

KUL'KOV, Vasil'y Vasil'yevich; TOROPCHIN, N.S., red.

[Path toward profitableness] Put' k rentabel'nosti. Rostov-
na-Donu, Rostovskoe knizhnoe izd-vo, 1964. 26 p.
(MIRA 18:8)

KUL'KOV, Ye. V.

124-11-13492

Translation from: Referativnyy Zhurnal, Mekhanika, 1957, Nr 11, p 163 (USSR)

AUTHOR: Kul'kov, Ye. V.

TITLE: The Determination of Certain Parameters of Spiral Springs in
Cylindrical Containers
(Otyskaniye nekotorykh parametrov spiral'noy pruzhiny,
rabotayushchey v barabane)

PERIODICAL: Tr. Leningr. voyen. - mekhan. in-ta, 1955, Nr. 3, pp 118-133

ABSTRACT: Formulas are offered for the evaluation of the length of a
curvilinear surface element of a spiral spring which operates under
the limitation that its coils must at all times be tangent to a
cylindrical drum.

(V. L. Biderman)

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B/146/60/003/005/012/017
B019/B054

AUTHOR: Kul'kov, Ye. V.

TITLE: Some Problems of the Dynamics of Releasing Controllers Without Natural Oscillations of the Balance

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Priborostroyeniye, 1960, Vol. 3, No. 5, pp. 95 - 105

TEXT: The author presents the fundamentals of the theory for the calculation of oscillation periods of controllers without natural oscillations, the effect of dynamical factors such as moment of inertia and the like on the period being considered. Thus, it is possible to clarify some rules governing these controllers; the low dependence of the oscillation amplitude of the balance on the driving moment, the small effect of great changes in the moment of inertia of feed gears on the period, etc. The formulas derived here allow an estimation of the dynamical factors of the controller, and a better choice of the controller parameters in watch designs. Likewise, it is possible to improve the calculation of the period. It was found that an impact at $I \geq I_x$ increases the oscillation period,

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Some Problems of the Dynamics of Releasing
Controllers Without Natural Oscillations of
the Balance

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while an impact at $I \leq I_x$ reduces it (I is the moment of inertia of the
balance, I_x that of the feed gears). Therefore, the relation $I \approx I_x$ is most
favorable to maintain the oscillation period. The error made in deter-
mining the period without considering the impacts may attain 50% and even
more. There are 4 figures, 3 tables, and 3 Soviet references.

ASSOCIATION: Leningradskiy ordena Krasnogo Znameni mekhanicheskiy institut
(Leningrad "Order of the Red Banner" Mechanical Institute)

SUBMITTED: February 25, 1960

Card 2/2

KUL'KOV, Ye.V.

Mean and final pulse parameters in pin-type escapements. Izv.vys.
ucheb.zav.; prib. no.2:101-110 '61. (MIRA 14:5)

1. Leningradskiy ordena Krasnogo Znameni mekhanicheskii institut.
Rekomendovana Leningradskim mekhanicheskim institutom.
(Mechanical movements)

L 9800-66 EWT(m)/EWP(j) RM

ACC NR: AT8000047

SOURCE CODE: UR/0000/65/000/000/0108/0126

AUTHOR: Nel'son, K. V.; Kul'kova, A. B. 41

ORG: None

TITLE: Infrared spectroscopic study of the vulcanizing network of carboxylated rubbers

SOURCE: Leningrad. Vsesoyuznyy nauchno-issledovatel'skiy institut sinteticheskogo kauchuka. Kolebatel'nyye spektry i molekulyarnyye protsessy v kauchukakh (Oscillating spectra and molecular processes in rubbers), Leningrad, Izd-vo Khimiya, 1965, 108-126

TOPIC TAGS: IR spectrum, synthetic rubber, vulcanization, magnesium oxide, zinc oxide, calcium hydroxide, calcium oxide, lime, glycerin

ABSTRACT: Infrared spectra of thin films of SKD-1 carboxylated rubbers (copolymers of butadiene with 4-5% methacrylic acid) vulcanized with MgO, ZnO, Ca(OH)₂, and CaO are obtained. It is found that over 3/4 of the carboxyl groups present in the rubber participated in the reaction with MgO, ZnO, and Ca(OH)₂. In contrast to these vulcanizing agents, calcium oxide practically does not interact with the carboxyl groups. It is shown that vulcanization with MgO and Ca(OH)₂ involves formation of neutral magnesium and calcium salts. ZnO also participates in the reaction of salt formation in a proportion corresponding to the formation of neutral salts. The effect of glycerin on the vulcanization of carboxylated rubbers was determined: it not only increases the cross-linking of the rubbers, but also changes the nature of the COO-Me bond. Orig. art. has: 13 figures and 1 table.

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SUB CODE: 07, 11 / SUBM DATE: 10Jun65 / ORIG REF: 006 / OTH REF: 011

CZECHOSLOVAKIA

UDC 616.155.33-022.78-022.71.71-078.737

KORB, J.; KOUBA, K.; KULKOVA, H.: Virological Department, Hospital (Virologické Odd. Nemocnice) Prague 8 - Bulovka, Head (Vedoucí) Dr J. KORB; Clinic of Infectious Diseases, Faculty of Gen. Medicine, Charles University (Infekční Klinika Fak. Všeob. Lekarství KU), Prague 8 - Bulovka, Head (Prednosta) Prof Dr J. PROCHAZKA; Station for Hygiene and Epidemiology of the City Council (Hygienicko-Epidemiologická Stanice NV), Prague, Director (Reditelka) Docent Dr V. KRASNA.

"Rickettsia Sennetsui and the Etiology of Infectious Mononucleosis."

Prague, Casopis Lekarů Ceskych, Vol 105, No 36-37, 9 Sep 66, pp 975 - 981

Abstract [Authors' English summary modified]: By serum neutralization tests 38 sera from 17 patients with Rickettsia sennetsui were obtained; all but one gave negative results. Complement-fixation reaction was used to investigate 36 sera of 16 patients; a positive control of serum from guinea pigs immunized with R. sennetsui was obtained. R. sennetsui does not seem important in the etiology of infectious mononucleosis in Central Europe. 2 Tables, 63 1/1 Western, 4 Czech, 25 Japanese, 2 Hungarian, 1 Chinese refs. (Ms. rec. Nov 65).

MILEK, E.; GRANTOWA, H.; KULKOVA, H.

Psittacosis in childhood. Cesk. pediat. 18 no.8:678-682
Ag '63.

1. Klinika infekcnich nemoci v Praze na Bulovce, prednosta
prof. dr. J. Prochazka Virologicke oddeleni nemocnice v Praze
na Bulovce, vedouci MUDr. J. Korb.
(ORNITHOSIS) (PNEUMONIA) (TETRACYCLINE)
(DIAGNOSIS, DIFFERENTIAL) (COMPLEMENT FIXATION TESTS)

LIPOVETSKIY, G.S.; GOL'DINA, B.G.; KUL'KOVA, I.A.; PEREPELKIN, V.P.; DENISOVA,
A.A.; MANEVICH, Ye.I.; SMIRNOVA, M.G.

Sutureless joining of tissues; experimental study on cyacrine glue.
Eksper. khir. i anest. 9 no.1:3-6 Ja-F '64.

(MIRA 17:12)

1. Institut eksperimental'noy khirurgicheskoy apparatury i instru-
mentov Ministerstva zdravookhraneniya SSSR, Moskva.

AGLINTSEV, K.K.; KUL'KOVA, L.P.; KHOL'NOVA, Ye.A.

Standard calorimetric unit UKG-1. Nov. nauch.-issl. rab. po metr.
VNIIM no.2:1-4 '64. (MIRA 13:4)

DRICHKO, A.F.; KARAVAYEV, F.M.; KUL'KOVA, L.P.; KHOL'NOVA, Ye.A.

Working standards and first-order standard γ -emitters from
Co⁶⁰. Nov. nauch.-issl. rab. po metr. VNIIM no.2:11-13 '64.
(MIRA 18:4)

KUL'KOVA, M.N.

133-6-24/33

AUTHORS: Babakov, A.A., Zhadan, T.A., Danilin, V.A., Bakuma, S.F., Antipov, K.I., Kul'kova, M.N. and Kupryakhina, S.Z.

TITLE: An improvement in the technology of production of high-chromium plates. (Uлучsheniye tekhnologii proizvodstva vysokokhromistogo tolstogo lista).

PERIODICAL: "Stal'" (Steel), 1957, No.6, pp.555-559 (USSR).

