SMIRNOV, Ye.A.

Isolated chromophoric systems. Part 27. Color phenomena in arylamides of γ-[4-nitrophenyl]-butyric acid. Zhur.ob.khim. 25 no.4:802-809 Ap '55. (MLRA 8:7)

1. Moskovskiy neftyanoy institut. (Butyric acid) (Chromophores) (Amides)

SMIRNOV, YE. A.

USSR/Physical Chemistry - Molecule. Chemical Bond, B-4

Abst Journal: Referat Zhur - Khimiya, No 19, 1956, 60748

Author: Smirnov, Ye. A.

Institution: None Moscow Petroleum Inst

Title: Individual Chromophoric Systems. XXVIII. Comparative Study of Absorption Spectra of Arylamides of p-nitrophenylacetic, p-nitrohydrocinnamic, γ-(p-nitrophenyl)-butyric and p-nitrobenzoic acids

Original Periodical: Zh. obshch. Khimii, 1955, 25, No 5, 1014-1021

Abstract: Measured were the ultraviolet absorption spectra)AS) of arylamides of p-nitrophenylacetic (I), p-nitrohydrocinnamic (II), γ-(p-nitrophenyl)-butyric (III), and p-nitrobenzoic (IV) acids containing in para- and meta-positions of the aryl residue the groups $N(CH_3)_2$, OCH_3 and OH, and also the AS of p-nitrotoluene and arylamides of the corresponding fatty acids. AS of the derivatives I, II and III containing identical substituents practically coincide and show the following maxima: p-OCH_3 254-260 mu; p-OH 258-260 and p-$N(CH_3)_2$

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USSR/Physical Chemistry - Molecule. Chemical Bond, B-4

Abst Journal: Referat Zhur - Khimiya, No 19, 1956, 60748

Abstract: 274-278. All the compounds show moreover an inflexion in the 340 mu region, while the $N(CH_3)_2$ derivatives have also a small appendage in the long wave region. Shortwave maxima of all these compounds coincide in position and intensity with the sum of the separately measured AS of p-nitrotoluene and the corresponding substituted arylamide of acetic acid, i.e., are determined by the absorption of the not mutually interacting nitrotoluene and arylamide electronic systems. The derivatives IV have 2 well defined bands: OCH_3 250-256 and 326-327; OH 252-254 and 333-336 and $N(CH_3)_2$ 270 and 380 mu and differ appreciably from the sum of AS of the individual components, The m-derivatives show the same regularities but the shortwave maximum is divided in 2 in accordance with the AS of the sum of individual components. Occurrence of the longwave band in the derivatives IV is associated with isomerization of the amide group to -- C(OH) = N --, which makes possible interaction of electron systems of both portions of the molecule which is confined by the absence of this band in the AS of the N-methyl derivative of p-(4-nitrobenzoyl)-aminophenol in which isomerization is impossible. The concentrated solutions of all the compounds

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IZMAIL'SKIY,V.A.; SMIRNOV,Ye.A.

Isolated chromophoric systems. Part 29. Comparative spectroscopic studies of 4-nitrobenzylidene and 4-nitrobenzyl derivatives of aromatic amines. Zhur.ob.khim.25 no.7:1400-1412 Jl'55.
(MLRA 8:12)

1. Moskovskiy gorodskoy pedagogicheskiy institut imeni V.P.Potemkina i Moskovskiy neftyannoy institut imeni I.M.Gubkina.
(Amines--Spectra)

Smirnov, E. A.

Isolated chromophore systems. XXX. Phenomena of color in arylamides of γ-(2,4-dinitrophenyl)butyric acid. E. A. Smirnov (Petrol. Inst., Moscow). *Zhur. Obshchei Khim.* 25, 2336–43(1955); cf. *C.A.* 50, 2481*a*, 5403*h*.—Nitration of $Ph(CH_2)_3CO_2H$ with mixed acid on a water bath 2 hrs. gave $2,4\text{-}(O_2N)_2C_6H_3(CH_2)_3CO_2H$, m. 97.5°; with PCl_5 this gave the acyl chloride which treated with the corresponding amines gave the following *arylamides* (R of the aryl amide shown): *m*-$MeOC_6H_4$, m. 87–8°; *p*-$MeOC_6H_4$, m. 110.5°; *m*-HOC_6H_4, m. 177°; *p*-HOC_6H_4, m. 163–4°; *m*-$Me_2NC_6H_4$, m. 132.5°; *p*-$Me_2NC_6H_4$, m. 126°. All these amides were colored, most deeply colored one being the last one listed. While the *m*-derivs. are somewhat less colored than the *p*-isomers, the color is invariably present. Reflection spectra of the substances are reproduced. The reason for color in the solid state lies in direct interaction of the electrophilic and electron-donor groups through exo-mol. fields of forces, i.e. those responsible for formation of complexes of nitro compds. with aromatic amines and phenols. G. M. Kosolapoff

Chem

Smirnov, Ye. A.

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Isolated chromophore systems. XXXI. Comparative study of spectra of absorption in arylamides of 2,4-dinitrophenylacetic, 2,4-dinitrohydrocinnamic, and γ-(2,4-dinitrophenyl)butyric acids. E. A. Smirnov (Petrol. Inst., Moscow). *Zhur. Obshchei Khim.* 25, 2632-8(1955); cf. *C.A.* 50, 3309g.—Absorption spectra are shown for substituted arylamides of 2,4-dinitrophenylacetic, 2,4-dinitrohydrocinnamic, and γ-(2,4-dinitrophenyl)butyric acids, in which a HO, MeO, or Me_2N group is in meta or para position in respect to NH. The spectra of all 3 groups are very similar to each other and show some deviations only in the visible spectrum. The results are interpreted as indicative of simple summation of the spectra of the individual chromophoric groups. The variations in the visible region are attributed to intermol. interaction of the electron-donor-acceptor groups in the mols. involved; this interaction is the cause of the visible color of the amides. Beer's law is not followed at high concns. and this fact is a further substantiation of the above hypothesis. The results are shown graphically. G. M. Kosolapoff

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SMIRNOV, YE.A

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Chem

Analysis of structural effects on the spectrum. I. Comparative study of phenomena of color in azomethines of the type $O_2NC_6H_4CH:NC_6H_4X$ and $XC_6H_4CH:NC_6H_4NO_2$. Spectra of reflection and absorption. V. A. Izmail'skii and E. A. Smirnov (V. P. Potyemkin Pedagog. Inst., Moscow). *Zhur. Obshchei Khim.* 26, 3042-60(1956); cf. *C.A.* 50, 5403*h*.—The comparison of visual reflected color, and reflection and absorption spectra of the azomethines *p*-$O_2NC_6H_4$-NH:NC_6H_4X (I), and $XC_6H_4CH:NC_6H_4NO_2$-*p* (II) was made, with X being NMe_2, NO_2, or HO groups. It was shown that in the solid state the I show deeper color than do II, the same being also true of their solns. These results indicate that the azomethine group cannot be regarded as the main chromophore, contrary to the views expressed on this subject (cf. Smets and Delvaux, *C.A.* 41, 6469*e*). A theoretical discussion of the phenomena of color in such compds. is presented, based on bathochromic effect as caused by electron displacements by substituent groups, of electron donor or acceptor types. The compds. are regarded as single conjugated chromophoric systems with 2 contained systems at each end of the mol. It is also suggested that conjugation of the azomethine and azo groups with the aromatic rings may involve the onium electron doublet of the N atom in the case of the presence of very strong electronophilic groups such as NO_2. This result is confirmed by similarity of the spectra of *p*-$O_2NC_6H_4NH_2$ and benzylidene-*p*-nitroaniline. The following compds., after careful purification, are cited with higher-than-previous m.ps.: *p*-(*p*-nitrobenzylideneamino)dimethylaniline, m. 219.5-20° (cf. Sachs, *et al.*, *Ber.* 35, 1239(1902)); *N*-(*p*-dimethylaminobenzylidene)-*p*-nitroaniline, m. 201-2° (cf. Guyot and Granderye, *Compt. rend.* 134, 550(1902)). A mixt. of equal amts. of *p*-HO-C_6H_4CHO and *p*-$O_2NC_6H_4NH_2$ was heated 1 hr. at 130-5°, yielding *N-(p-hydroxybenzylidene)-p-nitroaniline*, m. 202-3°, which is readily hydrolyzed by aq. solvents. G. M. K.

