratio for Pr^{140}

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya,
             v. 26, no. 2, 1962, 215 - 216

TEXT: A direct measurement was made of K/β^{+} of a Pr^{140} preparation ob-
tained from the reaction $Pr^{141}(n,2n)Pr^{140}$. Pr_2O_3 was applied in a thin
layer (1.3 mg/cm^2) to a polyethylene film, and bombarded with 14-Mev
neutrons (intensity 10^{10} $neutrons \cdot cm^{-2} \cdot sec^{-1}$). Check tests showed that
the emission from polyethylene and oxygen was negligibly small. K/β^{+}
was determined with a 4π scintillation gamma spectrometer with 40·40 cm
CsI(Tl). For measuring the annihilation radiation spectrum, the source
was shielded with a lead filter (1000 $mg \cdot cm^{-2}$) and placed into a channel
(6 mm in diameter) bored through the crystal axis. The K-radiation

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K/β^+ ratio for Pr^{140} S/048/62/026/002/008/032
                                                    B101/B102

spectrum was then measured without a filter. Two AN-100 (AI-100) multi-channel analyzers were used for the measurement. From the two spectra, the mean value of K/β^+ was found to be 0.75 ± 0.03, which is in good agreement with the Pr^{140} decay scheme published earlier (Izv. AN SSSR, Ser. fiz., 24, 1135 (1960)). By extrapolating K/β^+ for allowed transitions one obtains 2480 kev as the limit of the Pr^{140} positron spectrum. L. Zyryanova and K. Gromov are mentioned. There are 2 figures and 5 references: 3 Soviet and 2 non-Soviet. The two references to English-language publications read as follows: Browne, C., Rasmussen, J., Surls, J., Martin, D., Phys. Rev., 85, 146 (1952); Handley, T., Olson, E., Phys. Rev., 96, 1003 (1954).

ASSOCIATION: Radiyevyy institut im. V. G. Khlopina Akademii nauk SSSR
            (Radium Institute imeni V. G. Khlopin of the Academy of
            Sciences USSR)

Card 2/2

BIRYUKOV, Ye.I.; SHIMANSKAYA, N.S.

Decay of Nd^{141}. Izv. AN SSSR. Ser. fiz. 27 no.11:1402-1407
N '63.   (MIRA 16:11)

BIRYUKOV, Ye.I.; NOVIKOV, V.T.; SHIMANSKAYA, N.S.

Decay of Pr^{139}. Izv. AN SSSR. Ser. fiz. 27 no.11:1408-1411
N '63.   (MIRA 16:11)

BIRYUKOV, Ye. I.; NOVIKOV, V. T.; SHIMANSKAYA, N. S.

"Concerning the Decay Chain $_{58}Ce^{134} - _{57}La^{134} - _{56}Ba^{134}$."

report submitted for All-Union Conf on Nuclear Spectroscopy, Tbilisi, 14-22 Feb 64.

Radiyevyy Inst (Radium Inst)

SHILENSKAYA, N. S.; SALETSKIY, E. G.

Mean energies of electron and positron beta spectra. Atom. energ.
17 no.1:94-7 Jl '64.
(MIRA 17:7)

BIRYUKOV, Ye.I.; MARTYNOV, Yu.S.; NOV KOV, V.T.; SHIMANSKAYA, N.S.

Mean energy of the Pr^{142} β-spectrum. Zhur.eksp.i teor.fiz 46
no.6:2242-2243 Je '64.
(MIRA 17:10)

SHIMANSKAYA, O.A.

Experiment demostrating the significance of vitamis for pigeons.
Biol. v shkole no.2:66-67 Mr-Ap '59.   (MIRA 12:4)

1. Kremenetskiy pedagogicheskiy institut.
        (Beri-beri)   (Pigeons as laboratory animals)

SHIMANSKAYA, R.I.; FLYUSNIN, V.G.; VAYSBERG, N.S.

Use of pyrolysis tar from wastes of the synthetic alcohol
manufacture. Khim.i tekh.topl.i masel 7 no.9:34-37 S '62.
(MIRA 15:8)

1. Ural'skiy filial AN SSSR.
(Petroleum products)

Cand. Med. Sci.