ABSTRACT: Optimum conditions of rolling and subsequent heat treatment of plates from steels X25T, X28 and X28 with nitrogen, under which the metal would attain mechanical properties satisfying TY5227-55 and good quality cutting and straightening properties in cold state, were investigated. The following participated in the work: Engineers B.Z.Kononov, V.V.Turitsyn, P.N.Sporyshkov, A.P.Okenko ("Krasnyy Oktyabr") and technician V.I.Shashina (TsNIChM). It was found that in order to obtain steel plates of required properties slabs should be rolled in a temperature range from 980 to 1000 C - 720 to 800 C with cooling of plates in air. Thermal treatment: a preliminary annealing at 760-780 C for 12-16 hours followed by hardening of each plate (individually) in water after heating the metal to the same temperature (soaking time 3 min per 1 mm thickness of the plate). Chemical composition of steel from the heats

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An improvement in the technology of production of high-chromium plates. (Cont.) 133-6-24/33

investigated is given in Table 1, mechanical properties of plates tested in Tables 2 to 6 and some examples of microstructure obtained under various conditions of processing in Figs. 2 to 4.

There are 6 tables and 4 figures.

ASSOCIATION: TsNIICHM and "Krasnyy Oktyabr'" Works. (TsNIICHM i zavod "Krasnyy Oktyabr'").

AVAILABLE: Library of Congress
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KUL'KOVA, M. N.

133-1-9/24

AUTHORS: Kiselev, A.A., Lapshova, M.P., and Kul'kova, M. N., Engineers
TITLE: Smelting of Ball Bearing Steel in an Acid Furnace Fired
with Natural Gas and Fuel Oil (Vyplavka sharikopodshipnikovoy
stali v kisloy pechi pri otoplenii prirodnyim gazom i
mazutom)

PERIODICAL: Stal', 1958, No.1, pp. 35 - 40 (USSR)

ABSTRACT: An investigation of some technological factors of smelting and teeming of ball bearing steel on the degree of its contamination and the nature of non-metallic inclusions is described. Steel $\Psi X15$ was smelted in a 50-ton acid open-hearth furnace, deoxidised with aluminium in the ladle (125 g/ton) and bottom teemed into 4-ton ingots. The charge consisted of basic open-hearth steel containing no more than 0.015% of sulphur and phosphorus and a high quality pig ΓBK , Class A. The supply of this pig and low-sulphur oil was decreasing and this was accompanied by the increasing impurity of steel. Therefore, the furnace was transferred to firing with natural gas and fuel oil. This decreased the duration of heat by 35 min., and stoppages for hot repairs decreased by 0.59%. When the furnace was fired with fuel oil alone (0.4 - 0.5% S), the content of sulphur after melt out was 0.017 - 0.020%, on transfer to mixed firing the content of sulphur decreased to 0.013 - 0.016%. This brought

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a considerable decrease in the contamination of metal by oxide and sulphide inclusions (a comparison in the form of a table is given in the text). The influence of various technological factors on the degree of contamination of steel by non-metallic inclusions was determined by statistical treatment of data on current production. The following factors were considered: the influence of the temperature of metal on tapping (Fig.1); the duration of fettling (Fig.2) and the amount of reduced silicon. With the amount of reduced silicon of 0.18 - 0.22%, the degree of contamination is the highest, decreasing with increasing silicon content in the finished metal. An investigation of the influence of the amount of reduced silicon and silicon content in the finished metal on the degree of gas saturation of the steel indicated that the maximum content of oxygen and hydrogen corresponds to the amount of reduced silicon of 0.18 - 0.22% or to the content of silicon in the finished metal, 0.22 - 0.23%. The contamination of steel by oxides increases with increasing ferrous oxide content of slag before de-oxidation (it should not exceed 20%). It was also found that deoxidation of steel with aluminium also

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leads to a contamination of steel by oxides; therefore, some experimental heats were made in which: a) steel was deoxidised in the ladle with silicon-zirconium instead of aluminium, b) deoxidation with smaller quantities of aluminium (60 - 100 instead of 125 g/ton) and c) simultaneous deoxidation with silicon-zirconium and aluminium. The nature of non-metallic inclusions was investigated on metal from all heats deoxidised with silicon-zirconium, silicon-zirconium and aluminium, and on 10 heats produced by the usual technology. The quantity and composition of non-metallic inclusions are given in Tables 1 and 2; the dependence of the quantity of inclusions in steel on its temperature on tapping - Fig.3; the dependence of the degree of oxide contamination on the content of spinels in inclusions - Fig.4; the dependence of the proportion of spinels in inclusions on the content of FeO in slag - Fig.5; the dependence of the total amount of inclusions on the duration of teeming an ingot - Fig.6; the dependence of oxygen content of metal on its temperature on tapping - Fig.7, and on FeO content in slag - Fig.8; the influence of silicon content of metal before tapping on the gas saturations of steel during

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this period - Fig.9. Conclusions: 1) The transfer of smelting ball bearing steel by the silicon-reducing process in an acid furnace on firing with a mixture of natural gas and fuel oil decreased the degree of contamination of steel by sulphide and oxide inclusions and the duration of the heat by 35 min. 2) This decrease in the degree of contamination is obtained providing a number of technological factors are maintained: a) the temperature of metal on tapping (according to an immersion thermocouple) should be 1 580 - 1 600 °C; b) the amount of reduced silicon should exceed 0.23%; c) the content of iron oxide in slag before deoxidation should be from 15 to 20%. 3) On deoxidation of steel in ladle with silicon-zirconium instead of aluminium, the degree of contamination by oxides decreases by 0.35 to 0.60 and that by sulphides increased by 0.2 - 0.3; whereupon, the amount of non-metallic inclusions which can be electrolytically separated is higher than when deoxidising with aluminium. A special feature of the inclusions obtained on deoxidation with silicon-zirconium is their low content of spinels which decrease the degree of contamination by oxides. 4) The degree of contamination by oxides increases with increasing proportion of

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spinels and the ratio of Al_2O_3/SiO_2 in the composition of inclusions. The amount of spinels and the Al_2O_3/SiO_2 ratio in the composition of inclusions increase with increasing content of ferrous oxide in slag before deoxidations. 5) During tapping of the heat, the content of oxygen in steel decreases due to deoxidation of steel in the ladle with aluminium, decreasing temperature of the metal and self-deoxidation of steel with carbon. 6) Higher concentrations of oxygen in steel and increasing proportion of total inclusions in steel correspond to higher tapping temperatures. The following engineers participated in the work: S.Z. Kupryakhina, Yu.A. Kartsin and O.S. Zheludeva. There are 2 tables and 9 figures.

ASSOCIATION: "Krasnyy Oktyabr" Works (Zavod "Krasnyy Oktyabr")

AVAILABLE: Library of Congress
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S/133/61/000/002/009/014
A054/A033

AUTHORS: Pakhaluyev, K.M., Medvedeva, I.V., Andreyeva, V.V., and Kul'kova, M.N.

TITLE: Oxidation and Decarbonization of Steels in Heating Furnaces Fired With Natural Gas

PERIODICAL: Stal', 1961, No. 2, pp. 160-163

TEXT: At the zavod "Krasnyy oktyabr" ("Krasnyy octyabre" Plant) and the VNIIMT it was found that the average metal losses due to cindering amount to 2.16-2.77% of the charge weight for 6-ton ingots and to 1.36-1.88% for blooms and slabs, when heating furnaces fired with masut or natural gas are used. In order to study the processes of cindering and decarbonization and to find ways to reduce these processes simultaneously, 7 steel grades were investigated under complete and incomplete combustion of natural gas. The tests were carried out on specimens (rolled bars) 50 mm in diameter and 200 mm long. The decarbonized surface layer of the samples was removed and

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the surface was polished. Delayed cooling of the specimens was effected by fitting to one of the furnace openings a brick-lined chamber, into which technically pure nitrogen was blown. The furnace was fired with Saushinsk natural gas (CO_2 : 0.25%; O_2 : 0.20%; CH_4 : 97.90%; C_2H_6 : 0.17%; N_2 : 1.48%). When the degree of oxidation of the specimen was determined, they were held in the furnace for a given time until a constant temperature was reached, then they were quickly removed and cooled in water. When both oxidation and decarbonization were investigated the specimen was put after heating in the cooling chamber filled with nitrogen. Besides, the samples were pickled (in 20%-hydrochloric acid at 45-60°C) weighed and measured. The difference in weight of the samples before and after heating gave the amount of cinder; the depth of decarbonized layer was defined by microanalysis and the excess air in a ВТИ-(VTI)-type gas-analyzer. Altogether 82 tests were carried out with natural gas firing with excess air factors varying between 0.6 and 1.6. The samples were heated to 700-1250°C, the holding time at constant tempera-

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ture was 1/2-3 hours. The relationship between the amount of oxidized metal and the factor of excess air in the combustion products of natural gas is plotted in figs.1-2, showing that metal cinder quickly decreases with a reduction of the excess air factor when heating to 1000°C and more. If it is technologically possible to lower somewhat the very high temperatures of the metal during heat treatment, the metal losses due to cindering could be reduced considerably. Fig.4 shows that by cutting down the holding time as far as permitted by the technology, cindering can also be decreased. When the effect of air excess on decarbonization was studied, the decrease of the air excess factor was found to be accompanied by a thinner decarbonized layer. The lowering of the oxidizing effect of combustion products of natural gas were moreover observed to affect the metal and the carbon content of the metal simultaneously. It is, therefore, possible to reduce oxidation and decarbonization when heating under "non-oxidizing" conditions. From the test results it was concluded that the total excess of oxidants - as compared with the equivalent amount - quickly declines with a decreasing value of "a"; on Card 3/11