SMIRNOV, E. A.

Distr: 4E4j/4E3d

Phenomena of color in arylamides of 2,4-dinitrobenzoic acid. Reflection and absorption spectra. E. A. Smirnov (Petrol. Inst., Moscow). *Zhur. Obshchei Khim.* 27, 1922-33(1957).—Arylamides of 2,4-$(O_2N)_2C_6H_3CO_2H$ carrying in meta and para positions groups such as MeO, HO, and Me_2N were examd. visually and spectrometrically. All the compds. in the group are colored, the very deep red color of the *p*-Me_2 deriv. being the deepest in the group. The spectra which are reproduced are different from analogous derivs. of 2,4-dinitrophenylacetic, 2,4-dinitrohydrocinnamic, and γ-(2,4-dinitrophenyl)butyric acids; they also differ from the additively expected spectra of the component parts of the amides. The results are interpreted as being the result of interaction of the electron-donor and electron-acceptor groups operating through the chain of the amide group with possible tautomerization and formation of a continuous conjugated chain. The 2nd nitro group produces a lesser bathochromic effect in this series than it does in *p*-nitrophenylacetic acid series of amides. *3-(2,4-Dinitrobenzamido)anisole*, m. 172.5-3.5°; *4-(2,4-dinitrobenzamido)anisole*, m. 201-2°; *3-(2,4-dinitrobenzamido)phenol*, m. 119.5-20.5°; *4-(2,4-dinitrobenzamido)phenol*, m. 212.5-13°; *N,N-dimethyl-N'-(2,4-dinitrobenzoyl)-m-phenylenediamine*, m. 201.5-2°; *p-isomer*, decomp. 240.5-1°. G. M. K.

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Smirnov, E.A.

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Compounds with two electron donor systems. II. Phenomena of color in derivatives of *N*-(phenylglycyl)-*O*-3-nitrobenzoyl-*p*-aminophenol. E. A. Smirnov (Petroleum Inst., Moscow). *Zhur. Obshchei Khim.* 27, 2882-92(1957); cf. *C.A.* 49, 5327e.—*m*-$O_2NC_6H_4CO_2C_6H_4NHCOCH_2NHC_6H_4A$, where A is H, Me, or MeO in *o*-, *m*-, or *p*-position, were examined; all except that with A = H were yellow to red in color. The deeply colored forms are explained by exomol. interaction of electron donor and acceptor groups. Absorption spectra are shown and are discussed at length. In relatively concd. solns. Beer's law is not obeyed by these substances; in dil. solns. in which the exomol. forces are weakened by the solvent action the relationship holds rather well. *p*-(*N*-Chloroacetamido)phenol (18.5 g.) with 19 g. *m*-$O_2NC_6H_4COCl$ (cf. above ref.) gave *N*-(*chloroacetyl*)-*O*-(*m-nitrobenzoyl*)-*p-aminophenol*, almost colorless, m. 157.5-58°. This heated with 1 part *p*-$MeC_6H_4NH_2$ 15 min. at 110-15° gave on treatment of the melt with MeOH yellow *N*-(*p-tolylglycyl*)-*O*-(*m-nitrobenzoyl*)-*p-aminophenol*, m. 157.5-58°. Similarly was prepd. the *m-tolylglycyl analog*, pale yellow, m. 141-1.5° (MeOH), or bright red (aq. pyridine), which changes to yellow at 122-5°. Similarly was prepd.: the *o-tolylglycyl analog*, brown-yellow, m. 115-16°, decomp. 150°; *p-methoxyphenylglycyl analog*, orange, m. 144-5° (aq. Me_2CO), or red, m. 140-1° (MeOH); *o-methoxyphenylglycyl analog*, pale green, m. 151.5-5.3° (aq. Me_2CO), or red, m. 157.5-58° (MeOH-Me_2CO); *phenylglycyl analog*, pale yellow, m. 193.5-94°; *m-methoxyphenylglycyl analog*, red-brown, m. 123-4°. G. M. K.

Distr: 4E2c(j)/4E4j/
4E3d

SOV/20-120-3-30/67

AUTHOR: Smirnov, Ye. A.

TITLE: On the Color Phenomena in the Diacyl Derivatives of n-Aminophenol (O yavleniyakh tsvetnosti u diatsil'nykh proizvodnykh n-aminofenola)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol. 120, Nr 3, pp. 544-547 (USSR)

ABSTRACT: The author proved (Ref 1) that in the simultaneous presence of two different systems of electron donors (AK and A'K) and of an electronophilic system (BK), which is not connected with the first by a chain of conjugated double bonds, this compound in some cases can be obtained in the form of two differently colored variants. The existence of the latter was explained by the fact that an immediate interaction of the two systems by means of exomolecular forces (Ref 2) can take place in two ways: a) either by an interaction of the electronophilic system with the electron-donor system AK or b) By an interaction with the system A'K. In the compounds discussed the electronophilic system is represented by the acyl of the 4-nitrobenzoic- or of the 3,5-dinitrobenzoic acid (RCO), whereas the electron-donor system AK is represented

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SOV/20-120-3-30/67

On the Color Phenomena in the Diacyl Derivatives of n-Aminophenol

by a molecule of p-aminophenol (diacylated). The acyl of trimethylgallic acid (R'CO) acts as the electron-donor system A'K. It may be seen from table 1 that almost all diacyl derivatives of p-aminophenol (except Nr 2), containing the A'K system, each form two colored variants: A weakly colored pale yellow form (a), and a more intensively colored form (b). Both can transform into each other by crystallization from different solvents. The system A'K is a more powerful electron donor than AK. As the A'K system is not conjugated to the system BK, the interaction of these systems, which causes the more intensive coloring of the variant (b), can only be accomplished by exomolecular forces. The existence of a coloring, however weak, in compounds, which only possess the one electron-donor system AK, tends to prove that the BK system can also interact with the AK system. The similarity of the coloring in compounds, which possess only one AK system, with that of such compounds which possess both electron-donor systems, proves the assumption that the coloring of the weakly colored variant of the latter is also caused by the interaction between the systems BK and AK, the interaction between BK and AK being disturbed in this case. The investigated compounds are divided

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SOV/20-120-3-30/67

On the Color Phenomena in the Diacyl Derivatives of n-Aminophenol

into two groups: I and II. In group I the Bz system is more powerful, as the OH group weakens the electronophilic properties of the CO group less than the amino group. For the same reason the system AK in group II is more powerful. The systems AK do not differ greatly with respect to their power in the two groups. There are 1 table and 5 references, [illegible] which are Soviet.