SHIMANSKAYA, S. A.

Dissertation: "Vaccinotherapy of Dysenteria with Heated Flexner's
                Monovaccine."

2/3/50
Acad. Med. Sci, USSR

SO Vecheryaya Moskva
        Sum 71

SHIMANSKAYA, S.A. (Kaunas)

Teaching epidemiology in stomatological institutes. Zhur.mikrobiol. epid. i immun. 27 no.5:95-96 My '56. (MIRA 9:8)
(EPIDEMIOLOGY--STUDY AND TEACHING)

SHIMANSKAYA, S.A.

Clinical aspects and laboratory diagnosis of typhus. Zhur.mikrobiol.
epid. i immun. 30 no.2:108-111 F '59.   (MIRA 12:3)

1. Iz Nauchno-issledovatel'skogo instituta sanitarii i gigiyeny
Vil'nyusa.
          (TYPHUS,
               clin. aspects & diag. (Rus))

ZAVERUKHA, B.V.; SHIMANSKAYA, V.O.

Rare medical plant. Priroda 49 no.11:109-110 N '60.(MIRA 13:11)

1. Kremenetskiy pedagogicheskiy institut.
(Euphorbia)

SIROTA, N.N.; DANIL'KEVICH, M.I.; SIROTA, A.G.; SHIMANSKAYA, V.P.

    Electrets made from high polymers. Dokl.AN BSSR 2 no.10:413-415 N '58.

                         (Electrets)

                                           (MIRA 12:8)

ACCESSION NR: AP4014696   S/0250/64/008/001/0024/0025

AUTHORS: Sirota, N. N.; Shimanskaya, V. P.

TITLE: Lattice constant of zinc sulfide-cadmium sulfide solid solution films

SOURCE: AN BSSR. Doklady*, v. 8, no. 1, 24-25

TOPIC TAGS: zinc sulfide, cadmium sulfide, ZnS CdS solid solution, lattice constant, ZnS CdS phase composition, ZnS CdS structure, vaporized coating, x-ray apparatus URS 50I

ABSTRACT: Films of the binary system ZnS-CdS have been subjected to x-ray analysis in order to determine its phase composition, its structure, and its crystal lattice constant. Experiments were conducted directly after film deposition and also after a heat treatment of films which were produced by sublimating a pressed mixture of ZnS and CdS of a definite composition onto glass and quartz plates. The process was carried out in a vacuum of no less than 10^{-4} mm Hg. For CdS the temperature of the plates was held at 90C and for ZnS at 200C. After the deposition the samples were held in vacuum at 300C. Microscope inspection and x-ray analysis proved that the films were either polycrystalline or monocrystalline, the latter ranging from 0.5 to 1.6 μ in thickness. They were monophase in type and

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ACCESSION NR: AP4014696

sphaleritic in structure. Lattice constant was calculated from x-ray photographs
taken with apparatus URS-50I. Figure 1 of the Enclosure shows the relation of this
constant to the composition of the solid solution. Lower rates of coating in
vacuum and in hydrogen sulfide tended to produce monocrystalline film, while faster
rates favored the polycrystalline ones. Orig. art. has: 1 graph and 2 micro-
photographs.

ASSOCIATION: Institut fiziki tverdogo tela i poluprovodnikov AN BSSR (Institute of
Solid State Physics and Semiconductors AN BSSR)

SUBMITTED: 01Aug63   DATE ACQ: 26Feb64   ENCL: 01

SUB CODE: PH   NO REF SOV: 000   OTHER: 002

Card 2/3

AUTHOR: Sirota, N. N.; Shimanskaya, V. P.

... of the energy gap according to the absorption spec-

..., 1964, 436-437

... zinc sulfide base compound, cadmium sulfide containing
... zinc sulfide, cadmium sulfide, sulfide, zinc blende,
... e, energy gap, absorption coefficient, film, spectroscopy,
... resistor

... in ZnS-CdS systems with zinc
... as determined measurements of the absorption on the
... side of ... the values averaged from
... changes linearly, de-

... invest ...