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Oxidation and Decarbonization of Steels in Heating Furnaces Fired With Natural Gas

an average the combustion products of gas lose their oxidizing effect at metal temperatures of 800, 1000, 1200°C (with an air excess factor of 0.54). Based on these data it is possible to attain a "non-oxidizing" heating of steel in natural-gas fired free flame furnaces. However, at very low "a" values the incomplete combustion results in a temperature decrease of the combustion products and additional heat with preheated fuel and air has to be supplied. The conditions of non-oxidizing heating for various furnaces (for instance for roller type furnaces for blooms) are determined by the following temperatures

	Bloom	Billet	Sheet
Temperature of the combustion product of the fuel, °C, ca	1400	1000	1050-1100
Calorimetric temperature of combustion, °C, ca	1870	1430	1500-1570
Temperature of air preheating, according to fig.9, °C	840	130-160	250-400

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Oxidation and Decarbonization of Steels in Heating Furnaces Fired With Natural Gas

The preheating of the air, which is necessary with the incomplete combustion of the natural gas, can be attained by conventional air heaters. Non-oxidizing heating reduces cinderling and at the same time, the thickness of the decarbonized layer. However, the decrease of this layer is less considerable than the decrease in losses due to cinderling. To reduce decarbonization other methods therefore, have to be applied in addition to incomplete combustion, as, e.g., coating with siliceous slag (Ref.5), A.A. Aleksandrov and Yu.A. Pan'kov: The Application of Coatings to Protect Steels from Oxidation and Decarbonization During Heating; in the collection: Processing of Metals and Heat Treatment; annex to Stal', 1959, pp. 214-240) or by blowing lithium carbonate into the furnace to form a protecting coating on the metal surface (Ref.6: F. Neuberger, et al. Fertigungstechnik, 1957, Vol.7, No.10 and Ref.7: H.W. Steading: Industrieblatt, 1958, Vol.58, No.4). There are 9 figures and 7 references (4 Soviet and 3 Non-Soviet). N

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Oxidation and Decarbonization of Steels in Heating Furnaces Fired With
Natural Gas

ASSOCIATIONS: VNIIMT , Zavod "Krasnyy Oktyabr" ("Krasnyy Oktyabr" Plant)

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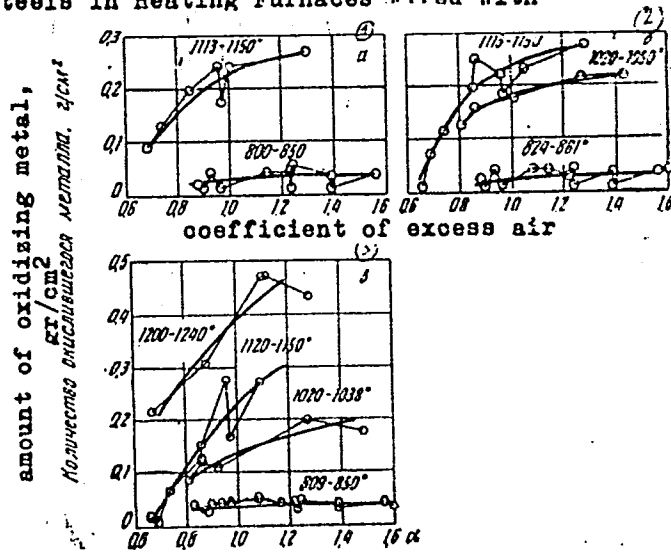
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Oxidation and Decarbonization of Steels in Heating Furnaces Fired With Natural Gas

Figure 1:

Relationship between the oxidation of carbon steels and the coefficient of excess air.

1- steel CT-2 (St-2), holding time 60-67 min.; 2- steel 45, holding time 58-65 minutes; 3- steel Y7 (U7), holding time 59-67 min.; figures on the curves = metal temperatures, °C.



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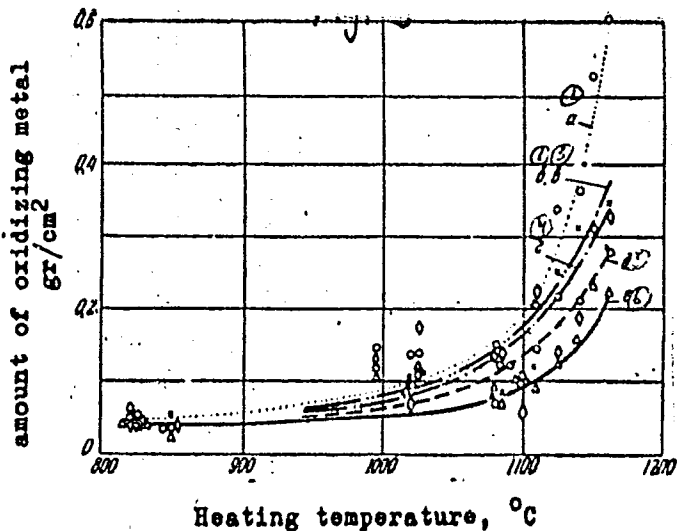
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Oxidation and Decarbonization of Steels in Heating Furnaces Fired With Natural Gas

Figure 3:

Effect of the heating temperature of the metal on its cinder losses.

- 1- steel 60C2A(60S2A);
- 2- 45; 3-30XГСА(30KhGSA);
- 4-УХ15 (ShKh 15); 5-50XH (50 KhN); 6-Y7 (U7); holding time for each case 60-66 min., coefficient of excess air 0.78-0.89.



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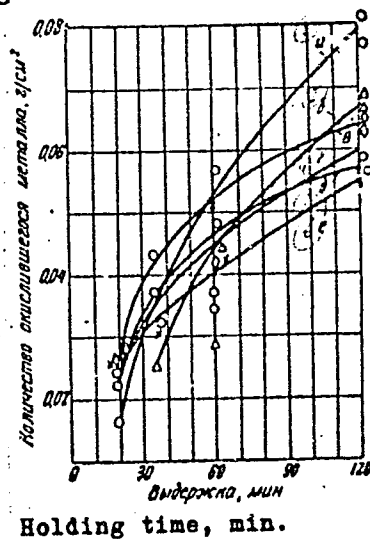
Oxidation and Decarbonization of Steels in Heating Furnaces Fired With Natural Gas

Figure 4:

Effect of the holding time of metal during heating on its losses due to cinderling.

1- steel 60S2A; 2- U7; 3- ShKh15;
4- 45; 5- 50KhN; 6- 30KhGSA;
heating temperature for all cases:
830-850°C, coefficient of excess air:
0.78-0.89.

amount of oxidizing metal,
gr/cm²



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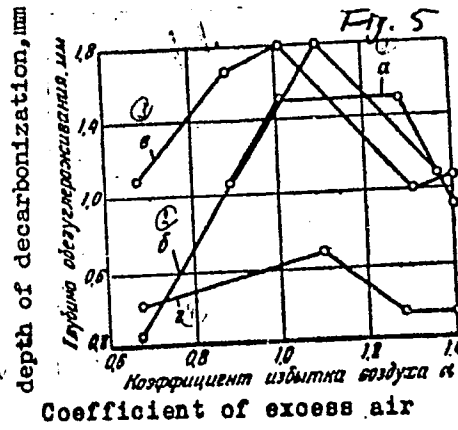
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Oxidation and Decarbonization of Steels in Heating Furnaces Fired With Natural Gas

Figure 5:

Relationship between the total depth of decarbonization of steel and the coefficient of excess air.

1- steel 45; 2- 50KhN; 3- U7;
4- ShKh15; heating temperature 1200°C, holding time 60 min.



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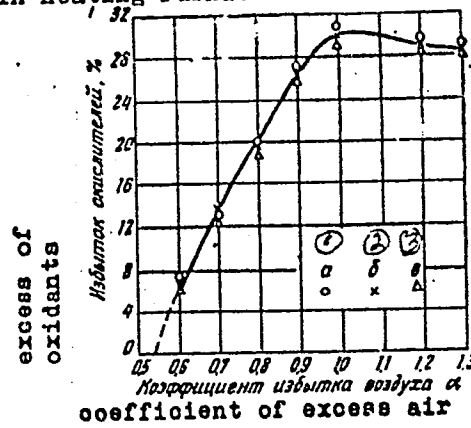
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Oxidation and Decarbonization of Steels in Heating Furnaces Fired with Natural Gas

Figure 7:

Relationship between the total excess oxidants-as compared with the equivalent amount- in the combustion products of natural gas and the coefficient of excess air.

1- at 800°C; 2- 1000°C; 3- 1200°C.



