

KOH/A/T/

Heat of absorption (desorption) of nitrogen oxides in sul-
furic acid *P. L. Bunin, J. Appl. Chem. USSR, 27, 67*
1954, 1054 (English translation) J. Appl. Chem. USSR, 27, 67

11/15

USSR/Chemical Technology - Chemical Products and Their Applications, Mineral Salts. Oxides. Acids. Bases. I-6

Abs Jour : Ref Zhur - Khimiya, No 3, 1957, 8788

Author : Kunin, T.I.

Inst : Ivanovsk Chemical Engineering Institute

Title : Decomposition of Rongalite During Storage.

Orig Pub : Tr. Ivanovsk. khim.-tehnol. in-ta, 1956, No 5, 90-96.

Abstract : The causes for the decomposition of rongalite (R) stored in hermetically sealed drums, in an atmosphere saturated with water vapor and in open vessels have been investigated. R crystal samples of the following compositions were investigated:

$\text{NaHSO}_2 \cdot \text{CH}_2\text{O} \cdot 2\text{H}_2\text{O}$, $\text{NaHSO}_2 \cdot \text{CH}_2\text{O}$, as well as molten

$(\text{NaHSO}_2 \cdot \text{CH}_2\text{O} \cdot 2\text{H}_2\text{O})$ and mixed $(n\text{NaHSO}_2 \cdot \text{CH}_2\text{O} \cdot m\text{NaHSO}_3 \cdot$

$\text{CH}_2\text{O} \cdot 2\text{H}_2\text{O})$. The results from the experiments have

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Abs Jour : Ref Zhur ~ Khimiya, No 3, 1957, 8788

shown that the moisture content of the surrounding medium and the amount of combined water present in the product have a decisive effect on the rate of decomposition of R. Anhydrous R which is most stable under normal conditions showed the least decomposition, whereas the dihydrate of R decomposes with the evolution of water of crystallization; the latter has a catalyzing effect on the decomposition. The dihydrate of R absorbs moisture when the relative humidity of the surrounding medium exceeds 60%; when the relative humidity is less than 60%, R remains dry and does not decompose. In order to decrease the loss caused by decomposition, the production of anhydrous R and its storage in hermetically sealed drums are recommended.

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USSR/Chemical Technology - Chemical Products and Their Applications, Mineral Salts. Oxides. Acids. Bases. I-6

Abs Jour : Ref Zhur - Khimiya, No 3, 1957, 8787

Author : Kunin, T.I., and Vlasjuk, M.A.

Inst : Ivanovsk Chemical Engineering Institute

Title : Partial Pressure of Water Vapor Over Rongalite.

Orig Pub : Tr. Ivanovsk. khim.-teknol. in-ta, 1956, No 5, 97-102.

Abstract : Data on the partial pressure of water vapor over rongalite (R) are important for a clear understanding of the causes of the increased rate of decomposition of R in a moist atmosphere and for the production of an anhydrous product. The partial pressure of water vapor over R has been measured at 15-96°. At temperatures under 50° a differential tensometer was used in the measurements. At temperatures above 65° a method based on the determination of the boiling point of R was used. An approximate equation is given for the determination of the partial pressure of water vapor over R: $\log R = 8.26 - 2125/T$ [sic].

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5(1)

AUTHORS:

Kunin, T. I., Nikitin, V. A.

SOV/153-58-3-17/30

TITLE:

Thermographic Investigation of the Reduction Process of Sodium Sulfate (Termograficheskoye issledovaniye protsessa vosstanovleniya sul'fata natriya)

PERIODICAL:

Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya tekhnologiya, 1958, Nr 3, pp 93 - 99 (USSR)

ABSTRACT:

At present, sodium sulfate is reduced by solid reducing agents at 850 - 1100°. The main mass of the sulfate is reduced in the melt. Its reduction is, however, also possible at temperatures considerably below the melting point. The sodium sulfide formed can form a eutectic with the sulfate, the melting point of which is at 650 - 750°. Thus, the liquid phase, which under certain conditions promotes the acceleration of the process, can also be obtained at lower temperatures. The decrease in temperature of the sulfate reduction can be of great practical importance: a) For saving fuel. b) For decreasing foreign additions, and c) For increasing the life of the refractory material in the reaction furnaces. The optimum temperatures of the reduction process can be chosen on the basis of thermographic investi-

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Process of Sodium Sulfate

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gations. The problem of the initial temperatures of the sulfate reduction by pit coal remained unexplained, apart from single hints at working conditions (Refs 6 - 8). The thermographic method of determining the ~~beginning~~ of the Na_2SO_4 reduction process applied by the authors makes the clarification of the effect of the degree of dispersion upon the temperatures mentioned with sufficient accuracy possible. The self-levelling mirror galvanometer of the type "PI", system A. V. Ulitovskiy was used for the measurement of the temperature difference in the sample. Based on the results obtained, the authors arrive at the following conclusions: 1.-The thermographically determined temperature of the ~~beginning~~ reduction of sodium sulfate was: a) through the coal of the type "Antratsit" 760°, b) through coal of the type "RZh" it was 720°. The decreased temperature in the latter case is explained by the catalytic effect of small amounts of sodium sulfide that had been formed by the volatile carbon components due to the reduction. 2.-It was proved that the fineness of the coal grinding decreases the temperature of

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the reaction beginning. This is explained by the authors by the change of the isochor-isotherm potential in the coal dispersion. 3.-The reduction process of sodium sulfate by pit coal takes place under an absorption of heat. There are 3 figures and 19 references, 17 of which are Soviet.

ASSOCIATION: Ivanovskiy khimiko-tekhnologicheskii institut (Ivanovo Institute of Chemical Technology). Kafedra obshchey khimicheskoy tekhnologii (Chair of General Chemical Technology)

SUBMITTED: September 10, 1957

Card 3/3

5(1, 2, 3)

AUTHORS:

Kunin, T. I., Nikitin, V. A.

SOV/153-58-5-10/28

TITLE:

On the Problem of the Reduction of Sodium Sulfate by Peat
(K voprosu o vosstanovlenii sul'fata natriya torfom)

PERIODICAL:

Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya
tekhnologiya, 1958, Nr 5; pp 61-64 (USSR)

ABSTRACT:

As most substances are too expensive (some gases) for the reduction of sodium sulfate to the sulfide, or their use is connected with difficulties concerning the apparatus employed, the least expensive suitable substance for this purpose - peat - is interesting. Its deposits are found in many areas of the USSR. The difficulties hitherto existing in the utilization of peat for this purpose were the fact that peat as the lighter substance appeared on the surface of the mass and burned. When briquetting the charge this process should be excluded. Although the organic substance in peat contains about 56% carbon and 7% hydrogen (Ref 5) the whole carbon can be used in the Na_2SO_4 reduction, due to high yields of volatile components. These volatile components as a whole consist of H_2 , CH_4 and CO and could act as reducing agents themselves.

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On the Problem of the Reduction of Sodium Sulfate by Peat 307/153-58-5-10/28

The problem is made more complicated by the relative low temperature of peat pyrolysis. Taking into account that H_2 and CH_4 contents in volatile gases of peat increase at higher temperatures, and that the beginning of the Na_2SO_4 reduction by H_2 and CH_4 is at $500-550^\circ$, it may be maintained that part of the volatile substances is utilized in the reduction process. With peats from deep moors a certain increase of the pyrolysis temperature may be expected (Ref 8). As there are no data in publications the present special investigation was carried out. Figure 1 shows the experimental results (I series) which were to explain the effect of the peat mass upon the completeness of the reduction of sodium sulfate. The experiments were carried out in a nitrogen atmosphere. The curves obtained (Fig 1) show a maximum dependent upon the peat mass in the charge, and which corresponds to the ratio of the weights of peat: sulfate = 1 : 1.6. With a larger amount of peat the thermal conductivity of the briquette is expected to decrease rapidly. This will cause the rate of the process to decrease,

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as the reactions themselves require heat addition. Curves of figure 2 show the results of the comparative experiments with peat and coal as reducing agents (II series). The rate of the reduction by peat is at 750 and 800° considerably higher than by coal (anthracite). Since under the conditions of practical work always a certain amount of air enters the reaction space the above-mentioned regularities may change there. Figure 3 shows results of the experiment with a certain amount of air penetrating to the briquettes (at a ratio of Na_2SO_4 : peat = = 1 : 2.4). The degree of reduction was then lower than without oxygen entering. From the curves in figures 2 and 3 it may be seen that oxygen addition has a higher influence upon the reduction of peat than of coal. From all experiments it may be seen that inspite of the high degree of reduction no melting of the briquettes occurs if the amount of peat does not exceed 1.6 g per 1 g Na_2SO_4 . Mixtures from pit coal and peat or another substance with a higher yield of volatile substances than of coal would offer good prospects. Table (p 63) shows the effect of the volatile substances from peat upon the rate of reduction of Na_2SO_4 at 700°. Anthracite did in this case not

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SOV/153-56-5-10/26

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reduce Na_2SO_4 . Only a partial substitution of anthracite by peat led to the formation of certain amounts of Na_2S . Iron oxide increases these amounts. There are 3 figures, 1 table, and 10 references, 8 of which are Soviet.