ASSOCIATION: Moskovskiy neftyanoy institut im. I. M. Gubkina Akademii nauk SSSR
(Moscow Petroleum Institute imeni I.M. Gubkin, AS USSR)

PRESENTED: January [illegible], 1958, by B. A. Kazanskiy, Member, Academy of Sciences, USSR

SUBMITTED: January 22, 1958

1. Aminophenols--Color 2. Aminophenols--Electrochemistry

Card 3/3

AUTHOR: Smirnov, Ye. A.

SOV/20-120-4-32/67

TITLE: Color Phenomena in N-Phenylglycyl Derivatives of α-Aminoanthraquinone (O yavleniyakh tsvetnosti u N-fenilglitsil'nykh proizvodnykh α-aminoantrakhinona)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol. 120, Nr 4, pp. 805-808 (USSR)

ABSTRACT: The derivatives mentioned in this paper may be classified among compounds of 2 electronic donor systems. Apart from the electronophilic chromophorous system 2 additional non-conjugated electron donor systems exist. It is true that derivatives with 1 substituent in an α- or β-position were investigated (Refs 1 - 8), the compounds, however, formed according to type I (see scheme) are not described in publications. Unlike the compounds with 2 electron donor systems investigated by the author whose electronophilic systems are formed by nitro-benzoic (m- or p-) acid (Ref 9) or 3,5-di-nitro-benzoic acid (Ref 10) in the case of the compounds of the mentioned type an anthraquinone molecule takes the place of the electronophilic system (BK). This molecule forms a more effective chromophorous system than the acyls of the

Card 1/4

SOV/20-120-4-32/67

Color Phenomena in N-Phenylglycyl Derivatives of α-Aminoanthraquinone

2 mentioned acids. The amino acyl group together with the double bindings of one of the anthraquinone nuclei may be considered as the first electronic donor system (AK). This nucleus connected with the amino acyl group is at the same time a part of the electronophilic system so that after all the Co- and NHAc-groups are in this case parts of one and the same chromophorous system. Such compounds might under certain conditions be considered as "compounds with superimposed chromophorous systems" (Ref 11). The second system (A'K) is separated from the electronophilic system by several groups and thus forms a "separated chromophorous system". AK is only a very weak electronic donor. A'K is considerably stronger than the former. From table 1 can be seen that all compounds containing A'K are much more intensively colored than the initial compound which contains only AK. From this a basic conclusion may be drawn: a relatively more intensive coloring of the mentioned compounds is due to the interaction of A'K and BK systems. Since these systems are not conjugate to each other the interaction takes place owing to exomolecular forces (Ref 12). The existence of the NHAc-group in the anthraquinone nucleus is unfavorable to color phenomena.

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SOV/ 20-120-4-32/67

Color Phenomena in N-Phenylglycyl Derivatives of α-Aminoanthraquinone

To some extent it reduces the electronophilic properties of the BK system and thus leads to an increase of coloring of the compounds. Therefore it may be expected that the compounds formed according to type II (see scheme) which are similar to nitro-benzene derivatives already earlier mentioned by the author (with the same A'K system but without amino acyl group) will have a more intensive coloring than the compounds under discussion. There are 2 figures, 1 table, and 14 references, 6 of which are Soviet.

ASSOCIATION: Moskovskiy neftyanoy institut im. M. I. Gubkina (Moscow Petroleum Institute imeni M. I. Gubkin)

PRESENTED: January 22, 1958, by B. A. Kazanskiy, Member, Academy of Sciences, USSR

SUBMITTED: January 22, 1958

Card 3/4

SOV/20-120-4-32/67

Color Phenomena in N-Phenylglycyl Derivatives of α-Aminoanthraquinone

1. Cyclic compounds--Color 2. Cyclic compounds--Structural analysis 3. Ketones --Chemical properties

Card 4/4

SMIRNOV, Ye.A., Cand Chem Sci -- (diss) "Phenomena of coloring in organic compounds with separated chromophore systems" Mos, 1959, 41 pp (Min of Higher Education USSR. Mos Order of Lenin Chem-Technol Inst im D.I. Mendeleyev). 150 copies. List of author's works at end of text (14 titles) (KL,38-59, 114)

SOV/79-29-1-61/74

AUTHOR: Smirnov, Ye. A.

TITLE: Comparison of Color, Reflection- and Absorption Spectra of Aryl Amides of 3,5- and 2,4-Dinitro Benzoic Acids (Sopostavleniye okraski, spektrov otrazheniya i spektrov pogloshcheniya sveta u arilamidov 3,5- i 2,4-dinitrobenzoynykh kislot)

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 1, pp 287-297 (USSR)

ABSTRACT: In continuation of earlier papers (Refs 1,2) the author compares in the present paper the colors of aryl amides of 3,5-dinitro benzoic acid with the general formula $3,5-(O_2N)_2C_6H_3CONHC_6H_4A$ with that of the corresponding aryl amides of 2,4-dinitro benzoic acid and shows that in cases with $A=m-OCH_3, p-OH, m-N(CH_3)_2$ a more intensive color is found in the former and in other cases with $A=m-OH, p-N(CH_3)_2, p-OCH_3$ it holds for the latter. The reflection spectra of the solid compounds confirm the visual observations and furnish details. A comparison between the absorption spectra of these and other com-

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SOV/79-29-1-61/74

Comparison of Color, Reflection- and Absorption Spectra of Aryl Amides of 3,5- and 2,4-Dinitro Benzoic Acid

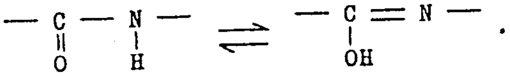
pounds shows that all representatives of the 3,5-dinitro benzoic acid series have a less intensive color than the corresponding representatives of 2,4-dinitro benzoic acid. This difference of the compounds with respect to color in solid state and in solution may serve as a confirmation of the fact that in the case of reaction between electrophilic and nucleophilic systems,which is the main factor to cause the color of the compounds, intermolecular powers play a part which, however, develop completely only in the case of solid bodies. The similarity with respect to color between 3,5 dinitro benzoyl derivatives and the complex compounds obtained from components of the same electrophilic system $[3,5\text{-}(O_2N)_2C_6H_3CONH_2]$ and the same nucleophilic system $(CH_3CONHC_6H_4A)$ as in the case of dinitro benzoyl derivatives seems to prove the fact that intermolecular reactions like this are also possible in the case of dinitro benzoyl derivatives. The comparative absorption curves plotted are a confirmation of the fact that in the case of 3,5-dinitro benzoyl derivatives the reaction between elec-

Card 2/3

SOV/79-29-1-61/74

Comparison of Color, Reflection- and Absorption Spectra of Aryl Amides of 3,5- and 2,4-Dinitro Benzoic Acid

trophilic and nucleophilic systems takes place also within the molecule, i.e. on the chain of the double bonds. This chain is formed by tautomeric transformation:



$$-\underset{\underset{O}{\|}}{C}-\underset{\underset{H}{|}}{N}- \rightleftharpoons -\underset{\underset{OH}{|}}{C}=N- .$$

There are 10 figures, 2 tables, and 6 Soviet references.