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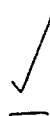
AUTHORS: Kul'kova, M. N.; Sporyshkov, P. N., and Turitsyn, V. V.

TITLE: Adopting the rolling of X25T (Kh25T) steel slabs

PERIODICAL: Stal', no. 4, 1961, 354 - 355

TEXT: Some slabs of Kh25T steel display increased brittleness. Fractures occur not only during rolling but also during transportation and planing. In order to find the reason for these defects, the effect of temperature, duration of heat treatment, cooling rate and low-temperature annealing after rolling on the plasticity of this steel grade were studied for 3 heats of the following composition:

	C	Mn	Si	Cr	Ni	Ti	P	S
A:	0.09	0.59	0.61	24.55	0.50	0.57	0.028	0.016
B:	0.08	0.45	0.75	23.75	0.38	0.65	0.027	0.007
C:	0.10	0.78	0.63	25.60	0.32	0.74	0.022	0.007



The slabs were cooled in sand, by air and by sprinkling with water. It was found that heating above 1,100°C, sharply decreases the plasticity, and brittleness could not be eliminated even when slabs were subsequently re-

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Adopting the rolling of X25T (Kh25T) steel slabs

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heated. Slabs heated to 1,160° and 1,100°C were closely examined. In brittle slabs, heated to these elevated temperatures, the following characteristics were found: coarse granular structure, lower strength limit values and impact strength at normal temperature, lower values of relative elongation and relative compression at 900 - 1,200°C. The microstructure (heat C) consisted of large ferrite grains on the boundaries where carbo-nitrides had separated. A decrease in plasticity was also observed when they were heated normally, not above 1,100°C but cooled suddenly with water after rolling. Studies of the microstructure made with slabs of the heat П1370 (P1370) showed that it was formed of ferrite with primary granules of the number 2 size. Slabs of the П1343 (P1343) heat also included ferrite with primary granules of 0 size and larger. The segregated primary granules formed a thickened lattice. Conclusively it can be stated: 1) heating of slabs of the Kh25T steel grade sharply reduces plasticity due to the separation of ferrite of the carbonitride lattice on the boundaries of large granules; 2) decrease of plasticity of slabs made from normally heated bills (at a temperature lower than 1,100°C), but immediately water-cooled after rolling, results from concentration of stresses by intense cooling and sub-

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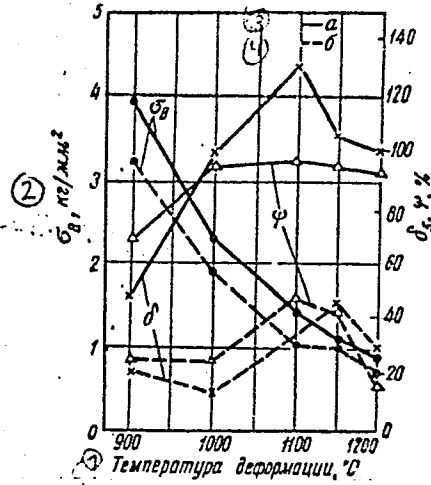
Adopting the rolling of X25T (Kh25T) steel slabs

sequent rapid heating of slabs before being rolled into sheets; 3) slabs after rolling must not be water-cooled or exposed to an air draft but should be cooled in piles in still air. According to footnote 1, the Engineers Bakum, Ryzhanov and Kalmykov participated in these studies. There are 3 figures.

Figure 2:

Dependence of mechanical properties of the Kh25T steel grade

- (1) Deformation temperature, °C
- (2) σ_B , kg/mm²
- (3) a) heat P1371
- (4) b) heat P1343



Card 3/3

OYKS, G.N.; MATEVOSYAN, P.A.; ANSHELES, I.I.; FATKULLIN, O.Kh.; SELIVANOV, V.M.;
SHURYGIN, G.D.; SIVKOV, S.S.; FEDAN, A.T.; Prinimali uchastiye: PETROV,
B.S.; KULIKOVA, M.H.; PONOMAREV, Ye.N.; PONOMAREVA, Yu.I.; ZIMINA, R.M.;
FEDOROV, V.I.; BELYAKOVA, K.V.

Results of vacuuming ball-bearing steel by various methods. Stal'
24 no.9:805-808 S '64. (MIRA 17:10)

RUBENCHIK, Yu.I.; KRYAKOVSKIY, Yu.V.; YAVOYSKIY, V.I.; KUL'KOVA, M.N.

Nature of nonmetallic inclusions of rare-earth elements in iron
and steel. Zav. lab. 30 no.1:57-58 '64. (MIRA 17:9)

1. Moskovskiy institut stali i splavov.

L 40206-66 EWI(m)/EWP(w)/I/EWP(t)/ETI IJP(c) JD/JG

ACC NR: AP6030051

SOURCE CODE: UR/0133/66/000/001/0072/0073

AUTHOR: Kul'kova, M. N.; Ponomareva, Ye. P.; Rubenchik, Yu. I.; Kryakovskiy, Yu. V.; Yavoyskiy, V. I.ORG: 'Krasnyy Oktyabr' Plant (Zavod "Krasnyy Oktyabr"); Moscow Institute of Steel and Alloys (Moskovskiy institut stali i splavov)TITLE: Effect of rare earth metals on the properties of 12Kh1MF steelSOURCE: Stal', no. 1, 1966, 72-73TOPIC TAGS: steel, rare earth metal, steel macrostructure, mechanical property/
12Kh1MF steel

ABSTRACT: The authors studied the nature and distribution of inclusions in 12Kh1MF tube steel with and without additions of rare earth metals. Three methods were used for adding the rare earth metals to the melt: 1) in the furnace immediately before tapping (2-3 kg/t); 2) in the pouring ladle (0.2-1.0 kg/t); and 3) in the mold during teeming (0.2-0.7 kg/t). Macrostructural analysis revealed that addition of rare earth elements by any method and in any quantity reduces local segregation of sulfur, although the degree of improvement is highly dependent on the method used for introducing the rare earth metals. For instance, additions of 3 kg/t to the furnace gives about the same effect as addition of 0.7-0.8 kg/t to the ladle. Additions of less than 3 kg/t to the furnace or less than 0.2-0.5 kg/t to the ladle have practically no effect on macrostructure. Direct introduction of rare earth metals during teeming has a more noticeable

Card 1/2

UDC: 559.18:658.562

L 40206-66

ACC NR: AP6030051

effect. The distribution of sulfur is changed considerably even by additions of 0.5-0.6 kg/t. The mechanical properties of longitudinal specimens were not changed by rare earth treatment regardless of method of introduction or quantity of additive introduced, while treated transverse specimens showed a considerable improvement in mechanical properties. Orig. art. has: 2 figures and 1 table.
[JPRS: 35,681] ^{1b}

SUB CODE: 11, 20 / SUBM DATE: none / ORIG REF: 002

Card 2/2 *JD*

KUL'KOVA, N. A. and BERENDYAYEVA, E. L.

"The Fauna of Gamasidae Ticks in Rats in Tyan'-Shan' Oblast."

Tenth Conference on Parasitological Problems and Diseases with Natural Reservoirs, 22-29 October 1959, Vol. II, Publishing House of Academy of Sciences, USSR, Moscow-Leningrad, 1959.

Kirghiz Republic Anti-Plague Station, Frunze

BERENDYAYEV, S.A.; KUL'KOVA, N.A.

Intraspecific relationships of gray marmots *Marmota baibacina*
Kastsch. Zool. zhur. 44 no.1:110-116 '65.

(MIRA 18:4)

1. Kirgizskaya protivochumnaya stantsiya, Frunze.

KUL'KOVA, N. V. Cand. Chem. Sci.

Dissertation: "The Reaction Kinetics of Carbon Monoxide with Water Vapor."
Sci Res Order of the Labor Red Banner Physicochemical Inst imeni L. Ya.
Karpev, 23 Jun 47.

SO: Vechernyaya Moskva, Jun, 1947 (Project #17836)

1ST AND 2ND SERIES PROCESSES AND PROPERTIES INDEX

CA

Kinetics of the reaction of conversion of carbon monoxide by water vapor. N. V. Kul'kova and M. I. Temkin. *Zhur. Fiz. Khim.* 25, 685-718(1949).—Mixts. of CO and H₂O at 1 atm. were forced through a bed of Fe₂O₃, and the time of contact was varied between 0.01 and 0.1 sec. The CO₂ formed was caught in special gas-absorption bottles. The reaction transformed the catalyst (γ-Fe₂O₃) into Fe₃O₄. If interaction of CO with O in the catalyst surface is the slowest step in the reaction, the equation $w = k_1 P_1 (P_2/P_3)^{\beta} - k_2 P_4 (P_5/P_6)^{1-\beta}$ results. w is the rate of reaction and $P_1, P_2, P_3, P_4, P_5,$ and P_6 are pressures of CO, H₂O, H₂, and CO₂, resp. The consts. $k_1, k_2,$ and β depend on the catalyst, particularly on the degree and kind of its heterogeneity. The Fe₂O₃ catalyst had $k_1 = 18.1, 31.4,$ and $62.5/\text{sec.}$ at 400, 450, and 500°. Higher k_1 values were found for a mixed catalyst. β was 0.44-0.50. The equation was valid also for CO-H₂O mixts. dild. with N₂ or contg. H₂; the retarding effect of H₂ on w was due to reduction in the degree of coverage of the catalyst by O rather than to strong adsorption of H₂. A relation between the apparent energy of activation and that of the slowest step is derived and the temp. of the greatest w is calcd.