ASSOCIATION: Ivanovskiy khimiko-tekhnologicheskii institut, Kafedra obshchey khimicheskoy tekhnologii (Ivanovo Chemo-Technological Institute, Chair of General Chemical Technology)

SUBMITTED: November 22, 1957

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S/153/60/003/02/21/034
B011/B006

5,100(A)
AUTHORS:

Kunin, T. I., Nikitin, V. A.

TITLE:

Utilization of Sodium Thiosulfate in Waste Water of Several Plants

PERIODICAL:

Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya tekhnologiya, 1960, Vol. 3, No. 2, pp. 324-329

TEXT: The waste water of several plants which produce semiproducts and dyes contain large quantities of valuable sulfur-containing salts, which contaminate the waters. The authors investigated methods for the utilization of waste water of the productions of α -naphthylamine and the dye "Fur Black" (mekhovoy chernyy), with a view to utilizing the sulfur as quantitatively as possible without appreciable amounts escaping into the atmosphere. Sodium salts of various sulfur-containing acids which can be transformed to sodium sulfite are contained in the above-mentioned waste water. Organic compounds contained in these waste decompose at the temperatures employed for the reduction ($850-1100^{\circ}\text{C}$), so that contamination of the

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Utilization of Sodium Thiosulfate
in Waste Water of Several Plants

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B011/B006

reaction product does not occur. The decomposition products also have a reducing effect and lower the amount of reducing agent required. The authors used several samples of thiosulfate (the term used to denote the evaporated waste water residues). The analytical data of these samples are given in Table 1. Anthrazite was applied as reducing agent. Both the thiosulfate and coal were finely ground. The tests were carried out in dry N atmosphere which was free of oxygen. The authors found that the thermal treatment of sodium thiosulfate from waste water of the above-mentioned plants is possible without losing appreciable amounts of sulfur due to vaporization. The effect of the temperature on the reduction of thiosulfate from the α -naphthylamine production is illustrated in Table 2. Sodium sulfide formation increases somewhat with a rise in temperature. Sulfur losses during reduction amount to about 50%. Polysulfides are largely decomposed at reduction temperatures, as was proved by the authors' experiments using anthracite at 750°C (see Fig. on p.326). For reduction of thiosulfates containing no basic substances, it is advised to admix the charge with industrial soda or caustic soda. Basic waste water is particularly suitable for this purpose. Reduction data of thiosulfate containing admixtures (NaOH, Na₂CO₃, NaCl) are shown in

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in Waste Water of Several Plants

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Table 4. An admixture of the two first-mentioned substances rapidly increases the formation of sulfide sulfur and considerably decrease vaporization losses of sulfur, particularly at 850°C. NaCl does not promote sulfide formation, but accelerates the melting process and reduces sulfur losses by about 1/2. In Table 5, the reduction data of a 1:1 mixture of the thiosulfates from the waste of the two first-mentioned plants are listed. This procedure increased the yield of sulfur. On reducing thiosulfate with coal, sodium polysulfides are hardly contained in the melt. The decomposition occurs during the reduction and is all the more complete, the higher the temperature and the longer the time of reduction. The authors mention R. I. Levenzon, V. V. Kafarov, Ya. S. Demikhovskiy, I. P. Yermolayev, G. P. Luchinskiy, M. I. Popov, V. S. Kaminskiy, V. A. Sereckina, N. N. Polyakov, A. F. Lozhkin, Z. S. Bannykh, Ye. M. Polyakova. The experiments were carried out in collaboration with V. A. Gnedina and N. A. Gerasimova. There are 1 figure, 5 tables, and 15 references, 9 of which are Soviet. XX

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Utilization of Sodium Thiosulfate
in Waste Water of Several Plants

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B011/B006

ASSOCIATION: Ivanovskiy khimiko-tekhnologicheskii institut; Kafedra
obshchey khimicheskoy tekhnologii (Ivanovo Institute of
Chemical Technology, Chair of General Chemical Technology)

SUBMITTED: September 11, 1958

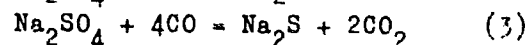
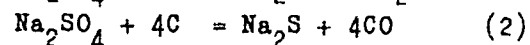
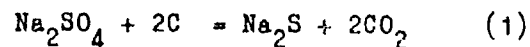
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Card 4/4

S/063/60/005/003/008/011/XX
A051/A029

AUTHORS: Nikitin, V.A., Kunin, T.I.

TITLE: On the Mechanism of Sodium Sulfate Reduction With Carbon

PERIODICAL: Zhurnal Vsesoyuznogo Khimicheskogo Obshchestva im. D.I.
Mendeleyeva, 1960, Vol. 5, No. 3, pp. 350-352TEXT: The reduction process of Na_2SO_4 to Na_2S with solid carbon takes place according to some authors (Refs 1-4) by the following reactions:

The possibility of all three reactions taking place is assumed, depending on the conditions of the reduction process. It is considered that the main portion of the sodium sulfide is formed in reaction (1), since the escaping

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A051/A029

On the Mechanism of Sodium Sulfate Reduction With Carbon

gases contain little carbon monoxide (Refs 2,4). Since the equilibrium in the reaction $\text{CO}_2 + \text{C} \rightleftharpoons 2\text{CO}$ (4) at reduction temperatures of 850-1,100°C is shifted into the direction of the carbon monoxide formation, the possibility of the reduction of sodium sulfate according to Equation (3) is not excluded. Reaction (1) is most probable according to Ref 4, where the thermodynamic analysis of the main reactions of the process was studied up to 700°C. At higher temperatures reaction (2) should predominate. According to some investigators the reaction of Na_2S formation is a step-like process passing through the stage of sodium sulfite formation, which later decomposes to Na_2O and SO_2 . Experimentally it was shown (Ref. 5) that at reduction temperatures pure sodium sulfite decomposes according to the reaction $4\text{Na}_2\text{SO}_3 = \text{Na}_2\text{S} + 3\text{Na}_2\text{SO}_4$ (5), whereby it is noted that at the given temperatures the decomposition of Na_2SO_3 with the formation of Na_2O and SO_2 , contrary to the opinion of Tammann and Olsen (Ref. 6), hardly takes place at all. The authors of the present article conducted kinetic experiments with the purpose of clarifying the ratio between the reduction and

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A051/A029

On the Mechanism of Sodium Sulfate Reduction With Carbon

decomposition of the sulfite. Fig. 1,2 give the results of the reduction and decomposition of Na_2SO_3 . The initial products were "Photo" grade sulfite and charcoal from sugar. The experiments were conducted at 650 and 700°C in a nitrogen atmosphere. The rate constants were calculated from the results and also the activation energies of decomposition and reduction of the sodium sulfite. It was established that the decomposition of the sodium sulfite is a reaction of the first order. The calculated activation energy for the decomposition process of the Na_2SO_3 was found to be equal to 80.2 kcal/mole. Fig. 1 and 2 show that the transformation process of Na_2SO_3 is noticeably accelerated with the introduction of a reducing agent. The large quantities of sulfur found in the batch decrease with an increase in the duration of the experiments. The analysis of the experimental data showed that the transformation of the sulfite in the presence of carbon follows the kinetics of a second-order reaction. The activation energy is hereby lowered to 53.1 kcal/mole. The drop in the activation energy and the change in the reaction order is explained by the change in the mechanism of the process and

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On the Mechanism of Sodium Sulfate Reduction With Carbon

by the catalysis of decomposition of the sulfite with carbon. The authors also conducted a thermographic investigation of the behavior of the pure sulfite and sulfite with a reducing agent, in order to establish the true cause for the change in the activation energy. Fig. 3 and 4 show the results of these investigations. The thermograms were taken with a ИК-56 (PK-56) Kurnakov pyrometer. The minimum on the differential curve, corresponding to 770°C, is explained by the melting process of the decomposition products. In the presence of a reducing agent an exothermal and endothermal effect is noted on the differential curve (Fig. 4, curve 2), which are explained by the decomposition reaction of the sulfite and the melting of the batch, respectively. It is assumed that carbon catalyzes the decomposition reaction of the sodium sulfite and lowers the temperature of the beginning of the reaction, which is seen from Fig. 4. Work was further carried out by the authors on the effect of the pressure in the briquetting of the batch on the rate of reduction of the sodium sulfates, in order to clarify the role played by the gas phase in the reduction process. Experiments were conducted with

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chemically pure Na_2SO_4 at a constant temperature and duration in a nitrogen atmosphere. Coal with a low yield of volatile substances (anthracite) was used as the reducing agent. Sulfate and coal were ground to the fraction 0.125-0.21 mm. Fig. 5 is the obtained relationship curve. Experiments were conducted at relatively low temperatures (750°C) at a low content of Na_2S in the melt to avoid melting. The reduction time in all the experiments was 30 min and the maximum degrees of reductions did not exceed 50%. It was shown that there is no limiting role of the gas phase in the formation process of the sodium sulfite. It is stated that part of the Na_2SO_4 is reduced by the gaseous reducing agent, including carbon monoxide, but the entire process does not take place according to only one equation (3). The authors conclude that the reduction reaction of sodium sulfate with carbon is a complex heterogeneous autocatalytic process. The first quantities of sodium sulfite are formed as a result of the reduction of Na_2SO_4 by the volatile components, separating out in the heating of carbon (H_2 , CH_4 , CO , etc.), or by carbon monoxide. The reduction of Na_2SO_4 takes place through the

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On the Mechanism of Sodium Sulfate Reduction With Carbon

formation of sodium sulfite with its subsequent decomposition to Na_2S and Na_2SO_3 . Sodium sulfite which is formed catalyzes the reduction reaction of Na_2SO_4 with carbon. There are 5 graphs, 5 equations and 7 references: 6 Soviet, 1 German.