... nitric o glass o quartz
... of the absorption spectra

ACCESSION NR: AP4044253   /

...produced figures close to ... ...ained by other researchers ...ross,
... ...aztirin ... ..., ...; Khansevarov, ... Yu.,
... ... N. Apsovev ...-..., 24, 1954, 49... The study has
... ...
... ...

... ...itut ...izi... ... ... tela i poluprovodnikov AN BSSR
... ...lid State Physics and Semiconductors, AN BSSR

SUBMITTED: 12Feb64

ENCL: 00

.. REF SOV: 004   OTHER: 001

Card   2/2

SIROTA, N.N.; SHIRAMSKAYA, V.P.

Width of the forbidden zone according to absorption spectra of thin film in the system ZnS - CdS. Dokl. AN BSSR 8 no.7:436-437 '64.
(MIRA 17:10)

1. Institut fiziki tverdogo tela i poluprovodnikov AN BSSR.

SHIMANSKAYA, Ye.T. [Shymans'ka, O.T.]

Tepler method for investigating critical states of substances.Part 1:
Experimental procedure [with summary in English]. Ukr.fiz.zhur. 3 no.4:
542-551 Jl-Ag '58.   (MIRA 11:12)
        (Optical measurements) (Specific gravity)

GOLIK, A.Z. [Holyk, O.Z.]; SHIMANSKAYA, Ye.T. [Shymans'ka, O.T.]

Investigation of the critical state of substances by Toepler's
method. Part 2. Temperature dependence of the density of hexane
near the critical point. Ukr.fiz,zhur. 4 no.6:769-788 N-D '59.
(MIRA 14:10)
1. Kiyevskiy gosudarstvennyy universitet im. T.G.Shevchenko.
(Hexane—Thermal properties)

SHIMANSKAYA, Ye.T. [Shymans'ka, O.T.]

Tepler method for investigating the critical state of a
substance. Part 3: Dependence of the density of an
octane solution in hexane on the temperature near the
liquid-vapor critical point. Ukr. fiz. zhur. 5 no.4:549-
559 Jl-Ag '60.   (MIRA 13:11)

1. Kiyevskiy gosudarstvennyy universitet.
      (Critical point)   (Hexane)   (Octane)

SHIMANSKAYA, Ye I.

30

PHASE I BOOK EXPLOITATION   SOV/5469

Soveshchaniye po kriticheskim yavleniya i flyuktuatsiyam v
    rastvorakh. Moscow, 1960.

Kriticheskiye yavleniya i flyuktuatsii v rastvorakh; trudy
    soveshchaniya, yanvar' 1960 g. (Critical Phenomena and Fluc-
    tuations in Solutions; Transactions of the Conference,
    January 1960) Moscow, Izd-vo AN SSSR, 1960. 190 p. 2,500
    copies printed.

Sponsoring Agencies: Akademiya nauk SSSR. Otdeleniye khimi-
    cheskikh nauk. Moskovskiy gosudarstvennyy universitet im.
    M. V. Lomonosova. Khimicheskiy fakul'tet.

    Responsible Ed.: M. I. Shakhparonov, Doctor of Chemical
    Sciences, Professor; Ed. of Publishing House: E. S. Dragunov;
    Tech. Ed.: S. G. Tikhomirova.

PURPOSE : This collection of articles is intended for scientific
    personnel concerned with chemistry, physics, and heat power
    engineering.
Card 1/9

Critical Phenomena and Fluctuations   SOV/5469

COVERAGE: The book contains 24 of the 26 reports read at the
     Conference on Critical Phenomena and Fluctuations in Solutions
     organized by the Chemical Division of Moscow State University,
     January 26-28, 1960. The reports contain results of investi-
     gations carried out in recent years by Soviet physicists,
     chemists, and heat power engineers. The Organizing Committee
     of the Conference was composed of Professor Kh. I. Amirkhanov,
     A. Z. Golik, I. R. Krichevskiy (Chairman), V. K. Semenchenko,
     A. V. Storonkin, I. Z. Fisher, and M. I. Shakhparonov (Deputy
     Chairman). References accompany individual articles.