J. J. Bikerman

Plup. Chem. Inst. in Kazan

ASS. S.L.A. METALLURGICAL LITERATURE CLASSIFICATION

1900M DIVISION

SECOND HALF ONLY

SECTION

1900M DIVISION

SECTION ONE ONLY

1900M DIVISION

SECTION ONE ONLY

KUL'KOVA, H. V.

USSR/Chemistry - Isotopes,
Reaction Kinetics

21 Jun 53

"Exchange of Oxygen Isotopes between Carbon Mono-
xide and Carbon Dioxide Over Ferric Oxide Catalyst,"
H. V. Kul'kova, Z. D. Kuznets, M. I. Temkin

DAN SSSR, Vol 90, No 6, pp 1067-1070

Studied the exchange of O^{18} between CO and CO_2 ,
over a Fe_2O_3 catalyst and derived an equation giv-
ing the rate of the reaction. Presented by Acad
A. N. Frumkin 11 Apr 53.

269T8

✓ The nature of slow gas sorption by solids. M. I. Teinkin
and N. V. Kul'kova. *Doklady Akad. Nauk S.S.S.R.* 105,
1021-24 (1957). The sorption of a unimol. layer of O by
porous Ag, obtained by decomposition of Ag₂CO₃, was accom-
plished in 10 min. at 0.2 mm. Hg pressure. For the follow-
ing 100 hrs., the sorption continued at the rate of 0.015
single mol. layer/hr. A second sorption could be ob-
served even after 185 hrs. It was concluded that a 3rd ad-
sorption type can occur, in addition to the commonly recog-
nized phys. adsorption, owing to van der Waals forces, and
to the chem., or activated, adsorption. Ag lattice changes
during the "deep chem. adsorption" are discussed, and the
phenomenon is believed to be important in heterogeneous
catalysis. A similar deep chem. adsorption is visualized
by the Fe catalyst for NH₃ synthesis, the Ni hydrogenation
catalyst, and in gas permeation phenomena. W. M. S.

2

6

KRM
PM

KUL'KOVA, N.V.

KUL'KOVA, N.V.; TEMKIN, M.I.

Determining the free energy of oxygen in the surface layer of oxidizing catalysts. Part 1 [with summary in English]. Zhur. fiz.khim. 31 no.9:2017-2025 S '57. (MIRA 11:1)

1. Fiziko-khimicheskiy institut im. L.Ya. Karpova, Moskva.
(Chemical equilibrium) (Oxygen) (Catalysts)

AUTHORS: Kurilenko, A. I., ~~Kul'kova, N. V.~~ 76-32-4-11/43
Rybakova, N. A., Temkin, M. I.

TITLE: The Oxidation of Ethylene to Ethylene Oxide on a Silver Catalyst (Okisleniye etilena v okis' etilena na srebrnyanom katalizatore).
I. Experimental Investigation of the Reaction Kinetics
I. Eksperimental'noye izucheniye kinetiki reaktsii)

PERIODICAL: Zhurnal Fizicheskoy Khimii, 1958, Vol. 32, Nr 4, pp. 797-805 (USSR)

ABSTRACT: Since the hitherto made investigations of the reaction mentioned in the title supplied different contradicting results the investigations mentioned in this paper were carried out by means of the method of continuous circulation. This method offers the following advantages: The reaction velocity is measured directly as function of the concentrations. The desired temperature in the reaction zone is secured in spite of the great heat effect of the process. Any form of catalyst can be used, without making it possible to the gas to pass by without touching

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The Oxidation of Ethylene to Ethylene Oxide on a
Silver Catalyst. I. Experimental Investigation of the
Reaction Kinetics

76-32-4-11/43

the catalyst. The possibility of the formation of external diffusion effects is reduced. From the experimental part from a diagram can be seen among other that the reaction vessel is a vertical glass tube in which the catalyst is located (spongy silver in form of tablets). A circular glass tube connected to the reaction vessel and a circulation pump introduce the gas mixture or drain it. Mostly the obtained ethylene oxide was frozen at -78°C and determined according to Lubatti (Reference 9). The results obtained show among other that in the first 70-80 hours the activity of the catalyst decreases and the selectivity increases (shown graphically). The two reaction velocities of ethylene oxide formation and of carbon dioxide and water formation are dealt with separately. The experiments were carried out with different gas concentrations, that is to say, ethylene 0.6 - 70%, oxygen 1.5 - 90%, ethylene oxide 0.3 - 3%, carbon dioxide 0.1 - 85% in order to determine the reaction kinetics. The results obtained are mentioned on some tables for different cata-

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The Oxidation of Ethylene to Ethylene Oxide on a
Silver Catalyst. I. Experimental Investigation of
the Reaction Kinetics

76-32-4-11/43

lyst samples. The two above mentioned reactions show reaction velocities which are calculated according to analogous equations. The observation that the freezing of ethylene oxide within the cycle does not change selectivity is in coincidence with some other references; the contradiction to the data by O. M. Todes and T. I. Andrianova (Reference 4) is explained by the longer contact time used by them. An impeding effect of the oxidation products on both reaction velocities was observed. The statement that in freezing ethylene oxide and water the reaction velocity sharply increases was already mentioned by Ya. B. Gorokhovatskiy and M. Ya. Rubanik (Reference 11). The raise of temperature effected a decrease in the yield of ethylene oxide. The activation energies were calculated and mentioned to be 15200 cal for the formation of ethylene oxide and 19800 cal for the formation of carbon dioxide and water. There are 6 figures, 7 tables and 11 references, 7 of which are Soviet.

Card 3/4

The Oxidation of Ethylene to Ethylene Oxide on a
Silver Catalyst. I. Experimental Investigation of the
Reaction Kinetics

76-32-4-11/43

ASSOCIATION: Fiziko-khimicheskiy institut im. Karpova, Moskva
(Moscow Physicochemical Institute imeni Karpov)

SUBMITTED: December 1, 1956

AVAILABLE: Library of Congress

1. Ethylene--Oxidation 2. Silver catalysts--Applications

Card 4/4

76-32-5-13/47

AUTHORS: Kurilenko, A. I., Kul'kova, N. V., Rybakova, N. A., Temkin, M. I.

TITLE: The Oxidation of Ethylene to Ethylene Oxide on a Silver Catalyst (Okisleniye etilena v kisl' etilena na serebryanom katalizatore) II. Evaluation of the Reaction Kinetics (Iz obsuzhdeniye kinetiki reaktsii)

PERIODICAL: Zhurnal fizicheskoy khimii, 1958, Vol. 32, Nr 5, pp. 1043 - 1048 (USSR)

ABSTRACT: Continuing earlier investigations in which contradicting results had been obtained the authors found that after the quick oxygen adsorption and formation of a monomolecular layer a process of slow adsorption follows which spreads over hundreds of hours, which was called the "deep chemical adsorption". It is dependent on the increased solubility of the oxygen in the silver layer below the surface. The slow change of the deeply adsorbed oxygen related to this is formed by the change of the activation of the catalyst, which fact is in agreement with the data by Orzechowski and MacCormak (Reference 4) as well

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The Oxidation of Ethylene to Ethylene Oxide on a
Silver Catalyst. II. Evaluation of the Reaction Kinetics

76-32-5-13/47

as with the observations already made. This way two types of dependence of the kinetics can be assumed: the kinetics in a steady state of the catalyst, and that in a standard state, with different conditions of experiments having to be applied. The present investigations refer to the second case, and it is assumed that the reaction velocity does not depend on the oxygen pressure. Corresponding to the data by L. Ya. Margolis and S. Z. Roginskiy (Reference 5) it is assumed that as intermediate product vinylalcohol is formed which then oxidizes to CO_2 ; a diagram of the reaction mechanism in ionic form is

mentioned. In the deduction of the kinetic equations the effect of the water is neglected and two final formulae of the reaction kinetics are determined. The influence of an increased ethylene concentration in the gas phase is explained by the decrease of the tendency to reach the concentration equilibrium of the deeply adsorbed oxygen and that on the surface, with other possibilities being mentioned as well. For an ethylene oxidation in a flow system an equation is obtained by integration, and an explanation is given for the differences of the

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The Oxidation of Ethylene to Ethylene Oxide on a Silver Catalyst. II. Evaluation of the Reaction Kinetics 76-32-5-13/47

results of (Reference 4). There are 6 references, 4 of which are Soviet.