ASSOCIATION: Ivanovskiy khimiko-tekhnologicheskii institut (Ivanovo Institute of Chemical Technology)

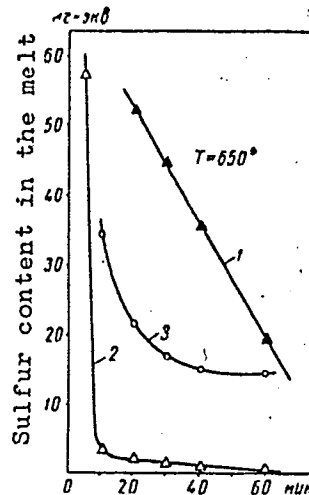
SUBMITTED: November 23, 1959

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S/063/60/005/003/006/011/XX
A051/A029

On the Mechanism of Sodium Sulfate Reduction With Carbon

Figure 1:
Sulfur content depending on the duration of calcination. $T = 650^{\circ}\text{C}$.
1.- in the form of sodium sulfite in the absence of carbon; 2.- in the form of sodium sulfite in the presence of carbon; 3.- in the form of sodium sulfate in the presence of carbon.



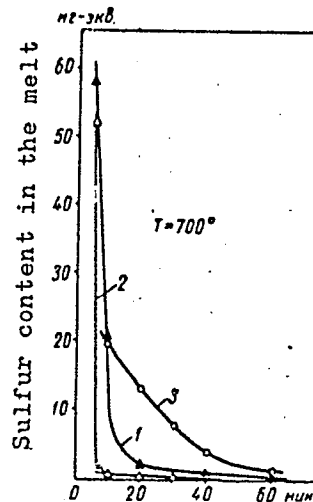
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A051/A029

On the Mechanism of Sodium Sulfate Reduction With Carbon

Figure 2:

Sulfur content depending on the duration of calcination. $T = 700^{\circ}\text{C}$.

1.- in the form of sodium sulfite in the absence of carbon; 2.- in the form of sodium sulfite in the presence of carbon; 3.- in the form of sodium sulfate in the presence of carbon.



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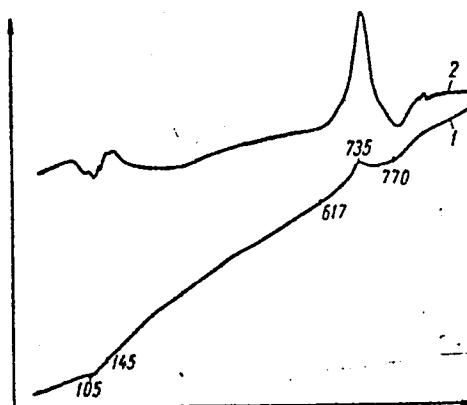
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A051/A029

On the Mechanism of Sodium Sulfate Reduction With Carbon

Figure 3:

Thermogram of sodium sulfite of
"photo" grading:

1.- plain recording 2.- differential
recording



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A051/A029

On the Mechanism of Sodium Sulfate Reduction With Carbon

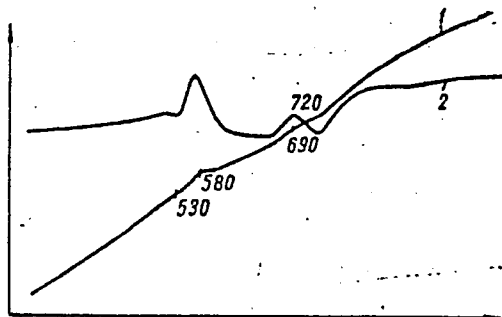


Figure 4: Thermogram of sodium sulfite in the presence of carbon: 1.- plain recording 2.- differential recording

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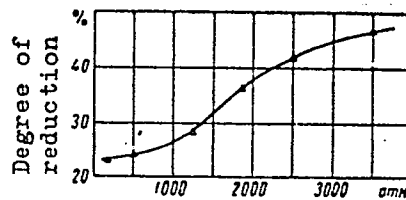


Figure 5:

The effect of the briquetting pressure on the degree of reduction of sodium sulfate with carbon.

KUNIN, T.I.; VLASYUK, M.A.

Use of a vibrating mill for the production of rongalite. Izv.vys.-
ucheb.zav.;khim.i khim.tekh. 4 no.4:636-638 '61. (MIRA 15:1)

1. Ivanovskiy khimiko-tehnologicheskij institut, kafedra obshchey
khimicheskoy tekhnologii.

(Sodium formaldehydesulfoxylate)

KUNIN, T.I.; YEPIFANOV, V.S.

Interaction of sodium carbonate with sulfur dioxide in a fluidized bed. Izv.vys.ucheb.zav.; khim.i khim.tekh. 4 no.6:992-997 '61. (MIRA 15:3)

L. Ivanovskiy khimiko-tehnologicheskii institut, kafedra obshchey khimicheskoy tekhnologii.
(Sodium carbonate) (Sulfur dioxide) (Fluidization)

KUNIN, T.I.; SHUTOV, A.A.; PANKRATOVA, L.I.

Specific heats of aqueous solutions of sulfuric acid and nitric acid mixtures. Zhur. prikl. khim. 34 no.2:451-454 F '61.

(MIRA 14:2)

(Sulfuric acid)

(Nitric acid)

(Heat capacity)

YEPIFANOV, V. S.; KUNIN, T. I.

Kinetics of interaction between sodium bicarbonate and sulfur dioxide. Izv. vys. ucheb. zav.; khim, i khim. tekhn. 5 no.5:770-774 '62. (MIRA 16:1)

1. Ivanovskiy khimiko-tekhnologicheskii institut, kafedra obshchey khimicheskoy tekhnologii.

(Sodium carbonates) (Sulfur dioxide)

S/153/62/005/006/002/015
E071/E333

AUTHORS: Yepifanov, V.S. and Kunin, T.I.

TITLE: Thermal stability of sodium pyrosulfite

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Khimiya i
khimicheskaya tekhnologiya, v. 5, no. 6, 1962,
864 - 870

TEXT: Thermal stability of sodium pyrosulfite in the
temperature range 30 - 300 °C was studied in order to find the
optimum conditions for industrial drying of this salt. It was
shown that in an atmosphere of a gas free from sulfur dioxide a
noticeable decomposition of the salt began at 110 °C. The
decomposition proceeded to sulfur dioxide and sodium sulfite up to
150 °C. Above this temperature the decomposition proceeded accor-
ding to a complex scheme, with a considerable amount of sodium
sulfate in the decomposition products. In this case the humidity
of the atmosphere accelerated the decomposition process of sodium
pyrosulfite, partially hydrolyzing to bisulfite. The thermal
stability of the pyrosulfite was somewhat increased in an
atmosphere of gas containing 7.5% sulfur dioxide. Decomposition
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Thermal stability of

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E071/E333

started at 150 °C, according to a complex scheme, leading to the formation of a considerable proportion of sulfate. The humidity of this atmosphere had no influence on the decomposition of sodium pyrosulfate. The partial pressure of sulfur dioxide over sodium pyrosulfite was determined. In the temperature range up to 140 °C the pressure of sulfur dioxide over pyrosulfite in an atmosphere of a moist gas was higher than over pyrosulfite in an atmosphere of a dry gas. The possibility of an intensification of the drying process of sodium pyrosulfite by conducting it at temperatures up to 140 °C in an atmosphere of a gas containing 6.5 - 15% sulfur dioxide was demonstrated. There are 4 figures and 3 tables.

ASSOCIATION: Kafedra obshchey khimicheskoy tekhnologii,
Ivanovskiy khimiko-tekhnologicheskii institut
(Department of General Chemical Technology,
Ivanovo Institute of Chemical Technology)

SUBMITTED: November 14, 1961

Card 2/2

YEPIFANOV, V.S.; KUNIN, T.I.

Preparation of anhydrous sodium sulfite by the dry method in an apparatus with a fluidized bed. *Izv.vys.ucheb.zav.;khim.i khim.tekh.* 6 no.1:106-110 '63. (MIRA 16:6)

1. Ivanovskiy khimiko-tekhnologicheskii institut, kafedra obshchey khimicheskoy tekhnologii.

(Sodium sulfite) (Drying apparatus)

LOBANOV, Yu.A.; KUNIN, T.I.; SMIRNOVA, G.M.

Kinetics and mechanism of the decomposition of zinc hydrosulfite
in aqueous solution. Izv.vys.ucheb.zav.;khim. i khim.tekh. 6
no.2:189-194 '63. (MIRA 16:9)

1. Ivanovskiy khimiki-tehnologicheskoy institut, kafedra
obshchey khimicheskoy tekhnologii.
(Dithionites) (Zinc salts)

NIKITIN, V.A.; KUNIN, T.I

Reduction of sodium sulfate with gaseous reagents. Izv.vys.ucheb.
zav.;khim. i khim.tekh. 6 no.2:263-267 '63. (MIRA 16:9)

1. Ivanovskiy khimiko-tekhnologicheskii institut, kafedra obshchey
khimicheskoy tekhnologii.

(Sodium sulfates) (Reduction, Chemical)

SOLOV'YEV, B.I., KUNCH, T.I.