ASSOCIATION: Moskovskiy neftyanoy institut imeni I. M. Gubkina (Moscow **Petroleum Institute** imeni I. M. Gubkin)

SUBMITTED: October 15, 1957

Card 3/3

FEDOROV, G.B.; SMIRNOV, Ye.A.

Measuring partial vapor pressures of zirconium and zirconium-tin alloys. Thermodynamic characteristics of zirconium and its alloys. Met. i metalloved. chist. met. no.3:34-42 '61.
(MIRA 15:6)

(Zirconium--Thermal properties) (Vapor pressure)

TITKOV, N.P.; BOGDANOVA, Z.S.; GALAKTIONOVA, K.N.; KUROVA, M.D.; LAKOTA, B.M.; OZOLIN, L.T.; Prinimali uchastiye: CHRKOVA, K.I.; ASHITKOV, Yu.R.; SMIRNOV, Ye.A.; PLATUNOV, A.A.; GALICH, V.M.; PATKOVSKAYA, N.A.; VLODAVSKIY, I.Kh.; GORLOVSKIY, S.I.

Outlook for introducing the flotation of ferrous metal ores. Gor. zhur. no.9:57-62 S '62. (MIRA 15:9)

1. Vsesoyuznyy nauchno-issledovatel'skiy i proyektnyy institut mekhanicheskoy obrabotki poleznykh iskopayemykh, Leningrad.
(Flotation) (Iron ores) (Manganese ores)

DVORIN, S.A.; SMIRNOV, Ye.A.

Electrostatic concentration of sylvinite ores. Dokl. AN BSSR 8
no.8:530-533 Ag '64. (MIRA 17:11)

1. Institut obshchey i neorganicheskoy khimii AN BSSR i Vsesoyuznyy nauchno-issledovatel'skiy institut galurgii. Predstavleno akademikom AN BSSR M.M. Pavlyuchenko.

L 09510-67 EWT(m)/EWP(t)/ETI IJP(c) JD

ACC NR: AT6023738 (A,N) SOURCE CODE: UR/2755/66/000/005/0092/0098

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B+1

AUTHOR: Fedorov, G. B.; Smirnov, Ye. A.; Zhomov, F. I.

ORG: none

TITLE: Autodiffusion in alpha uranium

SOURCE: Moscow. Inzhenerno-fizicheskiy institut. Metallurgiya i metallovedeniya chistykh metallov, no. 5, 1966, 92-98

TOPIC TAGS: metal diffusion, uranium

ABSTRACT: Polycrystalline samples of electrolytic uranium with a purity of 99.87% were used in the tests. The samples were in the form of cylinders 10-12 mm in diameter and 6-8 mm high. Before the diffusion study, the samples were placed in evacuated and sealed quartz ampoules, and were subjected to water quenching from 800°C and stabilizing annealing for 4 hours at 630°C. Radioactive uranium, enriched up to 90% in the U^{235} isotope, was used as an indicator in the diffusion tests. A rod of enriched uranium was suspended in a tungsten heater and was sprayed in a vacuum onto the end surfaces of the samples, which had been specially prepared by polishing. The samples were then placed in quartz ampoules which were evacuated to a pressure of 10^{-5} mm Hg and sealed. Diffusion annealing was carried out at emperatures of 630, 590, 550, and 500°C for 434, 1455, 1827, and 1835 hours, respectively. After the

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ACC NR: AT6023738

diffusion annealing, the samples were subjected to a layer-wise radiographic analysis. The depth of penetration of the active material into the samples was found to be only 10-20 microns. On the basis of the experimental data, calculations were made of the coefficients of autodiffusion for alpha uranium. A curve shows the dependence of these coefficients on temperature. Overall conclusions were as follows: 1) at the temperatures at which the alpha phase of uranium exists, autodiffusion proceeds predominantly along the intergrain boundaries; 2) measurements were made of the coefficients of boundary and volumetric autodiffusion of uranium in the alpha phase. It was established that the level of diffusion mobility along the grain boundaries is considerably (by 4-5 orders of magnitude) greater than volumetric diffusion. The temperature dependences of the autodiffusion coefficients have the following form:

$$D_{vol} = 4.5 \times 10^{-4} \exp(-42{,}200/RT) \text{ cm}^3/\text{sec},$$

$$D_{bound} = 1.6 \times 10^{5} \exp(-44{,}300/RT) \text{ cm}^3/\text{sec}.$$

Orig. art. has: 4 figures and 2 tables.

SUB CODE: 11, 20/ SUBM DATE: none/ ORIG REF: 004/ OTH REF: 004

Card 2/2 LC

SMIRNOV, Ye.A.

Compounds with two separate electrodonating systems. Part 3: Color phenomena in nitroacyl derivatives of δ-amino-4,4-bis (dimethylamino)- and -amino-4-dimethylaminodiphenylmethane. Zhur.ob.khim. 32 no.2:581-587 F '62. (MIRA 15:2)

1. Moskovskiy tekstil'nyy institut.

(Methane)
(Nitro compounds)

SMIRNOV, Ye.A.; KORBUKH, I.A.

Compounds with two electron-donor systems. Part 1: Phenomena of chromaticity in derivatives of p-dimethylaminoanilide of N-phenyl-3,5-dinitrohippuric acid. Izv. vys. ucheb. zav.; khim. i khim. tekh. 7 no.3:425-431 '64.

(MIRA 17:10)

1. Moskovskiy tekstil'nyy institut, kafedra organicheskoy khimii.

SMIRNOV, Ye.A.; YAKOVENKO, T.I.

Compounds with electron-donor systems. Part 7: Chromaticity of the derivatives of N-(phenylglycyl)-O-(4''-nitrobenzoyl)-4,4'-aminohydroxydiphenyl. Zhur. org. khim. 1 no.6:1082-1087 Je '65. (MIRA 18:7)

1. Moskovskiy tekstil'nyy institut.

SMIRNOV, Ye.A.; MALYGINA, A.V.

Compounds with two electron-donor systems. Part 6: Chromaticity in the derivatives of N-(phenylglycyl)-o-(3-nitrobenzoyl)-1,4-aminonaphthol. Zhur. ob. khim. 34 no.9:3072-3075 S '64. (MIRA 17:11)

1. Moskovskiy tekstil'nyy institut.

SMIRNOV, Ye.A.; AGRACHEVA, Ye.B.

Compounds with two electron-donor systems. Part 7: Phenomena of the chromaticity of N-(phenylglycyl)-O-(4-nitrocinnamoyl)-1,4-aminonaphthol. Zhur. ob. khim. 35 no.3:559-563 Mr '65. (MIRA 18:4)

1. Moskovskiy tekstil'nyy institut.

SMIRNOV, Ye.A.; KORBUKH, I.A.

Chromaticity of azomethines containing a separate electron-donor system. Dokl. AN SSSR 160 no.2:373-375 Ja '65. (MIRA 18:2)

1. Moskovskiy tekstil'nyy institut. Submitted August 29, 1964.

SMIRNOV, Ye.A.; AGRACHEVA, Ye.B.