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Krichevskiy, I. R., and Yu. V. Tsekhanskaya [Laboratory of

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30

Critical Phenomena and Fluctuations   Sov/5469

Card 6/9

Critical Phenomena and Fluctuations.   SOV/5469

Roshchina, G. P. [Laboratoriya molekulyarnoy fiziki, Fizi-
cheskiy fakul'tet, Kiyevskiy gosudarstvennyy universitet im.
T. G. Shevchenko --   Laboratory of Molecular Physics, Divi-
sion of Physics, Kiyev State University imeni T. G. Shevchenko]
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Molecular Physics, Ural Polytechnic Institute imeni S. M.
Kirov]. Special Structural Features of Matter in the Vicin-
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Skripov, V. P., and Yu. D. Kolpakov [Laboratory of Molecular
Physics, Ural Polytechnic Institute imeni S. M. Kirov, and
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Smirnov, B. A. [Institut neftekhimicheskogo sinteza AN SSSR --
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30

Critical Phenomena and Fluctuations   SOV/5469

Institute of Petrochemical Synthesis, AS USSR (Moscow)] Visual
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tions, Chemistry Division, Moscow State University imeni M. V.
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Shimanskaya, Ye. T., and A. Z. Golik [Laboratory of Molecular
Physics, Physics Division, Kiyev State University imeni T. G.
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Critical Phenomena and Fluctuations   SOV/5469

Shimanskaya, Ye. T., Yu. I. Shimanskiy, and A. Z. Golik [Lab-
oratory of Molecular Physics, Division of Physics, Kiyev
State University imeni T. G. Shevchenko]. Investigation of
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AVAILABLE: Library of Congress (QD545.S73)

JP/dfk/jw
10-28-61

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S/081/61/000/021/010/094
B102/B138

AUTHORS: Shimanskaya, Ye. T., Shimanskiy, Yu. I., Golik, A. Z.

TITLE: Investigation of the critical state of pure substances by
              Tepler's method

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 21, 1961, 43, abstract
              21B347 (Sb. "Kritich. yavleniya i flyuktuatsii v rastvorakh",
              M., AN SSSR, 1960, 171 - 188)

TEXT: A method has been developed, for the investigation of critical
states, by means of which the density ϱ of a substance can be measured
in any point in a chamber (by the optical Tepler method) with long-time
thermostating. The apparatus is described in detail. Heptane and hexane
were examined. Density has a non-monotonic gradient with respect to the
chamber height Z, and has a maximum at the meniscus. This maximum
increases as the temperature approaches the point T_m at which the meniscus

vanishes. With a steady temperature change (rate: 2 deg/hr) the $d\varrho/dZ$
maximum is present on heating and absent on cooling (i. e. a hysteresis
is observed). With irregular changes in temperature and long-time
Card 1/2

Investigation of the critical...

S/081/61/000/021/010/094
B102/B138

(15 - 20 hr) thermostating, the dq/dZ maximum is, however, present on heating as well as cooling; the maxima are then lower than in the case of steady heating. The $q(Z)$ curves are found by integrating $dq/dZ = f(Z)$. For $T > T_m$ they are S-shaped. In the lower part of the chamber density is higher, and in the upper part lower, than critical. This is in full agreement with classical representations regarding the existence of a critical point, and not a region, when allowing for the effect of gravitational field. The critical state is realized only in a narrow layer at the point where the meniscus vanishes. Above and below this layer the substance is not in a critical state, although its temperature is critical. As the density difference throughout the chamber corresponds at the critical temperature to the equilibrium state, then it must be assumed that displacement sometimes occurs, levelling the density and removing the system from the state of equilibrium. [Abstracter's note: Complete translation.]

Card 2/2

SHIMANSKIY, Yu.I.; SHIMANSKAYA, Ye.T.; Prinimali uchastiye: YATSYUTA, N.A.;
    student; ZAVALIN, I.V., aspirant

    Study of the density of benzene near the cricital point. Ukr.
    fiz. zhur. 7 no.8:861-868 S '62.   (MIRA 16:1)

    1. Kiyevskiy universitet.
                    (Benzene--Density) (Critical point)

ZAVALI , I.V.; SHI:ANSKAYA, o.T.; SHI:MNSKIY, Yu.I.; Prinimali uchastiye:
A.TYUKOVSKAYA L.N., student; KOVALENKO G.F., student; KHOMUTOVA, Z. .
student

Behavior of the density of the solution benzene-propol alcohol near
the critical point at the liquid - vapor boundary. Ukr. fiz. zhur.
9 no. 5:491-496 My '64.   (:IRA 17:9)

1. Kiyevskiy gosudarstvennyy universitet.

POLYAKOV, G.V.; CHIMANSKIY, A.A .; CHIMANSKAYA, G.V.