Effect of carriers on the activity of vanadium catalysts for sulfur dioxide oxidation. Izv. vys. ucheb. zav.; khim. i khim. tekh. 7 no.2:252-256 '64. (MIRA 18:4)

1. Ivanovskiy khimiko-tekhnologicheskiiy institut, kafedra obshchey khimicheskoy tekhnologii.

KUNOV, V.

Two communists. Stroitel' 8 no.11:24-25 N '62, (MIRA 16:1)
(Sevastopol--Construction industry)

MASHKARENKO, A., inzhener-podpolkovnik; TOLSTOV, S., inzhener-podpolkovnik;
KUNIN, V., inzhener-polkovnik; NETYKSA, V., podpolkovnik

Evacuation of tracklaying vehicles. Tekh. i vooruzh. no.6:
46-49 Je'64 (MIRA 17:7)

KUNIN, V.I.

Automatic accounting for production. Mashinostroitel'
no.11:2-3 '65. (MIRA 18:11)

NOVOSEL'SKIY, N.L., inzhener; KUNIN, V.M., inzhener; DROZDOV, I.IA.;
KOLOMNIN, G.P., nauchnyy redaktor; KUYBYSHEVA, G.V., redaktor;
LYUDKOVSKAYA, N.I., tekhnicheskiy redaktor

[Building slabs made of organic fibers] Stroitel'nye plity iz
organicheskogo volokna. Moskva, Gos. izd-vo lit-ry po stroit..
materialam, 1956. 328 p. (MLRA 9:10)
(Building materials) (Fibers)

KUNIN, V.; MOROZOV, I.

Rural houses with duplex apartments. Sel'.stroi. 16 no.5:26-27
My '61. (MIRA 14:6)

1. Glavnyy inzhener proyektного instituta Giprostandartdom (for
Kunin). 2. Nachal'nik tekhnicheskogo otdela proyektного
instituta Giprostandartdom (for Morozov).
(Apartment houses)

KUNIN, V.; KHLUDTSEV, A.; RATNER, G.

Arbolit for rural construction. Sel'. stroi. 16 no.6:21-22
Je '61. (MIRA 14:7)

1. Glvnyy inzh. Giprostandartdoma (for Kunin). 2. Nachal'nik
otdela novykh stroitel'nykh materialov Giprostandartdoma (for
Khludtsev).

(Lightweight concrete)

OTLIVANCHIK, A.N.; SLUCHAYEVA, L.M.; GORDEYEV, P.A., red. izd-va;
KUNIN, V.M., nauchnyy red.; RUDAKOVA, N.I., tekhn. red.

[Experience with particle board for floors] Opyt primeneniia
drevesno-struzhechnykh plit dlia polov. Moskva, Gosstroizdat,
1962. 47 p. (MIRA 15:6)
(Hardboard) (Floors)

KUNIN, V.M., red.; FEL'DSHTEYN, A.M., red.

[Manufacture and use of arbolite] Proizvodstvo i primenienie arbolita. Moskva, 1962. 50 p. (MIRA 1776)

1, Giprosel'stroy.

KHUDYAKOV, Aleksandr Vasil'yevich; KUNIN, V.M., nauchn. red.;
DARMANOVA, T.I., red.

[Woodworking machinery and its operation] Derevoobra-
batyvaiushchie stanki i rabota na nikh. Moskva,
Vysshaya shkola, 1965. 293 p. (MIRA 18:12)

S/123/61/000/007/023/026
A004/A104

AUTHOR: Kunin, V.N.

TITLE: Machine for wire tensile tests

PERIODICAL: Referativnyy zhurnal, Mashinostroyeniye, no. 7, 1961, 28, abstract
7E249 ("Uch. zap. Chelyab. gos. ped. in-t", 1958, v. 5, no. 1, 107-
109)

TEXT: The machine is intended for wire tensile tests at a constant rate and with the automatic big-scale recording of the "deformation - load" curve. The specimen is fixed in the machine clamping device. The deformation is effected by the upper clamp connected to an electromotor. The lower clamp is fastened on a force-measuring spring-mounted lever. The stress on the lever is produced by a measuring spring. In changing the spring it is possible to obtain the necessary stress diagram scale. It takes about 10 seconds to obtain the complete tension diagram. A pen records the results on a paper tape fixed to a drum which is put into operation during the motion of the measuring spring.

G. Flidlidser

[Abstracter's note: Complete translation]

Card 1/1

KUNIN, V. N.: Master Phys-Math Sci (diss) -- "Changes in internal energy and the electrical properties of metal in plastic expansion". Sverdlovsk, 1959.
9 pp (Min Higher Educ USSR, Ural State U im A. M. Gor'kiy), 150 copies (KL, No 13, 1959, 99)

S/137/60/000/04/10/015

Translation from: Referativnyy zhurnal, Metallurgiya, 1960, No. 4, p. 254,
8515

AUTHOR: Kunin, V.N.

TITLE: Energy Absorption by Metal in Plastic Extension

PERIODICAL: V sb.: Materialy Nauchn. konferentsii, Chelyab, in-t mekhaniz. i
elektrifik. s. kh. apr. 1958, Chelyabinsk, 1959, pp. 69 - 70

TEXT: The investigation was performed with chemically pure Ag and con-
ductor Cu. The absorbed energy was measured as the difference between the work
consumed for deformation and the emitted heat. The deformation work was determined
by the graphical integration of the expansion diagram. Measurement of temperature
changes were carried out during the test, using a special electronic potentiometer.
It was found that the percentage of absorbed energy with respect to the consumed
work was higher at the initial deformation stages than during greater deformation.
Changes in the electric resistivity of the specimens and the absolute thermo-emf
were directly proportional to the magnitude of changes in the absorbed energy.

L. I.

✓B

Card 1/1

AUTHOR: Kunin, V.N. SOV/126- --7-5-24/25
TITLE: Absorption of Energy on Plastic Extension of a Metal
(Pogloshcheniye energii metallom pri plasticheskom
rastyazhenii)
PERIODICAL: Fizika metallov i metallovedeniye, 1959, Vol 7, No 5,
pp 790-793 (USSR)
ABSTRACT: The author measured the energy absorbed by a metal when
deformed by extension. The metals studied were
conductivity copper, chemically pure silver and cadmium.
Test specimens of copper were 92.2 mm long and 1.314 mm
thick. Specimens of cadmium were 100 mm long and 1.641 mm
thick, while those of silver were 100 mm long and 1.409 mm
thick. Before testing the copper specimens were annealed
in vacuum at 400 °C for 3 hours. Cadmium was annealed in
water at 100 °C for 3 hours and 40 minutes. Silver was
annealed in air at 400 °C for 3 hours. All samples were
extended at a constant rate of 0.8 mm/sec on a special
machine and the extension and load were automatically
recorded. During deformation the specimen temperature
was measured with a copper-constantan thermocouple as a
function of time, using the electronic potentiometer
EPP-09. Since the rate of deformation was constant the

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SOV/126-- -7-5-24/25

Absorption of Energy on Plastic Extension of a Metal

temperature-time curve could be easily converted into a temperature-extension curve. In order to reduce the heat loss of the specimen during deformation, it was extended in several stages in such a way that the maximum temperature rise in any stage was of the order of 2-3 °C. The work of deformation (A) is partly absorbed by the specimen in the form of lattice distortion energy (W), partly stored reversibly as the energy of elastic deformation (U), and partly evolved as heat. The rise in temperature of the sample on deformation is the resultant of two processes; heat evolution due to plastic flow and adiabatic cooling due to elastic extension. Consequently the energy absorbed by the sample (the energy of deformation of the lattice, W) can be found from:

$$W = A - U - C.m (\Delta T + \Delta T_u + \Delta T_Q)$$

where C and m are the heat capacity and the mass respectively of the sample, ΔT is the temperature rise recorded by the potentiometer, ΔT_u is the adiabatic cooling and ΔT_Q is the fall of temperature due to heat loss by the sample. The work of deformation A was

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SOV/126-7-5-24/25

Absorption of Energy on Plastic Extension of a Metal

determined by graphical integration of the extension diagram recorded by the machine referred to earlier. The elastic deformation energy was calculated from

$$U = (\sigma^2/2E)V$$

where V is the specimen volume. The value of ΔT was determined directly from the potentiometer records (Fig 2). The fall in temperature ΔT_0 due to heat loss to the ambient medium was determined by using a technique described by Bol'shanina (Ref 3). The adiabatic cooling of the sample on elastic extension ΔT_u was determined by a separate experiment under conditions as close as possible to the original conditions (Fig 3 shows the adiabatic cooling of copper as a function of applied load.) For all three metals the adiabatic cooling was 0.3-0.4 °C when the load was increased from zero to its maximum value. The results of calculations are shown in Fig 4 as plots of the energy absorbed, in cal/g, against extension in %; curves 1, 2 and 3 represent copper, silver and cadmium respectively. The largest amount of energy was absorbed by copper; it was 0.35 cal/g at 37% extension. This result is in good agreement with earlier results obtained

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SOV/126-- -7-5-24/25

Absorption of Energy on Plastic Extension of a Metal

either by compression or by extension of copper (Refs 4 and 6). Fig 5 shows the ratio of the energy absorbed to the work of deformation as a function of extension; again curves 1, 2 and 3 represent copper, silver and cadmium respectively. The author draws the following conclusions from his results: (1) For the same degree of deformation the energy absorbed in straining copper, silver and cadmium is of the same order as the energy absorbed during their compression. (2) Since there is no friction at the clamps in extension tests and consequently no heat loss due to friction, the work of deformation per one g of metal is smaller in extension tests than in compression. It follows that the ratio of the energy absorbed to the work of deformation is greater in straining than in compression. (3) At the initial stages of deformation the ratio of the energy absorbed to the work of deformation is very large because a large portion of the work of deformation is used to increase the internal energy of the metal; with increase in the degree of deformation this ratio falls, first rapidly and then more slowly. (4) Before rupture a quasi-saturation state occurs which is shown as the curvature

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SOV/126--7-5-24/25

Absorption of Energy on Plastic Extension of a Metal

of the ends of the curves of energy absorbed (Fig 4);
this is due to the fact that at rupture the energy is
absorbed mainly in the "neck" portion.