Separated chromophoric systems. Part 31. Phenomena of color in the derivatives of N-phenylaminoethyl ester of p-nitrobenzoic acid. Zhur.ob.khim. 35 no.12:2115-2119 D '65.

(MIRA 19:1)

1. Moskovskiy tekstil'nyy institut. Submitted December 25, 1964.

[illegible]

SHATILOV, A.M.; SMIRNOV, Ye.A.; DEMINA, S.A.

Finishing concentrates at the Novosibirsk tin plant. Biul. TSIIN tsvet. met. no.4:14-18 '58. (MIRA 11:5)
(Novosibirsk--Ore dressing) (Tin)

S/755/61/000/003/004/027

AUTHORS: Fedorov, G. B., Smirnov, Ye. A.

TITLE: Measurement of the partial vapor pressure of zirconium in its alloys with tin. Thermodynamic characteristics of zirconium and its alloys.

SOURCE: Moscow. Inzhenerno-fizicheskiy institut. Metallurgiya i metallovedeniye chistykh metallov. no.3. 1961, 34-42.

TEXT: The saturation vapor pressure of Zr was measured and several thermodynamic characteristics of Zr and its Sn alloys were calculated therefrom. The differential version of M. Knudsen's effusion method (The Kinetic Theory of Gases. London. 1934) was employed. The equipment used was described in the senior author's paper in no.2 of the subject sbornik, Atomizdat, 1960, 141. The test substance was placed in a Mo crucible heated in a resistance furnace and evaporated into a high vacuum through an aperture. Condensation of the particles of the atomic beam was accomplished on cooled traps. Weight determination was done by the radiochemical method, using radioactive Zr^{95}. Four alloys were tested: Pure Zr, and Zr with 1.5, 6, and 10% Sn, with 20% of the Zr in each alloy made up of the radioactive isotope. The temperature-pressure relationships for two aperture diameters were obtained from the experimental data by means of the least-square method, whereupon the Rossman-Yarwood formula (J. Chem. Phys., v.21, 1953, 1406) yielded the equation for the saturation vapor pressure of Zr: $\lg p = 1.58 - 1.28 \cdot 10^4 \cdot 1/T$. From the slope of the straight line thus determined the heat of sublimation L is obtained. The

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enthalpy and entropy are determined from the Landau-Lifshits expression for the chemical potential of a monoatomic ideal gas (Statisticheskaya fizika. Gostekhizdat. 1951). Equating the chemical potential of a monoatomic gas to the chemical potential of solid Zr, expressions are found for the determination of the enthalpy and the entropy per g·at.Zr. The partial vapor pressure of Zr in its Sn alloys was also determined (tabulated and graphed). From these partial-pressure data the thermodynamic activity of Zr, a_{Zr}, was found from the ratio p_{Zr} of a given alloy to the p^0_{Zr} of pure Zr (all referred to a 1.4-mm-diam effusion aperture). The results are graphed for 1,300°C and 1,400°C vs. Zr content in each alloy. From the activity values thus obtained the changes of the partial thermodynamic functions (free energy, entropy, and enthalpy) of Zr in its Sn alloys are analytically obtained (expressions provided). The data obtained here yield a heat of sublimation that agrees fairly well with those of Zwikker (Physika, Nederland, v.8, 1928, 241). With respect to entropy and enthalpy, best agreement is obtained with respect to Zwikker's work also. The changes in the heat of sublimation (HS) of Zr in Sn alloys suggest the deduction that the addition of Sn increases the coupling energy of the atoms of the crystalline lattice. The effect of the quantity of Sn added on the increase in HS is analogous to its effect on the activation energy of Zr selfdiffusion per Fedorov, G. V., Gulyakin, V. D. (in no.1 of the same sbornik, 1959, 170). There are 4 figures, 5 tables, and 16 references (9 Russian-language Soviet, 7 English-language).

ASSOCIATION: MIFI (Moscow Engineering Physics Institute).

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S/755/61/000/003/021/027

AUTHORS: Fedorov, G. B., Rayetskiy, V. M., Smirnov, Ye. A.

TITLE: Diffusional and thermodynamic characteristics of nickel.

SOURCE: Moscow. Inzhenerno-fizicheskiy institut. Metallurgiya i metallovedeniye chistykh metallov. no.3. 1961, 203-209.

TEXT: The paper reports on the first part of an investigation concerned with the diffusional and thermodynamic characteristics of Ni and its alloys. Its especial objective are the properties of pure Ni. Artificial radioactive Ni^{63} was utilized in all experiments. The radioactivity was measured by means of an end-window counter with a 1 mg/cm^2 mica window. In addition to the soft β-radiation of the Ni^{63} isotope a harder β-radiation of about 0.5 Mev was detected. The 70-day half-life of the second isotope identified it as Co^{58}. A method was developed to perform the simultaneous but separate determination of the diffusion coefficients (DC) of the metals emanating β-radiation of differing energy. The specimens were measured twice: Once without filter and again with an Al filter, for which the -absorption coefficients had been found to be $\mu_{Ni} = 2,300$, $\mu_{Co} = 100$ cm^{-1}. The Al filter selected had a thickness $h = 0.01$ mm, which is 3x thicker than a 50%-absorption layer, but 0.4x as thick as the layer of total absorption of Ni radiation. This filter reduced the Co radiation by no more than 10%. The two integral-flux equations yield the numerical values for the two unknown I_{Ni} and I_{Co} fluxes upon substitution of μ_{Ni}, μ_{Co}, and h therein. The diffusion specimens were made of electrolytical Ni, 99.9% pure, remelted in an induction furnace and forged. The milled and ground specimens were 25x8x8 mm in size. The radioactive Ni^{63} was vacuum-sprayed onto one face. Activity: 5,000 pulses/min. The paired specimens were tied together and placed in Ar-filled quartz ampoules. Anneals in tubular furnaces at 900-1,250°C lasted from 16.5 to 400 hrs. Measurements of the radioactivity were performed by the layerwise-removal integral-radioactivity method of (cf. Gruzin, P. L., et al., Fizika metallov i metallovedeniye, v.IV, no.1, Moscow, 1957). The concentration of the soft β-radiation of the Ni was assumed to be proportional to the integral radioactivity. The specific radioactivity of the Co was determined from the integral radioactivity, its depthwise gradient in the diffusion layer, and the β-radiation absorption coefficient of Co in Ni. The self-DC of Ni is found to be $D_{Ni} = 1.0 \exp(-66{,}700/RT)\ cm^2 \cdot sec^{-1}$, the Co-in-Ni DC $D_{Co} = 1.4 \exp(-66{,}200/RT)\ cm^2 \cdot sec^{-1}$. These findings are compared briefly with those of R. E. Hoffman, et al., J. Metals, v.8, 1956, 5, and J. R. MacEwan, et al., Canad. J. Chem., v.37, 1959, 10. The vapor pressure of Ni was measured by Knudsen's method, using radioactive Ni^{63}. Equipment and methods used have been described by the senior author alone and by the senior and junior author, respectively, in

ASHITKOV, Yu.R.; SMIRNOV, Ye.A.; CHIRKOVA, K.I.

Industrial flotation tests of oxidized Krivoy Rog iron ores. Obog. rud 6 no.4:13-18 '61. (MIRA 15:1)
(Krivoy Rog Basin--Flotation)

ACCESSION NR: AT4005963 S/2755/63/000/004/0110/0121

AUTHOR: Fedorov, G. B.; Smirnov, Ye. A.; Zhomov, F. I.