ASSOCIATION: Fiziko-khimicheskiy institut im. L. Ya. Karpova, Moskva
(Moscow Institute of Physics and Chemistry im. L. Ya. Karpov)

SUBMITTED: December 1, 1956

1. Ethylene--Oxidation
2. Oxygen--Adsorption
3. Silver--Adsorptive properties
4. Silver catalysts--Performance
5. Mathematics--Applications

Card 3/3

5(4)

SOV/20-123-5-30/50

AUTHORS:

Kurilenko, A. I., Kul'kova, N. V., Ostrovskiy, V. Ye.,
Temkin, M. I.

TITLE:

The Influence of Electrically Negative Elements on the
Catalytic Effect of Silver in the Oxidation of Ethylene
(Vliyaniye elektrotritsatel'nykh elementov na kataliticheskoye
deyatviye serebra pri okislenii etilenu)

PERIODICAL:

Doklady Akademii nauk SSSR, 1958, Vol 123, Nr 5, pp 878-881
(USSR)

ABSTRACT:

The catalytic oxidation of ethylene to ethylene oxide
 $C_2H_4 + (1/2)O_2 = C_2H_4O$ is carried out on a surface of silver
at 200 - 300°. Small admixed quantities of chlorine compounds
increase the selectivity of the catalyzer, i.e., they de-
crease the relative influence of the undesirable reaction
 $C_2H_4 + 3O_2 = 2CO_2 + 2H_2O$ without diminishing the degree of
conversion of ethylene. The applied methods of the kinetic
measurements were described in previous papers. The experiments
were carried out in an apparatus with circulating flow at
1 atmosphere and 218°. The circulating ethylene air mixture
contained 2.5 ± 0.2 volume per cent C_2H_4 . The degree of con-

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SOV/20-123-5-30/50

The Influence of Electrically Negative Elements Upon the Catalytic Effect of Silver in the Oxidation of Ethylene

version of the C_2H_4 on silver without impurities of Cl and S amounted to 50-60%. The sulphur compounds used were marked by S⁵⁵. Crude silver (which was produced by decomposition of Ag_2CO_3 in a flow of an ethylene-air mixture) was used as catalyst. The majority of the experiments was carried out by means of silver grains which had a specific surface of $\sim 1m^2/g$. Tabloids (tabletki) of $5 \cdot 3$ mm (specific surface $0.3 m^2/g$) were used, as well. ω_1 denotes the rate of the reaction $C_2H_4 + (1/2)O_2 = C_2H_4O$. First, experiments with tabloid catalyst were carried out, and H_2S was added continuously to the reacting mixture for 20-30 hours. In various experiments the concentration varied within the limits of 0.1 and $50 mg/m^3$. The activity of the catalyst increased by 10-20% after the addition of $3 \cdot 10^{-4} - 5 \cdot 10^{-4}$ atomic percent S to the catalyst. By this addition selectivity was increased from $s = 0.70$ to $s = 0.77$. Independently of the concentration of H_2S in the gaseous mixture, the oxidation of ethylene was

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SOV/20-123-5-30/50

The Influence of Electrically Negative Elements Upon the Catalytic Effect of Silver in the Oxidation of Ethylene

nearly interrupted by the adding of more than 10^{-2} atomic per cent of sulphur to the catalyst. During the catalytic process, the majority of sulphur is contained as sulfate on the surface of the silver samples. This allows the calculation of the degree of covering θ of the surface from the total amount of sulphur. A diagram shows the results of the determination of the catalytic activity and of the selectivity of silver grains which had previously been treated with H_2S in a "boiling layer". The second diagram gives the data concerning the catalysts which were produced by the simultaneous deposition of Ag_2CO_3 and Ag_2S . Also in this case, small amounts of sulphur increase the activity of the catalyst. The results of the experiments with introduction of sulphur Na_2SO_4 and H_2SO_4 agree with the above-discussed results, they prove the activating and corroding effect of SO_4^- ions upon surfaces of silver. Admixtures of Cl_2 and HCl in concentrations

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SOV/20-123-5-30/50

The Influence of Electrically Negative Elements Upon the Catalytic Effect of Silver in the Oxidation of Ethylene

of $\sim 2 \text{ mg/m}^3$ after the introduction of $0.5 \cdot 10^{-2}$ atomic per cent Cl (with respect to Ag) decreased the activity of the catalyst by 5 times, and the selectivity increased from 0.70 to 0.76-0.80. Corrosion was partially reversible. Higher concentrations caused an irreversible corrosion. According to the above-discussed results, the increase of the catalytic effect of silver in selectivity caused by the introduction of silver (and chlorine) cannot be explained by a partial corrosion of the catalyst with respect to the undesired reaction $\text{C}_2\text{H}_4 + 3\text{O}_2 = 2\text{CO}_2 + 2\text{H}_2\text{O}$. There are 2 figures and 9 references, 8 of which are Soviet.

ASSOCIATION: Nauchno-issledovatel'skiy fiziko-khimicheskiy institut im. L. Ya. Karpova (Physico-Chemical Scientific Research Institute imeni L. Ya. Karpov)

PRESENTED: July 21, 1958, by A. N. Frumkin, Academician

SUBMITTED: July 15, 1958

Card 4/4

5(4)

AUTHORS: Apel'baum, L. O., Gel'bshteyn, A. I., SOV/76-33-2-45/45
Kul'kova, N. V., Morozov, N. M.

TITLE: Mikhail Isaakovich Temkin (Mikhail Isaakovich Temkin).
(On His 50th Birthday) (K 50-letiyu so dnya rozhdeniya)

PERIODICAL: Zhurnal fizicheskoy khimii, 1959, Vol 33, Nr 2, pp 507-508
(USSR)

ABSTRACT: Professor M. I. Temkin dedicated more than 25 years of his scientific activity to the theoretical problems of physical chemistry. He first set forth the theory of the kinetic catalytic reactions on heterogeneous surfaces, which is based on the logarithmic adsorption isothermal lines (Temkin isothermal lines). With this theory he and his collaborators were able to define kinetics and the mechanism of such important processes in chemical technology as the ammonia synthesis, the production of water gas, the gasification of coal, and others. For his investigations in the field of the linear relationship between the activation energy and the heat effects of heterogeneous catalytic processes and for his work on the processes of chemisorption Temkin received the premiya im. A. N. Bakha (Prize imeni A. N. Bakh) in 1957. Temkin founded

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Mikhail Isaakovich Temkin. (On His 50th Birthday)

SOV/76-33-2-45/45

the concept of "adsorption of high intensity" and explained the catalytic oxidation of ethanol as an example of it.

Temkin was the first to obtain a general, theoretical expression for the absolute rate of reaction on surfaces of solid bodies, which is of fundamental importance in the theory of catalysis.

M. I. Temkin also showed that the activation energy of electrochemical processes can be determined theoretically and experimentally, and without difficulty, in relation to the absolute potential. Temkin's ion theory of melted salts and metallurgical slags is well-known in his own country and in foreign countries. His investigations in the field of thermoelectric phenomena in electrolyte solutions and his concept of "ions agitated by entropy" have been confirmed in the papers by English authors. Several papers of M. I. Temkin are concerned with the thermodynamic properties of real gas mixtures. From 1939 to 1949 Temkin was Editor of the Zhurnal fizicheskoy khimii (Periodical of Physical Chemistry). He was awarded the Order of the Red Banner of Work and other Orders of Honor. There is 1 figure.

Card 2/2

USCOMM-DC-60795

5(4)

SOV/20-124-3-38/67

AUTHORS:

Stroyeva, S. S., Kul'kova, N. V., Tenkin, M. I.

TITLE:

The Isotopic Exchange Between Co and CO_2 on Various Surfaces
(Izotopnyy obmen mezhdru Co i CO_2 na razlichnykh poverkhnostyakh)

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol 124, Nr 3, pp 628-631
(USSR)

ABSTRACT:

In the reactions of isotopic exchange the regularities determining the specific catalytic effects of the surface must occur in a more simple form than in other catalytic heterogeneous processes. Therefore, the authors investigated the rate of isotopic exchange between Co and CO_2 on various surfaces by using C^{14} . In this way the reaction $\text{C}^{14}\text{O}_2 + \text{CO} = \text{C}^{14}\text{O} + \text{CO}_2$ was observed, which corresponds to the two-stage scheme $\text{C}^{14}\text{O}_2 + () = \text{C}^{14}\text{O} + (\text{O})$, $\text{CO} + (\text{O}) = \text{CO}_2 + ()$. Here (O) denotes an oxygen atom on the surface, and () denotes a place of the surface which is free from oxygen. A formula is written down for the rate of reaction for the case in which the above-mentioned reaction takes place on the surface which