There are 5 figures and 6 references, 5 of which are
Soviet and 1 German.

ASSOCIATION: Chelyabinskiy institut mekhanizatsii i elektrifikatsii
sel'skogo khozyaystva (Chelyabinsk Institute of
Mechanization and Electrification of Agriculture)

SUBMITTED: February 25, 1958

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18.8100

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SOV/126-8-1-3/25

AUTHOR: Kunin, V. N.

TITLE: Measurement of the Internal Energy, the Thermal e.m.f.²¹
and the Specific Electrical Resistance During Plastic
Deformation of a Metal

PERIODICAL: Fizika metallov i metallovedeniye, 1959, Vol 8, Nr 1,
pp 17-20 (USSR)

ABSTRACT: The amount of energy absorbed by a metal on plastic deformation is a measure of its deviation from the equilibrium state. It is, therefore, natural to suggest that changes in the properties of a metal in the process of plastic deformation will be connected in some way with this quantity. The number of papers published on this topic is very limited. Kunin (Ref 1) has found that in the case of copper the change in the absolute thermal e.m.f. is directly proportional to the energy absorbed by the metal. Other workers have found (Ref 2) that the specific electrical resistance for cadmium and lead deformed at low temperature increases linearly with the latent deformation energy. The present work describes the results of measurement of the absorbed energy, Card 1/4 induced thermal e.m.f. and the change in the specific

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SOV/126-8-1-3/25

Measurement of the Internal Energy, the Thermal e.m.f. and the Specific Electrical Resistance During Plastic Deformation of a Metal

electrical resistance during the plastic deformation process. Experiments were carried out on a set of specimens made of copper and chemically pure silver and deformed under identical conditions. The method of measuring the absorbed energy was described by Kunin in Ref 3. The thermal e.m.f. and the specific electrical resistance were measured as follows: the initial length of the specimen was 100 mm and the initial diameter was 1.314 mm for copper and 1.409 mm for silver specimens. The deformation was carried out using the machine described by Kunin in Ref 4 and at the same rate as before. The form of the specimens is shown in Fig 1. Each specimen consisted of a deformed (A) and an undeformed (B) section. Thus the thermal e.m.f. of the deformed metal was measured relative to an identical undeformed metal. The vessel 1 contained kerosene and the vessel 2 a mixture of ice and water. The thermal e.m.f. was measured using a mirror galvanometer of type M-25. The galvanometer could be calibrated using the voltage ✓

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SOV/126-8-1-3/25

Measurement of the Internal Energy, the Thermal e.m.f. and the Specific Electrical Resistance During Plastic Deformation of a Metal

divider shown on the right-hand side of Fig 1. It could also be used to back-off the thermal e.m.f. The sensitivity was 0.0218 mV/mm and 0.00666 mV/mm depending on whether the thermal e.m.f. was measured directly, i.e. by measuring the deflection of the galvanometer, or whether it was measured by the compensation method. Fig 2 shows the induced thermal e.m.f. in mV/deg as a function of the absorbed energy (in cal/g) for silver. As can be seen, the relationship is linear. A similar result was obtained for copper. The slopes are 0.41 mV.g/cal.grad for silver and 0.086 mV.g/cal.grad for copper. The specific electrical resistance was measured using the circuit shown in Fig 3. The resistance was measured while the specimen was held in the machine holders 1 and 2 and was compared with the standard resistance R_3 . The relation between the absorbed energy (cal/g) and the relative change in the specific electrical resistance for copper is shown in Fig 4. As can be seen, the relation is linear. The slopes are 9.5×10^{-8} ohm.cm.g/cal for copper and 1.8×10^{-8} ohm.cm.g/cal

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SOV/126-8-1-3/25

Measurement of the Internal Energy, the Thermal e.m.f. and the Specific Electrical Resistance During Plastic Deformation of a Metal

for silver.

There are 4 figures and 6 Soviet references.

ASSOCIATION: Chelyabinskiy institut mekhanizatsii i elektrifikatsii sel'skogo khozyaystva (Chelyabinsk Institute of Mechanization and Electrification in Agriculture) ✓

SUBMITTED: February 23, 1958

Card 4/4

KUNIN, V.N., kand.fiz.-matem.nauk; MYSLYAYEV, V.M.

Laboratory bench for engine testing. Avt. prom. no.5:27-28 My '60.
(MIRA 14:3)

1. Chelyabinskiy institut mekhanizatsii i elektrifikatsii sel'skogo
khozyaystva (ChIMESKh).
(Automobiles—Engines—Testing)

S/120/61/000/006/023/041
E032/E114

AUTHOR: Kunin, V.N.

TITLE: An apparatus for the electrodeless measurement of electrical conductivity

PERIODICAL: Pribory i tekhnika eksperimenta, no.6, 1961, 111-113

TEXT: The device described is based on the measurement of the interaction between currents induced in the specimen by a moving magnetic field with the field itself. The non-uniform magnetic field is produced by a 12-pole rotating electromagnet 1 (Fig.1), which is kept in rotation by the induction motor 2. The diameter of the magnet is 420 mm, the number of revolutions is 2180 rpm and the pole gap is 30 mm. The magnetic field is produced by two coils (main and auxiliary). The main coil is supplied by the rectifier 3 and the current through it is adjusted manually. The auxiliary coil is supplied by the rectifier 4 and is adjusted automatically so that the drag on the standard specimen remains constant. The standard specimen is made of constantan or manganese and is suspended from the
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An apparatus for the electrodeless... S/120/61/000/006/023/041
E032/E114

balance 5. The balance is in equilibrium if the dragging force is equal to the weight of the standard specimen minus the load at the other end of the balance. The latter carries an opaque diaphragm screen 6 with a wedge-shaped aperture cut in it. The diaphragm is located between thirteen series-connected thermocouples (copper-constantan) and a lamp. When the balance is in equilibrium the thermocouples are uniformly illuminated and there is no current in the thermocouple circuit. As soon as the equilibrium is disturbed a current appears. It is amplified by the amplifier 7, and the output of the latter operates the motor 8 which in turn adjusts the output of the rectifier 4. The specimen under investigation is suspended from the balance 9 at the centre of the magnet gap. It was found that the dragging force is directly proportional to the field strength and the angular velocity of the magnet. The electrical conductivity can be measured with an accuracy of 0.01% (relative to the standard specimen).

There are 3 figures and 4 references: 3 Soviet-bloc and 1 non-Soviet-bloc.

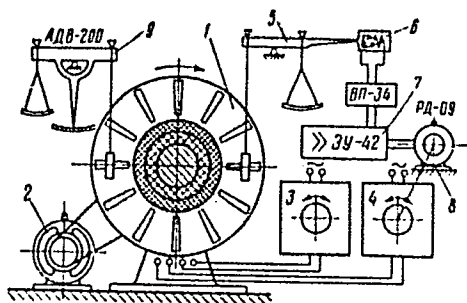
Card 2/3

An apparatus for the electrodeless.. S/120/61/000/006/023/041
E032/E114

ASSOCIATION: Chelyabinskiy politekhnicheskiy institut
(Chelyabinsk Polytechnical Institute)

SUBMITTED: February 14, 1961

Fig. 1



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S/032/61/027/009/013/019
B101/B110

AUTHORS: Kunin, V. N., and Grishkevich, A. Ye.

TITLE: Precision tensile testing machine for different rates and temperatures

PERIODICAL: Zavodskaya laboratoriya, v. 27, no. 9, 1961, 1162-1164

TEXT: The authors describe a 250-kg capacity machine by which tensile tests can be made on wire specimens 20-350 mm long at temperatures from -195 to +1000°C and deformation rates of 10^{-4} to 3 mm/sec. The recorded diagrams of the tension and relaxation curves are 490-500 mm with the maximum error not exceeding 0.5 %. The diagram scale may be varied between 1:100 and 1:1 along the deformation axis and between 0.02 and 0.5 kg/mm per mm diagram along the load axis. The machine is schematically shown in Fig. 1. The deformation mechanism consists of the 0.25-kw asynchronous three-phase motor 1, the gearbox 2 with the shaft 6 and the electromagnetic clutches 7, the transmission shaft 3, worm gear 9, nut 4, and screw 5. The gear ratio may be varied between 1:1 and 1:10,000. The electromagnetic clutch 8 is used for engaging the gear ratio 1:1. Shaft

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Precision tensile testing machine....