TITLE: Diffusion and thermodynamic properties of nickel-chromium alloys

SOURCE: Moscow. Inzhenerno-fizicheskiy institut. Metallurgiya i metallovedeniye chisty*kh metallov, no. 4, 1963, 110-121

TOPIC TAGS: nickel chromium alloy, nickel diffusion, chromium diffusion, thermodynamic property, nickel vapor pressure, chromium vapor pressure, activation energy, thermodynamic factor, tagged atom method

ABSTRACT: In a continuation of earlier work, radioactive Cr^{51} and Ni^{63} were employed in an investigation of the diffusion characteristics and thermodynamic properties of binary nickel-chromium alloys with 4.9 - 19.7 wt. % Cr. For temperatures up to 950-1150C, the authors report an increase in the activation energy of diffusion of chromium with a decrease in that of nickel, along with a decrease in the diffusion coefficents of chromium and an increase in the diffusion coefficients of nickel, due to admitture of Cr. The thermodynamic properties of nickel in the Ni-Cr alloys were studied by vapor pressure

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ACC NR: AP6032403 SOURCE CODE: UR/0089/66/021/003/0189/0192

AUTHOR: Fedorov, G. B.; Smirnov, Ye. A.

ORG: none

TITLE: Thermodynamic properties of the γ phase of the uranium-zirconium system

SOURCE: Atomnaya energiya, v. 21, no. 3, 1966, 189-192

TOPIC TAGS: uranium alloy, zirconium alloy, thermodynamic property, reactor fuel element, physical diffusion, electrochemistry, phase transition

ABSTRACT: In view of the fact that alloying with zirconium has been to increase the corrosion resistance and improve other mechanical properties of uranium fuel elements, the authors have investigated the thermodynamic and diffusion properties of uranium-zirconium alloys at temperatures above 750C, where the mutual solubility of these metals is unlimited. The thermodynamic properties were determined by measuring the emf of an electrochemical cell based on the reaction U (solid)| U^{+3} + (KCl-NaCl)| U — Zr (alloy). The preparation of the cell is described in detail. The emf was measured for 100 — 200 hours by a known method in the temperature interval 750 — 910C. The diffusion of the components in the uranium-zirconium system was investigated by tracing the radioactive isotopes U^{235} and Zr^{95} deposited on the surfaces of the samples. The radioactivity was recorded with scintillation counters. Tables of the emf,

Card 1/2 UDC: 621.039.542.32:536.77

Card 2/2

AP6023739 SOURCE CODE: UR/2755/66/000/005/0099/0104

AUTHOR: Yevstyukhin, A. I. (Doctor of technical sciences); Fedorov, G. B.; Solov'yev, G. I.; Smirnov, Ye. A.; Zhemov, F. I.; Zaluzhnyy, A. G.

ORG: none

TITLE: Study of the structural diagram of uranium carbide-tungsten alloys, and the diffusion of uranium from its monocarbide into tungsten

SOURCE: Moscow. Inzhenerno-fizicheskiy institut. Metallurgiya i metallovedeniye chistykh metallov, no. 5, 1966, 99-104

TOPIC TAGS: metal diffusion, uranium compound, tungsten metal

ABSTRACT: In the present article the structural diagram of uranium carbide-tungsten alloys was studied by determination of the temperature of the start of melting of the alloys, and by X ray and metallographic analyses. The alloys were prepared by briquetting uranium carbide and tungsten powders at a pressure of about 5×10^3 kg/cm, with subsequent sintering in a furnace with a graphite heater at 2000°C and a pressure of 1×10^{-4} mm Hg, and then melting in a Type MIFE-9-3 arc furnace. Starting materials were technical grade uranium with a purity of 99.87 wt%, and spectroscopically pure graphite in the form of rods 5 mm in diameter. A table shows the compositions of the starting alloys. The tungsten content varied from 1 to

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L 15760-65 EWT(m)/EWP(w)/EWA(d)/T/EWP(t)/EWP(k)/EWP(b) Pf-4 ASD(m)-3
MJW/JD/HW

ACCESSION NR: AP4044134 S/0129/64/000/008/0016/0021

AUTHOR: Blanter, M. Ye.; Prozorov, L. V.; Lavrent'yeva, L. P.; Serebrenikova, B. G.; Smirnov, Ye. I.; Revtov, V. D. B

TITLE: Effect of thermomechanical treatment of steel 18 by extrusion 16 on mechanical properties 16

SOURCE: Metallovedeniye i termicheskaya obrabotka metallov, no. 8, 1964, 16-21, and insert facing p. 41

TOPIC TAGS: thermomechanical treatment, steel thermomechanical treatment, high temperature thermomechanical treatment, low temperature thermomechanical treatment, ausforming, extrusion ausforming

ABSTRACT: Specimens of 40KhNMA 16 steel (0.34% C, 0.72% Cr, 1.41% Ni and 0.25% Mo), 18 mm in diameter and 60 mm long, were subjected to high- and low-temperature thermomechanical treatments (HTTMT and LTTMT) by extrusion in order to determine the effect of HTTMT and LTTMT conditions on mechanical properties. The specimens were austenitized at 950C for 30 min, cooled to 850C (HTTMT) or 550C (LTTMT),

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L 15760-65

ACCESSION NR: AP4044134

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and extruded with reductions of 30-80%, or cooled to 850-300C and extruded with a reduction of 700%. All the extruded specimens were oil quenched immediately after extrusion. The extrusion was performed at a rate of 150 mm/sec in a 200-ton hydraulic press at a specific pressure of 9.1-11.0 tons/cm^2 at 850C and 24.0 tons/cm^2 at 550C. The best combination of mechanical properties was produced by extrusion at 850 or 550C with a reduction of 50--80% followed by oil quenching and tempering at 100C. Specimens extruded at 850C with a reduction of 80% had a tensile strength of 215 kg/mm^2, yield strength of 170 kg/mm^2, elongation of 11.5%, reduction of area of 52.0%, and notch toughness of 6.5 mkg/cm^2. Corresponding values for specimens extruded at 550C were 238 kg/mm^2, 185 kg/mm^2, 10.8%, 42.0%, and 8.1 mkg/cm^2, and for conventionally heat treated specimens, 200 kg/mm^2, 160 kg/mm^2, 9%, 30%, and 5.3 mkg/cm^2. The best strength characteristics were attained with extrusion at 550-850C and the best ductility characteristics, with extrusion at 700-850C. Increase of reductions over 30% was accompanied by an increase in ductility without strength drop. High reductions at 850C produced a recrystallization which had no detrimental effect on the strength. Orig. art. has: 6 figures.

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L 15760-65
ACCESSION NR: AP4044134

2

ASSOCIATION: Vsesoyuzny*y zaochny*y mashinostroitel'ny*y Institut (All-Union Machine-Building Correspondence Institute); TsNIITMASh

SUBMITTED: 00

ENCL: 00

SUB CODE: MM, IE

NO REF SOV: 000

OTHER: 001

Card 3/3

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S/033/60/037/005/018/024
E032/E314

AUTHORS: Smirnov, Ye.I., Stepanov, V.S. and Tovchigrechko, S.S.