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SOV/20-124-3-38/67

The Isotopic Exchange Between Co and CO_2^* on Various Surfaces

is uniformly inhomogeneous with respect to the adsorption heats of oxygen. Besides, average degrees of covering are assumed. The kinetics of the equation described by the aforementioned equation was investigated in a static device with circulation. For the purpose of measuring the radioactivity of CO and CO_2 , the BaCO_3 -precipitates were investigated by means of a counter. An equation for calculating the constants of the rate of exchange is written down and explained. The catalysts used in the course of experiments had the shape of tables (Ag, Cu, Pt, Co, Fe_3O_4 , Ni, W) with a diameter of 2-5 mm and of foils (Ag, Pt, Ni). The results obtained by measurements are shown by table 1. In the case of all catalysts (with the exception of Fe_3O_4) the reaction $\text{CO} + \text{MeO} = \text{Me} + \text{CO}_2$ is shifted practically completely in the direction of the production of metal. The aforementioned reaction could not be observed on tablet-shaped silver powder ($175-350^\circ$) and on a silver foil (700°). For copper kinetic measurements were carried out within the temperature range of $250-400^\circ$. The quantity k remained constant with a variation of the total pressure $P = P_{\text{CO}} + P_{\text{CO}_2}$, and, under certain conditions, it

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SOV/20-124-3-38/67

The Isotopic Exchange Between Co and CO_2^* on Various Surfaces

does not depend on the composition of the mixture. In the case of platinum, also the reaction $2\text{CO} = \text{C} + \text{CO}_2$, the equilibrium of which is at $t < 700^\circ$ shifted towards the production of carbon, takes place parallel with the reaction mentioned above. Without a catalyst this reaction does not occur, but it develops at a considerable rate in the presence of Ni, Co, Fe, and also of Pt, as shown by the experiments carried out by the authors. On cobalt the aforementioned reaction becomes noticeable at 265° . In the case of nickel the activity of the catalyst was diminished by carbonization. Experiments with tungsten were carried out at $550-700^\circ$. The tungsten-phase showed only little stability in the case of the prevailing experimental conditions. Isotopic exchange was found to occur at temperatures of from 550° onwards; at this temperature also the formation of tungsten-carbide begins. At higher temperatures tungsten is oxidized by carbonic acid. The results obtained by measuring the specific surface of the catalysts on the basis of data concerning the adsorption of nitrogen at low temperatures are given by table 2. There are 2 tables and 11 references, 4 of which are Soviet.

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The Isotopic Exchange Between Co and CO_2 on Various Surfaces SOV/20-124-3-38/67

ASSOCIATION: Nauchno-issledovatel'skiy fiziko-khimicheskiy institut im.
L. Ya. Karpova
(Physico-Chemical Scientific Research Institute imeni L. Ya.
Karpov)

PRESENTED: September 29, 1958, by S. S. Medvedev, Academician

SUBMITTED: September 20, 1958

Card 4/4

82524

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5.1190

S/020/60/133/04/27/031
B004/B056

AUTHORS: Ostrovskiy, V. Ye., Kul'kova, N. V., Nedbayeva, A. D.

TITLE: The Influence of Selenium and Tellurium Upon the Catalytic Action of Silver in the Oxidation of Ethylene ✓

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 133, No. 4, pp. 875 - 877

TEXT: For their experiments the authors used silver sponge, which had been produced by the joint precipitation of silver carbonate, selenate, and tellurate. The selenium compound was tagged with Se^{75} , the tellurium compound with Te^{127} . The reaction with an ethylene - air mixture (2.5 - 3% C_2H_4) occurred at $219^\circ C$ in a continuously operating apparatus (Refs. 2, 4). The purification of C_2H_4 obtained by the reduction of ethanol is described. Among other things, also activated carbon of the types $AF-3$ (AG-3) and AC (AS) was used. The catalytic activity^A was determined by measuring the constant k_1 of the reaction rate of ethylene oxide

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82524

The Influence of Selenium and Tellurium Upon S/O20/60, 133/04/27/031
the Catalytic Action of Silver in the Oxidation B004/B056
of Ethylene

formation, where k_1 was set equal to unity for the silver catalyst without admixture. The selectivity S was defined as the percentage ratio of k_1 to the sum of the reaction rates of ethylene oxide formation and the oxidation of C_2H_4 to $CO_2 + H_2O$. The relation $\Delta S = S - S_0$ is written down for the change in selectivity under the action of the admixture (S = selectivity with admixture, S_0 = selectivity without admixture). Fig. 1 shows the values for k_1 and ΔS as functions of the concentration of Se and Te.

Special experiments showed that the major part of the admixture was on the surface of the catalyst. An addition of $10^{-4} - 5 \cdot 10^{-3}$ atom% of Se increased the catalytic activity 3.5-fold. A higher selenium concentration poisoned the catalyst. An addition of tellurium did not change the catalytic activity, but also caused poisoning at concentrations above 10^{-2} atom% Te. The concentration of the admixtures was measured by means of an MC-4 (MS-4)-type Geiger-Mueller counter. The authors assume that with a small admixture of elements of group VI of the periodic system to the

Card 2/3

8252H

The Influence of Selenium and Tellurium Upon
the Catalytic Action of Silver in the
Oxidation of Ethylene

S/O20/60/133/04/27/031
B004/B056

silver catalyst, two effects become active. The first consists in the formation of negative ions (e. g., SeO_3^{2-}), which reduces the adsorption energy of oxygen and accelerates the reaction of the adsorbed oxygen with ethylene. The second effect reduces the activity of the catalyst by blocking its surface by foreign atoms. The admixture of selenium, which is required for maximum activity of the catalyst, is larger than that of sulfur (Ref. 2). In tellurium, only the second effect occurs because of its lower affinity to oxygen. There are 1 figure and 8 references: 5 Soviet, 2 American, 1 French, and 1 German.

ASSOCIATION: Fiziko-khimicheskiy institut im. L. Ya. Karpova
(Physicochemical Institute im. L. Ya. Karpov)

PRESENTED: March 28, 1960 by S. S. Medvedev, Academician

SUBMITTED: March 28, 1960

Card 3/3

LYUBARSKIY, G.D.; KUL'KOVA, N.V.; BURSHTEYN, R.Kh.; ISAYEVA, G.G.;
IVANOVSKAYA, L.N.; SHURNOVSKAYA, N.A.

Specific activity of nickel catalysts and thiophene adsorption. Dokl.
AN SSSR 140 no.3:634-633 S '61. (MIRA 14'9)

1. Fiziko-khimicheskiy institut im. L.Ya. Karpova. Predstavleno
akademikom S.S.Medvedevym.
(Thiophene) (Adsorption) (Nickel)

LYUBARSKIY, G.D.; AVDEYEVA, L.B.; KUL'KOVA, N.V.

Poisoning of nickel catalysts with thiophene. Kin.i kat. 3 no.1:
123-132 '62. (MIRA 15:3)

1. Fiziko-khimicheskiy institut imeni L.Ya. Karpova.
(Nickel) (Thiphene)

OSTROVSKIY, V.Ye.; KUL'KOVA, N.V.; LOPATIN, V.L.; TEMKIN, M.I.

Modifying action of additives on the ethylene oxidation catalyst.
Kin.i kat. 3 no.2:189-193 Mr-Ap '62. (MIRA 15:11)

1. Fiziko-khimicheskiy institut imeni L.Ya.Karpova.
(Ethylene) (Oxidation) (Catalysts)

KURILENKO, A.I.; KUL'KOVA, N.V.; BARANOVA, L.P.; TEMKIN, M.I.

Kinetics of ethylene catalytic oxidation. Kin.i kat. 3
no.2:208-213 Mr-Apr '62. (MIRA 15:11)

1. Fiziko-khimicheskiy institut imeni L.Ya.Karpova.
(Ethylene) (Oxidation) (Catalysis)

KUL'KOVA, N.V.; YEMKIN, M.I.

Determination of the free energy of oxygen in a surface layer
of oxidation catalysts. Part 2. Zhur.fiz.khim. 36 no.8:1731-
1734 Ag '62. (MIRA 15:8)

1. Fiziko-khimicheskiy institut imeni L.Ya.Karpova.
(Oxygen) (Adsorption) (Catalysts)

OSTROVSKIY, V.Ye.; KARPOVICH, I.R.; KUL'KOVA, N.V.; TEMKIN, M.I.

Calorimeter for measuring the heats of chemisorption at elevated temperatures. Zhur. fiz. khim. 37 no.11:2596-2600 N'63.

(MIRA 17:2)

1. Fiziko-khimicheskiy institut imeni Karpova, Moskva.

STROYEVA, S.S.; RUDNITSKIY, L.A.; FOMIN, O.K.; KUL'KOVA, N.V.;
GEL'BSHTEYN, A.I.

Surface properties of a catalyst for oxidizing ammonolysis of
propylene. Kin. i kat. 5 no.2:355-356 Mr.-Ap '64.

(MIRA 17:8)

1. Fiziko-khimicheskiy institut imeni Karpova.

OSTROVSKIY, V.Ye.; KUL'KOVA, N.V.; KHAISON, H.S.; TAMKIN, M.I.