S/032/61/027/009/013/019
B101/B110

3 is connected with nut 4 by the electromagnetic clutch 11 which is engaged according to the test program. Nut 4 is fastened to the support 12 which can be adjusted according to the length of specimen 13. The mechanism of measurement is based on an automatic decimal balance in which the sliding weight is replaced by a spring with constant tension to reduce inertia. The upper clamp 14 transmits the deformation power to the short lever arm of balance 15. The carriage 16 with spring 17 which is connected with carriage 18 slides on the long lever arm. Carriage 18, in turn, slides on the fixed guide bar 19. The two carriages are connected with the armatures 21 of two electromagnetic clutches by means of the steel bands 20. These clutches rotate in opposite directions and are engaged by means of contacts 22. In the state of equilibrium, the end of the lever of 15 lies between contacts. The clutches are driven via shaft 6, communicator 10, shaft 23, and reducing gear 24. The recording is made by the pencil 25 fastened to the carriage 16 and sliding on drum 26 which is driven by shaft 3 via reducing gear 27 and electromagnetic clutch 28. The dimensions of the diagram can be varied by the reducing gear 27. The clutches of the machine are fed by the rectifier 29. 30 are the terminal switches for switching off the machine as soon as maximum

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Precision tensile testing machine...

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B101/B110

deformation and load are attained. The machine is controlled by tumbler switches mounted on the switchboard 31. There are 2 figures and 1 Soviet reference.

ASSOCIATION: Chelyabinskiy institut mekhanizatsii i elektrifikatsii
sel'skogo khozyaystva (Chelyabinsk Institute for Rural
Mechanization and Electrification)

Fig. 1. Basic diagram of the tensile testing machine.

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37069
S/057/62/032/004/015/017
B116/B102

11.6300

AUTHORS: Kunin, N. F., Kunin, V. N., and Grishkevich, A. Ye.

TITLE: Thermal ionization in the gasoline flame

PERIODICAL: Zhurnal tekhnicheskoy fiziki, v. 32, no. 4, 1962, 485-487

TEXT: Ionization in the gasoline flame at 1100-1700°K was investigated. The flame resistance was measured perpendicular to the gas current. The air compressed in compressor 1 (Fig. 1) was conveyed to combustion chamber 2 (with 1.05-1.12 atm excess pressure). By compressed air (compressor 6), gasoline B-70 (B-70) was injected from container 3 into the air conduit between compressor 1 and combustion chamber 2. The flow rate was about 120 m/sec. A transverse magnetic field of up to 7500 oe was generated with electrodes between pole shoes 4. The resulting transverse emf E was taken off by means of graphite plates 5, which were also used to measure the electrical resistance. Automatic electronic potentiometers and bridges with suitable pickups were used to measure the flame temperature T between the plates, the air consumption, G, per second, the gasoline consumption, D_B, per second, and the pressure, p,

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Thermal ionization in the gasoline ...

S/057/62/032/004/015/017
B116/B102

in the combustion chamber. The resistance, R, of the flame between the plates was found to depend on T as

$$R = CT^{-3/4} e^{\frac{U}{2kT}} \quad (5).$$

C is a constant, and U is the activation energy of ionization. The activation energy was determined from the slope of Eq. (5), which is represented as a straight line. It amounts to 1.09 ev, and is thus closest to the formation and decay energies of negative oxygen ions. There are 3 figures. The most important English-language reference reads as follows: A. Cherman. ARS J., 30, no. 6, 41, 1960. ✓

ASSOCIATION: Chelyabinskiy politekhnicheskiy institut
(Chelyabinsk Polytechnic Institute)

SUBMITTED: January 28, 1961 (initially)
April 5, 1961 (after revision)

Card 2/8 2

KUNIN, N.F.; KUNIN, V.N.; GRISHKEVICH, A.Ye.; KORENCHENKO, Ye.S.

Energy absorption by copper during small deformations. Fiz.
met. i metalloved. 17 no.5:789-792 My '64.

(MIRA 17:9)

1. Belorusskiy gosudarstvennyy universitet imeni Lenina.

L 26628-66 EWT(1)/T IJP(c) AT

ACC NR: AP6013913

SOURCE CODE: UR/0207/66/000/002/0021/0024

AUTHOR: Kunin, V. N. (Chelyabinsk); Pisarev, N. M. (Chelyabinsk)

ORG: none

TITLE: Electron conductivity of a thermoionized gas in an electric field

SOURCE: Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 2, 1966, 21-24

TOPIC TAGS: plasma conductivity, ionized gas, free path, electron collision, *electron flow, gas conduction, free electron*

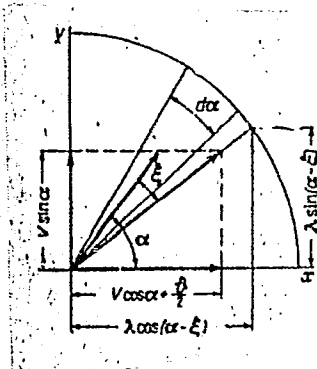
ABSTRACT: The authors study electron conductivity of a thermoionized gas in an electric field. The electron conductivity of the gas is calculated by using Drude's method and considering the drift of electrons in determining their travel time. The following are given: free electron concentration, the mean effective cross section of their collisions and their mean free path. It is assumed that these quantities have a spatially isotropic distribution in the gas and are independent of time. It is further assumed that the macroscopic parameters for the state of the gas are given. The conductivity problem reduces to finding the mean drift rate of the electrons. It is shown that kinematic relationships may be used for determining conductivity without knowing the distribution function. A model is set up in which a gas particle is surrounded by a sphere of given radius. Free electrons within this sphere drift under the effect of a field which is parallel to the axis and where the electrons are scat-

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ACC NR: AP6013918

tered by a particle. After scattering, the electrons travel in the field along curved trajectories resulting in electron-ion and electron-molecule collisions. Since molecules and ions have large masses, their motion in a weak field does not depend on field intensity. Therefore the motion of electrons is limited only by the surface of the sphere. In the case of weak fields, it may be assumed that electron scattering intensity is nearly equal in all directions. An expression is given for calculating the electron drift rate within a given sphere. An improved classical formula for calculating conductivity is given. Orig. art. has: 1 figure, 12 formulas.



SUB CODE: 20/ SUBM DATE: 28Sep65/ ORIG REF: 003/ OTH REF: 001

Card 2/2 *IV*

KUNIN, V. N.

"The Structure of Lowland Karakumy," Dokl. AN SSSR, 51, No.9, 1946
Inst. Geography, AS USSR

-KUNTIN, V. N.

"Depth of Physical and Geographical Reaction Under Sandy Desert Conditions,"
Geog. i Geofiz., 12, No.1, 1948

Inst. Geography, AS USSR

1. KUNIN, V. N.
2. USSR (600)
4. Geology and Geography
7. Kara-kum Records, V. N. Kunin. (Moscow, Geography Press, 1950)
Reviewed by B. A. Fedorovich, Sov. Kniga, No. 9, 1951.

9. ~~Report~~ Report U-3081, 16 Jan. 1953. Unclassified.

GRIGOR'YEV, A. A.; GERASIMOV, I. P.; DOSKACH, A. G.; KAMANIN, L. G.; KUNIN, V. N.;
LAVRENKO, Ye. M.; MURZAYEV, E. M.; RIKHTER, G. D.; CHUBUKOV, A. N.; FORMOZOV, A. N.
KUNIN, V. N.

Problemy Fizicheskoy Geografii (Problems of Physical Geography), Vol. 16, Symposium,
Moscow, 1951.

U-1483, 25 Sept 51

1. GAYEL', A. G.; KUNIN, V. N.
2. USSR (600)
4. Geology and Geography
7. The Field-Forest Improvement of Sands in the Deserts and Semideserts of the USSR, M. P. Petrov, D. L. Margolina (bibliographic editress). (Bibliography of literature in the Russian language, 1768 - 1950. Academy of Sciences of Turkmen SSR Library of Academy of Sciences of the USSR. Leningrad State Pedagogic Institute imeni M. N. Pokrovskiy. Ashkhabad. Acad Sci Turkmen SSR Press, 1952). Reviewed by A. G. Gayel' and V. N. Kunin, Sov. Kniga, No. 11, 1952.

9. ██████ Report U-3031, 16 Jan 1953, Unclassified.

KUNIN, V. N.

Main Turkmen Canal

Popular books about the Main Turkmen Canal. Reviewed by V. N. Kunin.
Izv. AN SSSR Ser. geog. No. 3, 1952.

Monthly List of Russian Accessions, Library of Congress, July, 1952.
Unclassified.

YAMNOV, A.A.; KUNIN, V.N.

Some theories resulting from the most recent investigations in the region of the Uzboy in the fields of paleogeography and geomorphology. Izv. AN SSSR Ser. geog. no.3:21-28 My-Je '53. (MLRA 6:9)
(Uzboy region--Physical geography) (Physical geography--Uzboy region)

SHUL'TS, V.L. [author]; KUNIN, V.N.; IVERONOVA, M.I. [reviewers].