TITLE: A Solar-sidereal Synchronous Motor Type СЗСД-1 (SZSD-1)

PERIODICAL: Astronomicheskiy zhurnal, 1960, Vol. 37, No. 5, pp. 927 - 930

TEXT: A description is given of the construction of a synchronous motor working in conjunction with a quartz clock, which can be used to obtain simultaneously one-second pulses of both solar and sidereal times. The principle of the motor is shown in Fig. 1. The stator of the motor is supplied from a 1 000 c.p.s. source and brings into motion the shaft 1 of the rotor. This motion is transmitted to the second-shaft through a 1:10 gear. The latter executes 86 400 revs. per average solar day. The rotation of the shaft 3 is transmitted to the minute-shaft 4 through a 1:60 gear. With the aid of the cam 6, contact 7, the gear, 8, 9 and the adjusting knob 10, it is possible to obtain second-pulses of the mean solar time and also to phase them in the required fashion. The minute pulses of the mean solar time can be obtained with a similar arrangement shown at 11. Another mechanical device coupled to the main shaft 3

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S/035/60/037/005/018/024
E032/E514

A Solar-sidereal Synchronous Motor Type СЗСД-1 (SZSD-1)

generates second-pulses of the sidereal time. Tests carried out in 1959 show that quartz clock controlled synchronous motors of the above type have the following properties: second pulses of both solar and sidereal time have a spread of about 10^{-4} sec; the diurnal rate of the sidereal pulses is + 0.007 sec; mean quadratic variation in the diurnal rate is 10^{-3} sec. There are 2 figures.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut metrologii imeni D.I. Mendeleyeva (All-Union Scientific Research Institute of Metrology imeni D.I. Mendeleyev)

SUBMITTED: June 9, 1959, initially,
January 10, 1960, after revision

Card 2/2

SMIRNOV, Ye.I., inzh.; SHLAIN, I.B., kand. tekhn. nauk.

[redacted]

Averaging bloedite at the Krasnousol'skiy plant. Trudy VNIIStekla no.37:27-31 '57. (MIRA 11:1)

(Krasnousol'skiy--Glass manufacture)
(Bloedite)

SOV/72-58-8-2/17

AUTHORS: Kerbitskaya, N. V., Orlova, Z. [illegible], Nesorova, V. N., Smirnov, Ye. I., Shlain, I. B.

TITLE: **Industrial Experiment in Replacing Sodiumsulphate by Astrachanite** in the Melting of Glass (Promyshlennyy opyt zameny sul'fata natriya astrakhanitom pri varke stekla)

PERIODICAL: Steklo i keramika, 1958, Nr 8, pp. 3 - 5 (USSR)

ABSTRACT: The possibilities of using astrachanite in the melting of glass were investigated at the Institute of Glass (Institut stekla) by N. Ya. Raf in 1940 - 1953, as well as at the Belorussian Polytechnical Institute (Belorusskiy politekhnicheskiy institut) by A. [illegible] Gezburg in 1941. Besides, the All-Union Institute of Halurgy (Vsesoyuznyy institut galurgii) carried out investigations on the working up of astrachanite from 1947 to 1954. The great attention which was attracted by this mineral may be explained by the fact that huge deposits may be found in the area of the Aral and Caspian Seas (Aral'skoye i Kaspiyskoye morya), the lower Volga (Nizhnyaya Volga) and at a number of other places. The fol-

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SOV/72-58-8-2/17

Industrial Experiment in Replacing Sodiumsulphate by Astrachanite in the Melting of Glass

lowing formula holds for the composition of astrachanite: $A = 278x/(100 + B)$, where x denotes the percentage of $MgSO_4$ and B the percentage of H_2O. Earlier papers showed that astrachanite may be used only after its homogeneity had been improved (Ref 1). At the end of 1954 a working team of the Institute of Glass together with the collective of the Krasnousol'sk glass factory carried out a continuous experiment of glass melting in a tank furnace with astrachanite. More than 400 t of this mineral were used. Its chemical composition and the sample taking are given and described. Its working up was carried out according to scheme (Fig), and this process is then described in detail. By the introduction of astrachanite into the charge the properties of glass melting are not changed. The comparative data concerning work may be seen from Table 2. I. G. Druzhinin (Ref 2) showed in his paper that astrachanite melts at a temperature of 670°.

Conclusions.

1) Astrachanite may be used to replace sodiumsulfate.
2) This increases a little the costs of the charge.
3) To use this material successfully a respective preparation must be organized at its place of finding.

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New Tasks and a New Orientation of Our Periodical SOV/72-58-8-1/17

glass and ceramics. Finally it is stated that the reorganization and improvement of the periodical cannot be solved by the editors alone. It needs the active participation of collaborators in the glass- and ceramic industry.

1. Glass industry--USSR 2. Ceramic materials--USSR 3. Periodicals

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SOV/72-59-4-7/21

15(6)

AUTHORS: Shlain, I. B., Smirnov, Ye. I.

TITLE: On the Estimation of the Heterogeneity of Raw Material (Ob otsenke neodnorodnosti syr'ya)

PERIODICAL: Steklo i keramika, 1959, Nr 4, pp 25 - 29 (USSR)

ABSTRACT: The heterogeneity of raw materials is characterized by various index numbers. In some glass works the tolerated deviations are used for this purpose. Furthermore, the authors of this article mention the computation formulae by N. Ye. Pestov for fertilizers (Ref 2), by V. V. Kafarov for liquid mixtures (Ref 3), by A. A. Lapshin for victuals. A. M. Lastovtsev, N. V. Baryshev, K. L. Pozharitskiy (Ref 4) assume the mean square deviation of all samples which may be calculated from a given formula or the per cent deviation or the variation coefficient for the degree of heterogeneity. In a table the computation indices according to all these formulae are given with the method of the mean square deviation and of the variation coefficient being regarded as the most suited ones. In order to determine that the

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On the Estimation of the Heterogeneity of Raw Material SOV/72-59-4-7/21

theoretically computed deviations correspond to the practical ones a histogram is mentioned which characterizes the distribution of the SiO_2 content in sand used in the Bytosh' Glass Work. There are 1 figure, 1 table and 5 Soviet references.

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15(6) SOV/72-59-6-8/18

AUTHOR: Smirnov, Ye. I.

TITLE: The Calculation of the Selection of Average Samples of Loose Material (Raschet otbora srednikh prob sypuchikh materialov)

PERIODICAL: Steklo i keramika, 1959, Nr 6, pp 35 - 38 (USSR)

ABSTRACT: Many calculation formulae have hitherto been suggested for the combined solution of the weight of a partial sample of the heterogeneity of the chemical composition, of the maximum particle weight, of the particle shape, etc. In order to ascertain the possibility of employing these formulae for practical calculation, the author of this article made special laboratory experiments. He employed theoretical formulae derived from statistical laws which indicated the dependence of the weight of the partial sample on the heterogeneity of the material, on the percentage of the component under investigation and on the sum of the remaining components as well as on the grain weight of the individual components. The author determined the degree of heterogeneity σ according to formula 3b and experimental values, which are both contained in the table. The table indicates that good agreement of the values σ could be determined only with particles larger

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than 0.3 mm. For the purpose of illustrating the afore-mentioned data, the author computes the minimum weight of the partial samples of some crushed raw materials according to formula 5. These materials were used in the Bytosh' Glass-Works. Conclusions: the minimum weight of the partial sample is best computed according to the simplified formula

$$G = \frac{t^2 . P . Q . \bar{\gamma}}{R^2} .$$

The number of partial samples necessary for the determination of an average sample is computed according to the formula

$$n = t^2 \frac{\sigma^2}{R^2} .$$

There is 1 table.