    . ...ibility of using correlation analysis for determining
    the content of some components in the iron ores of the
    Angara-Ilim region. Izv. vys. ucheb. zav.; geol. i razv.
    6 no.5:97-103 My '65.   (MIRA 18:1))

    1. Irkutskiy politekhnicheskiy institut i Irkutskiy geologo-
    razvedochnyy tekhnikum.

UCHAKIN, Yu.M.; SHIMANSKIY, A.A.; PAULLER, T.I.

Rare alkalies containing feldspars from the pegmatites of
the Sayan Mountains. Geokhimiia no.8:673-680 '62. (MIRA 15:9)

1. East-Siberian Institute of Geology, Siberian Branch of
the Academy of Sciences, U.S.S.R. Polytechnic Institute,
Irkutsk.
    (Sayan Mountains--Alkalies) (Sayan Mountains--Feldspar)

SHIMANSKIY, A.A.; UCHAKIN, Yu.M.

Distribution of alkalies in microclines from pegmatites
of the Eastern Sayan Mountains. Geokhimiia no.9:833-836
'62.   (MIRA 15:11)

1. Polytechnical Institute of East-Siberial Institute of
Geology, Siberian Branch of the Academy of Sciences,
U.S.S.R., Irkutsk.
     (Sayan Mountains--Alkalies) (Sayan Mountains--Microcline)

SHIMANSKIY, A.A.

Lower Cretaceous continental deposits of western Ciscaucasia.
Dokl. AN SSSR 147 no.3:679-682 N '62.   (MIRA 15:12)

1. Krasnodarskiy filial Vsesoyuznogo neftegazovogo nauchno-issle-
dovatel'skogo instituta. Predstavleno akademikom D.V. Nalivkinym.
          (Caucasus, Northern—Geology, Stratigraphic)
        (Caucasus, Northern—Gas, Natural—Geology)

SHIMANSKIY, A.A.; ALADATOV, G.M.; NIKIFOROV, B.M.

Formation and characteristics of the distribution of
gas-condensate pools in the Yeysk-Berezan' District
(Krasnodar Territory). Trudy KF VNII no.10:3-18 '62.

(MIRA 15:11)

(Krasnodar Territory--Condensate oil wells)

ALADATOV, G.M.; NIKIFOROV, B.M.; SHIMANSKIY, A.A.

> Distribution of Pre-Cambrian, Paleozoic, Triassic, and Jurassic
> sediments in western Ciscaucasia (Yeysk-Berezan' gas-bearing
> region). Trudy KF VNII no.10:136-148 '62. (MIRA 15:11)
> (Krasnodar Territory—Geology)

SHIMANSKIY, A.A.

Conditions governing the formation of the multilayered gas
condensate pools of western Ciscaucasia. Neftegaz, geol. i
geofiz. no.11: 8-14'63   (MIRA 17:7)

1. Krasnodarskiy filial Vsesoyuznogo neftegazovogo nauchno-
issledovatel'skogo instituta.

SHARDANOV, A.N.; SHIMANSKIY, A.A.

Age of igneous rocks in western Ciscaucasia. Dokl. AN SSSR. 152
no.6:1441-1444 O '63.   (MIRA 16:11)

1. Krasnodarskiy filial Vsesoyuznogo neftegazovogo nauchno-
issledovatel'skogo instituta. Predstavleno akademikom D.V.
Nalivkinym.

SHIMANSKIY, A,A.

Regularities in the distribution of the oil and gas pools in the
Mesozoic sediments of western Ciscaucasia. Geol. nefti i gaza
8   no. 1:33-38   Ja '64.   (MIRA 17:5)

1. Krasnodarskiy filial Vsesoyuznogo neftegazovogo nauchno-
issledovatel'skogo instituta.

MATALIN, L.A.; SHIMANSKIY, A.M.; CHUBAROV, S.I.; SHTRANIKH, I.V.