"Melting of snowflakes (exemplified in the Bol'shoy Chimgan region)." V.L. Shul'ts. Reviewed by M.I. Iveronova and V.N. Kunin. Izv. AN SSSR Ser. geog. no. 4:106-108 J1-Ag '53. (MLA 6:8)
(Bol'shoy Chimgan region--Snow) (Snow--Bol'shoy Chimgan region)

KREMENSKOY, Aleksandr Aleksandrovich; KUNIN, V.N., doktor geograficheskikh nauk, redaktor; ASOYAN, N.S., redaktor; RIVINA, I.N., tekhnicheskii redaktor.

[In Transcaspian territory] V Zakaspii. Moskva, Gos. izd-vo geogr. lit-ry, 1954. 126 p. (MLRA 7:12)
(Turkmenistan--Phytogeography) (Turkmenistan--Description and travel)

KUNIN, V. N.

USSR/Agriculture - Irrigation

Card 1/1 Pub. 77 - 2/23

Authors : Kunin, V. N., Mem. Corresp. of the Acad. of Sci. of the Turkmen SSR

Title : Across the Kara-Kum sands

Periodical : Nauka i Zhizn' 21/10, 5-6, Oct 1954

Abstract : The problems of raising cotton by irrigation in the desert regions of the Turkmen SSR are discussed. A description is given of a canal linking the Murgab and Tedzhen rivers that the Soviet Government has constructed in order to improve irrigation and produce more cotton. Illustrations.

Institution : ...

Submitted : ...

KUNIN, V.N., doktor geograficheskikh nauk, redaktor; VOLYNSKAYA, V.S.,
redaktor; ZEMLYAKOVA, T.A., tekhnicheskiy redaktor.

[Outline of the nature of the Kara Kum Desert] Ocherki prirody
Kara-Kumov. Moskva, Izd-vo Akademii nauk SSSR, 1955. 398 p.
(MLRAB:12)

1. Chlen-korrespondent Akademii nauk Turkmenskoy SSR (for Kunin)
2. Akademiya nauk SSSR, Institut geografii.
(Kara-Kum--Physical geography)

KUNIN, V.N.

Some results and prospects in scientific research on reclamation
in the Kara Kum. Izv.AN Turk.SSR no.3:33-38 '55. (MLRA 9:5)

1. Institut geologii AN Turkmenskoy SSR.
(Kara Kum--Reclamation of land)

Kunin V.N.

USSR/ Engineering - Irrigation works

Card 1/1 Pub. 86 - 4/37

Authors : Kunin, V. N., Memb. Corresp. Acad. Sc., Turkmen SSR.

Title : Kara-Kum canal

Periodical : Priroda 44/4, 29 - 40, Apr 1955

Abstract : An account is given of the work going on in the excavation of the Kara-Kum canal. An analysis is made of the sources of the water and the land formations which can be flooded by gravitation together with the quality of the soil suitable for agriculture. A description is given of what has already been accomplished in the construction of the Kara-Kum desert where all the meadows are irrigated by gravitation. The water is taken from the Kara-Kum canal.

Institution :

Submitted :

GERASIMOV, I.P.; ARMAND, D.L.; BUDYKO, M.I.; DAVITAYA, F.F.; DZERDZEYEVSKIY, B.L.;
KUNIN, V.N.; L'VOVICH, M.I.; RIKHTER, G.D.; SHEVTSOV, P.F.

Thermal and hydrological regime of the earth's surface, its role in the
dynamics of natural processes, geographical differences, and methods of
transforming it for practical purposes. Izv.AN SSSR, Ser.geog. no.4:
47-59 JI-Ag '56. (MLRA 9:10)
(Hydrology)

KUNIN, V.N.

Popov, I.V

(4,5)

YEAR I BOOK EXPLOITATION

SOV/1655

Abstrakty nach SSSR. Komitet po geodesii i geofizike.

Trilny dokladov na II General'noy asambleye Mezhdunarodnogo geodesicheskogo i geofizicheskogo soyusa. Mezhdunarodnaya assotsiatsiya nauchnoy gidrologii (Abstracts of Reports Submitted to the 11th General Assembly of the International Union of Geodesy and Geophysics. The International Association of Scientific Hydrology) Moscow, 1957. 101 p. /Parallel texts in Russian and English or French/ 1,500 copies printed.

No additional contributors mentioned

PURPOSE: This booklet is intended for hydrologists and civil engineers.

COVERAGE: This collection of abstracts covers reports presented at the 11th General Assembly of the International Union of Geodesy and Geophysics on hydrological, erosional, and glaciological processes. Studies related to problems of underground waters, snow, and rivers are also discussed. The abstracts are in Russian, with English or French translations. Those appearing in English are designated by a single asterisk; those in French by two. There are no references given.

Shal'ts, V.L. Basic Characteristics of the Regimen of Rivers of Central Asia in Connection With Problems of Their Utilization *	40
Bogomolov, G.V., and N.A. Plotnikov. Classification of Underground Waters and Their Representation on Maps **	45
Makarenko, F.A. Characteristics of the Formation of Underground Runoff Into Open Reservoirs and Rivers and Methods of Determining Them *	48
Emis, V.F. Conditions of Underground Water Accumulation in Deserts *	52
Tagarinov, V.V. The Study of the Process of Atmospheric Water Vapor Condensation and Its Role in the Formation of Underground Waters *	57
Kudelin, V.I. Principles of Regional Evaluation of Natural Reserves of Underground Waters and the Problems of Water Balance *	60
Ovchinnikov, A.M. Hydrogeological Maps of Folded Mountain Regions and Their Significance in the Evaluation of Underground Water Reserves *	64

Card 1/4

KUNIN + V.N. + ...
GRAVE, Mikhail Konstantinovich; KUNIN, V.N., doktor geograficheskikh nauk, otvetstvennyy red.; BIRINA, A.V., red.izd-va; VOLYNSKAYA, V.S., red.izd-va; MOSKVICHEVA, N.I., tekhn.red.

[North foothill plain of Kopet Dag; its origⁿ, relief and elements of its hydrogeology] Severnaia podgornaia ravnina Kopet-Daga; proiskhozhdenie, rel'ef i elementy gidrogeologii. Moskva, Izd-vo Akad.nauk SSSR, 1957. 137 p. (Trudy Aralo-Kaspiiskoi kompleksnoi ekspeditsii, no.9) (MIRA 11:1)
- - - - - [Supplement] 3 maps (6 l.)
(Kopet Dag--Geology)

Call No: None given

Freykin, Zakhar Grigor'yevich

Turkmenskaya SSR; ekonomiko-geograficheskaya kharakteristika
(Turkmenskaya SSR; Economic and Geographical Features)
[2d ed., rev. and enl.] Moscow, Geografiz, 1957,
450 pp., 8,000 copies printed.

Ed.: Dobronravova, A.O.; Tech. Ed.: Nogina, N.I.;
Map Ed.: Chentsova, V.A.

Resp. Ed.: Kunin, V.N., Corresponding Member, Academy of
Sciences, Turkmenskaya SSR, Doctor of Geographical
Sciences

PURPOSE: The purpose of the book is to provide convenient
reference on the Turkmenskaya SSR and its economic
and social problems. The book is intended for
economists, teachers and students of geography.

~~COVERAGE:~~

~~See Table of Contents~~

~~Card 1/7~~

Turkmen SSR; Economic and Geographical Features (Cont.) Call No. None given

COVERAGE: The book is divided in two parts: the first deals with the Republic as a whole and the second describes the individual oblasts. These, in turn, are divided into their organic economic regions (units). The analysis of geographical features predominates in the book, although the first part also provides the reader with an historical background. The industries of this Republic have developed along the railways, the rivers and the coast, with 40 per cent of the manufacturing located at Ashkhabad, the capital. The only exceptions to this rule are the sulphur mines and plant at Sernyy Zavod and Darvaza, in the middle of the Karakumy desert. Kara-Bogaz-Gol enterprises strip mirabilite (glauber salt) from the bottom of evaporated marshy lakes, but the development of local industries is hampered by lack of fresh water. Another group of industries along the Caspian shore comprises Cheleken iodine, bromine, ocher, and oil and ozocerite enterprises. The oil and natural gas region is located mainly south of the Krasnovodsk-Ashkhabad railway.

Card 5/7

Turkmen SSR; Economic and (Cont.)

Call No: None given

The petroleum industry of the Republic shows marked progress and oil derricks, scattered in the barren desert, are steadily growing in number; Nebit-Dag is the Turkmen oil capital. In 1956 the Republic produced 3,430,000 tons of oil. A pipeline leads from Vyshka to the Krasnovodsk refinery; a natural gas pipeline to Krasnovodsk is under construction. During the earthquake of 1948, the worst in Turkmen history, Ashkhabad's industrial enterprises, administrative and residential buildings and railway station were destroyed. The earthquake claimed thousands of victims. The restoration of the city's industrial enterprises is described to some extent. To-day the city numbers 142,000 inhabitants. One of the engineering plants manufactures petroleum equipment. A cement plant was built at Bezmein, which is practically a suburb of Ashkhabad. The city produces silk, cotton textile, shoes, and meat products. Tables show areas under crop cultivation, with special emphasis on cotton; the irrigation network is being expanded. Cotton grows in the area of Chardzhou and along the Murgab River. Sheep and dromedars are included in animal husbandry. Most electricity (94.5 per cent) come from oil-burning steam-power stations, although the book mentions a series of hydro-electric installations on the Murgab River.