SMIRNOV, Ye.I.; STEPANOV, V.S.; TOVCHIGRECHKO, S.S.

The SZSD-1 solar-sidereal synchronous engine. Astron.zhur. 37 no.5: 927-930 S-O '60. (MIRA 13:10)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut metrologii im. D.I.Mendeleyeva.

(Solar engines)

SMIRNOV, Ye.I.

Calculating the degree of homogeneity of the glass batch in tank furnaces. Stek.i ker. 17 no.5:24-28 My '60. (MIRA 13:8)

(Glass manufacture--Chemistry)

SMIRNOV, Ye.I.

Calculating some parameters of tank furnaces. Stek. i ker. 17 no.12: 12-15 D '60. (MIRA 13:11)

(Glass furnaces)

POPOVA, E.I.; SMIRNOV, Ye.I.

Methods of controlling raw materials in the manufacture of glass for the detection of chromite. Stek. i ker. 21 no.11:36-38 N '64.
(MIRA 18:4)

SMIRNOV, Yefim Ivanovich, 19047-

[Soviet medical officers in the Patriotic War] Sovetskie voennye vrachi v Otechestvennuiu voinu. Moskva, 1945. 98 p. (ALHA 6:7)
(World War 1939-1945--Medical and sanitary affairs)

SMIRNOV, Ye. I.

"Soviet Military Doctors in World War II," published by Sovetskaya Nauka, Moscow, 1946.

U-1318, 24 Apr 51

PA 21/49T62

SMIRNOV, YE. I.

USSR/Medicine - Public Health, Problems Sep 48
Medicine - Medicine, State

"Medical Industry and Problems of Public Health," Ye. I. Smirnov, Min Pub Health USSR, 7 pp

"Med Prom SSSR" No 3

Abridged shorthand notes of speech made 20 May 48 give general account of tasks facing medical industry. Discusses reasons for nonfulfillment of certain parts of the 1947 plan.

[redacted] 21/49T62

PA 21/49T63

USSR/Medicine - Tuberculosis, Therapy Jul/Aug 48
Medicine - Public Health

"All-Union Conference on Tuberculosis" 1/8 p

"Problemy Tuberkuleza" No 4

Fifth All-Union Conference on problems of tuberculosis will be held in Moscow 21-25 Sep 48. Ye. I. Smirnov, Min of Pub Health USSR, will speak on priority tasks in tuberculosis control. Main items on the agenda are: early forms of tuberculosis, collapsotherapy of tuberculosis of the lungs, antituberculosis vaccination, treatment of tuberculosis with antibiotics, work of dispensers, etc. Address of Orgbyro: Moscow 28,

[redacted] 21/49T63

USSR/Medicine - Tuberculosis, Therapy Jul/Aug 48
(Contd)

Yazunskiy Bul'var, 9. /Complete translation./

[redacted] 21/49T63

SMIRNOV YE. I.

SMIRNOV, YE. I.

PA 34/49T6

USSR/Medicine - Societies, Medical Sep/Oct 48
Medicine - Public Health, Administration

"Basic Problems in the Work of Public Health Leaders" /Leading article/, Ye. I. Smirnov, 13 pp

"Sov Zdravookhran" No 5

General survey of problems confronting public health leaders. State of medical industry is unsatisfactory. General practitioners should be abolished. Criticizes Belorussian Public Health Service.

34/49T63

SMIRNOV, Ye. I., MIN OF PUB HEALTH USSR

USSR/Medicine - Academy of Medical Sciences
Medicine - Otorhinolaryngology

Nov/Dec 48

"Fourth Session of the Academy of Medical Sciences USSR," Prof V.F. Undrits, Corr Mem, Acad Med Sci USSR, 2 ¼ pp

"Vest Oto-rino-laringol" No 6, 1948

The 24 - 28 Jan 48 session was opened in Leningrad by Acad N.N. Anichkov, Chm, Acad Med Sci USSR. A report on Soviet scientific successes included an appeal for improved personnel and ideology. More effective measures were demanded against influenza, cancer, hypertonia, and tuberculosis. Reports on hypertonia and malignant diseases were read and discussed. Session was closed by Ye. I. Smirnov, Min of Pub Health USSR.

60/49T77

USSR/Medicine - Public Health Aug 48
Medicine - Antibiotics

"The Medical Industry in Connection With the Care of Public Health," Ye. I. Smirnov, Min Pub Health USSR, 5 pp

"Sov Med" No 8

In general, the medical industry has kept pace with developments in public health. Primary aim of public health is to overcome "overworking the physician." Urges more production of sulfamide-type preparations, and other antibiotics such as penicillin and streptomycin. There is a serious shortage of laboratory glassware and medical and surgical instruments.

[redacted] 24/49T88

SMIRNOV, E. I.

37504. XXX Let Sovetskogo Zdravookhraneniya. V Sb: XII Vsesoyuz. S"yezd Gigiyenistov, Epidemiblogov, Mikrobiologov i Infektsionistov. T.I.M., 1949, c. 10-14.

SO: Letopis' Zhurnal'nykh Statey, Vol. 7, 1949

SMIRNOV, Ye.I., general-polkovnik meditsinskoy sluzhby, glav. red.; GIRGOLAV, S.S., general-leytenant meditsinskoy sluzhby, otv. red.; ANICHKOV, N.N., general-leytenant meditsinskoy sluzhby, red.; YELANSKIY, N.N., red.; LEVIT, V.S., red.; PRIOROV, N.N., zasluzhennyy deyatel' nauki, prof., red.; RUFANOV, I.G., red.; SHAMOV, V.N., general-leytenant meditsinskoy sluzhby, red.; AR'YEV, T.Ya., red.; SAMOTKIN, B.A., kand. med. nauk, podpolkovnik med. sluzhby, red.

[Soviet medicine in the Great Patriotic War 1941-1945] Opyt sovetskoi meditsiny v Velikoi Otechestvennoi voine 1941-1945 gg. Moskva, Medgiz. Vol.4. 1949. 547 p. (MIRA 14:6)

1. Deystvitel'nyy chlen Akademii meditsinskikh nauk SSSR (for Girgolav, Shamov). 2. Deystvitel'nyy chlen Akademii nauk SSSR i Akademii meditsinskikh nauk SSSR (for Anichkov)
(WORLD WAR, 1939-1945—MEDICAL AND SANITARY AFFAIRS)
(SKULL—WOUNDS AND INJURIES)

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(CHEST--WOUNDS AND INJURIES)

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USSR/ Microbiology. General Microbiology

Abs Jour: Ref Zhur - Biol., No 6, 1958, 24103

Author : Kormushkina, N. M., Smirnov, YE. I.
Inst : Not given
Title : Effect of pH and Eh on the Growth of Aspergillus Niger.

Orig Pub: Sb. rabot stud. nauch. o-va. Leningr. tekhnol. in-ta pishch. prom-sti, 1956, No 1, 46-50

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N.A., prof.; GLAZUNOV, M.F., prof., polkovnik med. sluzhby,
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