1024-Channel time analyzer. Prib. i tekh. eksp. no.3:54-63
My-Je '60.   (MIRA 14:10)
          (Neutrons)   (Nuclear counters)

SHIMANSKIY, A. M., CAND TECH SCI, "MULTICHANNEL TIME ANALYZERS with A SYSTEM OF RECORDING ON MAGNETIC ELEMENTS." MOSCOW, 1961. (ACAD SCI USSR, PHYS INST IM P. N. LEBEDEV). (KL, 2-61, 214).

-204-

ACCESSION NR: AR4014689   S/0271/64/000/001/B028/B029

SOURCE: RZh. Avtomatika, telemekhanika i vy*chislitel'naya tekhnika, 1964, no. 1,
Abs. 1B211

AUTHORS: Meshkov, N. V.; Nesterov, P. V.; Smirnov, V. I.1 and Shimanskiy, A. M.

TITLE: Memory unit for a multidimensional analyzer with 16,000 channels

CITED SOURCE: Tr. 5-y Nauchno-tekhn. konferentsii po yadern. radio-elektronike.
T. 2., Ch. 2. M., Gosatomizdat, 1963, 62-71

TOPIC TAGS: multidimensional analyzer, memory unit, ferrite core memory, high
capacity memory, multidimensional analysis, information sorter

TRANSLATION: Multidimensional analysis requires a memory of great capacity.
A 16000-cell ferrite core memory has been built which can be used directly as a
memory for a multidimensional analyzer or as a sorter of information from a
magnetic tape. In many cases the high capacity makes it possible to rewrite all
the information from one or several tapes in one run and obtain graphic picture
of the spectrum. The memory is intended for use with various units. A number o.
auxiliary functions added to the addressing system and the arithmetic block of the
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ACCESSION NR: AR4014689

memory converts the system to a specialized computer capable of highly simplified operations in reducing information. The memory capacity is 128 X 128 sixteen-digit bits. The dead time of the memory is 200 microsec. The ferrite cores used in the memory are type K-260, measuring 2 X 1 and 3 X 1 mm. Selection half-current is 240 ma. The circuit includes 200 type 6N3P tubes, 100 6N6P tubes, 1200 semi-conductor diodes, and 200 transistors. Orig. art. has 4 figs. and 4 refs.   O. B.

SUB CODE: CP   ENCL: 00   DATE ACQ: 19Feb64

Card   2/2

ACCESSION NR: AR4022434   S/0058/64/000/001/A028/A028

SOURCE: RZh. Fizika, Abs. 1A268

AUTHORS: Meshkov, N. V.; Nesterov, P. V.; Smirnov, V. I.; Shiman-
skiy, A. M.

TITLE: Memory unit for multidimensional 16000 channel analyzer

CITED SOURCE: Tr. 5-y Nauchno-tekhn. konferentsii po yadern. ra-
dioelektronike. T. 2, Ch. 2. M., Gosatomizdat, 1963, 62-71

TOPIC TAGS: memory unit, ferrite core memory, multidimensional
analyzer, magnetic tape data reduction, ferrite core matrix, reading
amplifier, magnetic commutator, address current

TRANSLATION: A 16,000 address ferrite-core memory has been developed.
This memory can be used in a multidimensional analyzer or serve as
a sorting block for the reduction of information from a magnetic

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ACCESSION NR: AR4022434

tape. The memory block is made in the form of a 128 x 128 x 16 matrix of K-260 ferrite cores measuring 2 x 1.3 x 1 mm. To increase the reliability, the matrix, the reading amplifiers, and the magnetic commutator for the address currents are placed in a container where a $(35 \pm 1)C$ temperature is maintained. The memory capacity is 128 x 128 16-digit binary numbers. The dead time is 200 microseconds. The circuit contains 300 vacuum tubes and approximately 200 transistors. The operating principle is analyzed and block diagrams of the main units of the memory are presented. Yu. Semenov.

DATE ACQ: 03Mar64   SUB CODE: CP, SD   ENCL: 00

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