Card ~~6/8~~

3

Turkmen SSR; Economic and (Cont.)

Call No: None given

Semi-anthracite is being mined on an industrial scale at Kugitang, although the Republic has other coal and brown-coal reserves, thus far little exploited. In addition to Darvaza and Sernyy Zavod, there is another sulphur-winning area near Gaurdak. Recently the large railway project linking Chardzhou with Kungrad was completed. The Karakum Canal is to-day's largest construction job and the gigantic scheme of the great Turkmen Canal is not discussed. There are 65 photographs (a dozen illustrate Turkmen industries), 30 maps, 20 tables, and 155 Soviet references.

AVAILABLE: Library of Congress

Card ~~7/8~~
4

Kunin, V.N.
KUNIN, V.N.

Some results of the study of ground water in deserts. Izv. AN SSSR.
Ser. geog. no.5:91-103 S-0 '57. (MIRA 11:2)
(Water, Underground)

Kunin, V. N.

126-1-30/40

AUTHORS: Kunin, N. F. and Kunin, V. N.

TITLE: Influence of the stresses on the thermal expansion of a deformed metal. (Vliyaniye napryazheniy na teplovoye rasshireniye deformirovannogo metalla).

PERIODICAL: Fizika Metallov i Metallovedeniye, 1957, Vol.5, No.1, pp. 173-174 (USSR)

ABSTRACT: The reversibility of elastic deformation and of thermal expansion permits considering the simultaneous effect of these phenomena on the basis of generally valid thermodynamic relations. Khvol'son, O. D. (Ref.1) derived the following formula inter-relating the coefficient thermal expansion α with the applied stress:

$$\left(\frac{\partial \alpha}{\partial \sigma}\right)_T = \frac{1}{E^2} \left(\frac{\partial E}{\partial T}\right)_\sigma \quad (1)$$

where E is the Young modulus and T is the temperature of the deformed substance. For a given temperature the right-hand side of this equation is constant and by integration the following linear dependence is obtained between the coefficient of thermal expansion and the

Card 1/4

126-1-30/40

Influence of the stresses on the thermal expansion of a deformed metal.

stress:

$$\alpha = \alpha_0 + c\sigma, \quad (2)$$

α_0 being the coefficient of linear expansion in absence of stresses. Rosenfield, A.K. and Averbach, B.L.(Ref.2) discovered a jump-like deviation of the coefficient of expansion α from linearity when passing through the limit of elasticity. The experiments were carried out with three grades of steel and two grades of invar. The change of the coefficient of expansion α , caused by the plastic deformation, was the residual one. After removing the stress, the coefficient of expansion had another value differing from the original value. These authors did not consider the important problem on whether Eq.(2) is valid for work hardened metal. It is known that the limit of elasticity of a metal which is subjected to plastic deformation increases to a value corresponding to the applied load provided that the temperature of deformation is sufficiently low and that no relaxation effects take place. As a result of that,

Card 2/4 repeated deformation of a preliminarily work hardened

126-1-30/40

Influence of the stresses on the thermal expansion of a deformed metal.

metal up to loads corresponding to the new limit of elasticity are reversible and Eq.(2) should be fulfilled. Thereby the values of α and c should become different to some extent owing to the changes caused by the plastic deformations. Independently of the work of Rosenfield and Averbach and approximately at the same time the authors of this paper measured the coefficient of linear expansion of copper under load. The copper was subjected to considerable preliminary work hardening. Special measuring equipment enabled measurement of the coefficient α with an accuracy of up to 0.2 to 0.3%; the thermal expansion was effected in the temperature range 14.98 to 41.48°C. The elongation as a result of the load and the thermal expansion was measured by optical means and the results are graphed in Fig.1 ($10^5 \alpha/^\circ\text{C}$ vs. $\sigma, \text{kg/mm}^2$). It can be seen that within the limits of the here mentioned accuracy of the experiments, the coefficient of thermal expansion increases linearly with increasing stresses in accordance with Eq.(2). Since during work hardening the Young modulus E remains practically unchanged, it follows from Eq.(1) that the changes in α_0

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126-1-30/40

Influence of the stresses on the thermal expansion of a deformed metal.

and ϵ during work hardening are due to a temperature dependence of the Young modulus. In conclusion it is pointed out that the problem of thermal expansion of loaded metals is of great practical importance, particularly from the point of view of the theory of tolerances and settings. There are 1 figure and 2 references, 1 of which is Slavic.

(Note: This is a complete translation).

SUBMITTED: November 20, 1956.

ASSOCIATION: Chelyabinsk Institute of Mechanisation and Electrification of Agriculture. (Chelyabinskiy Institut Mekhanizatsii i Elektrifikatsii S-Khoz).

AVAILABLE: Library of Congress.

Card 4/4

KUNIN, V.N.

GELLER, S.Yu.; ZIMINA, R.P.; KEMMERIKH, A.O.; KUNIN, V.N.; KUVSHINOVA, K.V.;
MURZAYEV, E.M., doktor geograf.nauk; RYAZANTSEV, S.N.; FORMOZOV,
A.N.; FREYKIN, Z.G.; CHUBUKOV, L.A.; ZABIROV, R.D.; KOROVIN, Ye.P.;
ROZANOV, A.N.; RODIN, L.Ye.; RUBTSOV, N.I.; SPYGINA, L.I., red.
izd-va; POLENOVA, T.P., tekhn.red.

[Central Asia; its physical geography] Sredniiaia Azia; fiziko-
geograficheskaia kharakteristika. Moskva, 1958. 647 p. (MIRA 11:6)

1. Akademiya nauk SSSR. Institut geografii. 2. Institut geografii
Akademii nauk SSSR (for Geller, Zimina, Kemmerikh, Kunin, Kuvshinova,
Murzayev, Ryazantsev, Formozov, Freykin Chubukov). 3. Akademiya
nauk Kirgizskoy SSR (for Zabiroy). 4. Akademiya nauk Uzbekskoy SSR
(for Korovin). 5. Pochvennyy institut AN SSSR (for Rozanov). 6.
Botanicheskiy institut AN SSSR (for Rodin). 7. Akademiya nauk
Kazakhskoy SSR (for Rubtsov)
(Soviet Central Asia--Physical geography)

Kunin, V.N.

AUTHOR:

Kunin, V.N.

12-1-23/26

TITLE:

None Given

PERIODICAL: Izvestiya Vsesoyuznogo Geograficheskogo Obshchestva, 1958,
1, pp 99 - 101, (USSR)

ABSTRACT:

The article deals with a new book on Asia, "The Foreign Asia" (Zarubezhnaya Aziya), composed by a collective of authors. This work gives a more or less complete picture of the physical geography of foreign Asia and its separate regions. There is also a most interesting historical-political review of the Asiatic states. The book makes a good impression inspite of some minor deficiencies.

AVAILABLE: Library of Congress

Card 1/1

KUNIN, V.N.

"Non-Soviet parts of Asia; physical geography" by D.L. Armand and others. Reviewed by V.N. Kunin. Izv. Vses. geog. ob-va 90 no.1: 99-101 Ja-F '58. (MIRA 11/4)

(Asia—Physical geography)
(Armand, D.L.)

DEREVYANKO, Pavel Andreyevich; POGOREL'SKIY, P.V. [deceased], doktor ekon. nauk, otv. red.; KUNIN, V.N., doktor geogr. nauk; FILIPPOVA, B.S., red. izd-va; NOVICHKOVA, N.D., tekhn. red.

[Rural water supply in the Mongolian People's Republic] Sel'skokhoziaistvennoe vodosnabzhenie Mongol'skoi Narodnoi Republikii. Izd-vo Akad. nauk SSSR, 1959. 130 p. (Akademia nauk SSSR. Laboratoriia gidrogeologicheskikh problem. Trudy, vol.21)
(MIRA 12:12)

(Mongolia--Water supply, Rural)

KUNIN, Vladimir Nikolayevich; GELLER, S.Yu., doktor geograf.nauk, otv.
red.; VOLYNSKAYA, V.S., red.izd-va; KASHINA, P.S., tekhn.red.

[Local water supply in deserts and problems in using it]
Mestnye vody pustyni i voprosy ikh ispol'zovaniia. Moskva,
Izd-vo Akad.nauk SSSR, 1959. 281 p. (MIRA 12:5)
(Water supply) (Deserts)

KUNIN, V.N.; LESHCHINSKIY, G.T.; I'VOVICH, M.I., prof., doktor geograf.
nauk, otv.red.; VOLYNSKAYA, V.S., red.izd-va; MARKOVICH, S.G.,
tekhn.red.

[Temporary surface runoff and artificial formation of ground
waters in the desert] Vremennyi poverkhnostnyi stok i
iskusstvennoe formirovanie gruntovykh vod v pustyne. Moskva,
Izd-vo Akad.nauk SSSR, 1960. 156 p.

(MIRA 14:2)

(Turkmenistan--Hydrology)