Kinetics of the oxidation of ethylene to ethylene oxide on a selenium-promoted silver catalyst. *Kin. i kat.* 5 no.3:469-477 My-Je '64. (MIRA 17:11)

1. Fiziko-khimicheskiy institut imeni Karpova.

GEL'BSHTEYN, A.I.; STROYEVA, S.S.; KUL'KOVA, N.V.; BAKSHI, Yu.M.;
LAPIDUS, V.L.

Mechanism of the catalytic reactions in the partial oxidation
and oxidative ammonolysis of propylene in the presence of
 $\text{MoO}_3\text{--Bi}_2\text{O}_3$. *Neftekhimiya* 5 no.1:118-125 Ja-F '65.

(MIRA 18:5)

1. Nauchno-issledovatel'skiy fiziko-khimicheskiy institut imeni
Karpova, Moskva.

OSTROVSKIY, V.Ye., KUPKOVA, N.V.

Heats of oxygen chemisorption on silver and their variation in response to sulfur introduced at the surface. Dokl. AN SSSR 161 no.6:1375-1377 Ap '65. (MIRA 18:5)

I. Fiziko-khimicheskiy institut im. I.Ya. Karpova. Submitted October 26, 1964.

RUDNITSKIY, L.A.; KULIKOVA, N.V.

Variation in work function of electrons in the adsorption of
oxygen on a silver catalyst. Dokl. AN SSSR 162 no.3:617-620
My '65. (MIRA 18:5)

1. Fiziko-khimicheskiv institut im. L.Ya.Karpova. Submitted
January 11, 1965.

RUDNITSKIY, L.A.; KUL'KOVA, N.V.

Kinetics of oxygen adsorption on silver at low pressures. Dokl. AN SSSR
162 no.6:1330-1332 Je '65. (MIRA 18:7)

1. Fiziko-khimicheskiy institut im. L.Ya.Karpova. Submitted
February 1, 1965.

KULIKOVA, N.V.; LEVCHENKO, I.P.

Adsorption of oxygen on gold. Kin. i kat. 6 no.4:765 31-Ag '65.
(MIRA 18:9)

1. Fiziko-khimicheskiy institut imeni I.Ya.Karpova, Moskva.

GEL'RSHTEYN, A.I.; BAKSHI, Yu.M.; STROYEVA, S.S.; KUL'KOVA, N.V.; LAPIDUS,
V.L.; SADOVSKIY, A.S.

Kinetics and mechanism of oxidative ammonolysis and partial
oxidation of propylene on bismuth-molybdenum catalysts. Kin.
i kat. 6 no. 6:1025-1032 N-D '65 (MIRA 19:1)

1. Fiziko-khimicheskiy institut imeni Karpova. Submitted July 28,
1964.

RIVKINA, Kh.I., kand.tekhn.nauk;—KUL'KOVA, N.V.

Problem in rating peat as a raw material in chemical industrial
processes. Torf. prom. 38 no. 3:5-8 '61. (MIRA 14:4)

1. Kalininskiy torfyanoy institut.
(Peat)

RIVKINA, Kh.I., kand.tekhn.nauk; KUL'KOVA, N.V.

Production of metallurgical coke from peat. Torf. prom.
38 no.5:26-31 '61. (MIRA 14:10)

1. Kalininskiy torfyanoy institut.
(Coke) (Peat)

RIVKINA, Kh.I., kand.tekhn.nauk; KUL'KOVA, V.V.

Oxalic acid from peat. Torf. prom. 38 no.7:14-17 '61.
(MIRA 14:12)

1. Kalininskiy torfyanoy institut.
(Oxalic acid)
(Peat)

MIRONOV, V.P.; KRASHKEVICH, K.V.; KRIVTSOVA, Ye.N.; KUL'KOVA, T.A.;
ROGINSKAYA, Ye.Ya.

Laboratory investigation of the action of some repellents on the
mature tick *Dermacentor pictus* Herm. Vest. Mosk. un. Ser. 6: Biol.,
pochv. 16 no.1:26-31 Ja-F '61. (MIRA 14:4)

1. Kafedra spetsial'noy podgotovki Moskovskogo universiteta.
(INSECT BAITS AND REPELLENTS) (TICKS)

IVANOV, O.M.; DOMOKHYEV, A.G.; BENTCOV, A.I.; KULAKOVA, V.M.; ANASHKIN,
P.P.

Concrete floors with epoxy resin coverings. Stroil. mat. 10 no. 7:
2-5 31 '64 (MIRA 18:1)

IVANOV, O.M., kand. tekhn. nauk; DOMOKEYEV, A.G., kand. tekhn. nauk;
DENISOV, A.I., kand. tekhn. nauk; KUL'KOVA, V.M., inzh.

Durable concrete floors. Stroil. mat. no.11:19-20 N '65.
(MIRA 18:12)

S/081/62/000/016/036/043
B171/B186

AUTHORS: Kulkowa, Jadwiga, Stankowski, Henryk

TITLE: Emulsion paints based on polyvinyl acetate

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 16, 1962, 547, abstract
16P255 (Tworzywa. Guma. Lakiery, v. 5, no. 10, 1960, 295-298,
316 [Pol.; summaries in Engl. and Russian])

TEXT: The authors give formulations of some water emulsion paints based
on polyvinyl acetate. The methods of applying these paints, their range
of use and their storage conditions are also indicated. [Abstracter's
note: Complete translation.]

Card 1/1

39445
S/081/62/000/012/053/063
B158/B101

AUTHORS: Jedliński, Zbigniew, Kulkowa, Jadwiga, Matracka, Wanda

TITLE: Fire-proof paints

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 12, 1962, 604, abstract
12P214 (Tworzywa. Guma. Lakiery, v. 5, nos. 11-12, 1960,
352-354, 384)

TEXT: For the protection of a material against fire, a paint is applied which under the action of fire forms a fused vitreous layer or foamed microporous layer. Sb, Al and Bi oxides, and SbS are used as pigments as well as cheaper pigments and fillers: ZnO, TiO₂, MgSiO₃, BaSO₄, Zn₃(BO₃)₂ and CaCO₃. For foaming and swelling are added (NH₄)₃PO₄, casein, starch, urea, dicyandiamide, polyamide resin, carbonates, H₃PO₄, salicylic acid, glycerine, methylenedisalicylic acid, and benzenesulfohydrazide. Asbestos powder, graphite, mica, shale powder, Al minerals, Al(OH)₃, MgO, and also fatty hydroxyacids, treated with Cl₂ or H₃PO₄, glycine, boranes, H₃BO₃,
Card 1/2

Fire-proof paints

S/081/62/000/012/053/063
B158/B101

salicylic acid, triethylphosphate, chlorinated diphenyl, polysulfides, etc. are added to form a vitreous layer. Fire-proof additives are also introduced: chlorinated paraffins, tetra- and pentabromophenol, $(\text{BrCH}_2\text{CH}_2)_3\text{PO}_4$, and $(\text{CH}_2\text{BrCH}_2\text{Br})_3\text{PO}_4$. Polyamide, aminoaldehyde and cumarone-indene resins, bitumens with Cl-containing additives, polychlorinated aliphatic hydrocarbons, fluoro-resins, polyesters obtained from fluorinated multibasic acids, and chlorophthalic acids are used as fireproof film-formers. The use of chlorinated rubber and polyvinylacetate is surveyed in detail. [Abstracter's note: Complete translation.]

Card 2/2

KULL, A.M.; LASKIN, A.S.

Effect of surface roughness of turbine profiles on the characteristics of cascades. Trudy LPI no.193:141-149 '58. (MIRA 12:2)

(Turbines)

KULL', A.H.

Active cascades of turbine blades having small deviations from
their geometrical shape. Trudy LPI no.193:150-156 '58.

(Turbines--Aerodynamics)

(MIRA 12:2)

KULL, A. T. WILKINSON, A.A.

Thermal treatment of Dictyonema shale. Gaz.prom. 4 no.6:20-
23 Jg '59. (MIRA 12:8)

(Oil shales)

AARNA, A.Ya. [Aarna, A.J.], doktor tehnikeskikh nauk, retsenzent; ~~KULL', E.~~
[Kull, E.], kandidat ekonomicheskikh nauk, retsenzent; KYLL', A.T.
[Kyll, A.T.], redaktor; KIVIT, A.A., redaktor; MIKHELIS, K.A. [Mihelis,
K.A.], redaktor; GUBERGRITS, Mark Yakovlevich, redaktor; ROGINA, G.M.,
vedushchiy redaktor; YASHCHURZHINSKAYA, A.B., tehnikeskij redaktor

[Engineering and economic problems of industrial semicoking of
combustible shale; a collection of papers] Voprosy tekhniki i
ekonomiki promyshlennogo polukoksovaniia goriuchikh slantsev;
sbornik statei. Leningrad, Gos.nauchno-tekhn. izd-vo neft. i
gorno-toplivnoi lit-ry, Leningr.otd-nie, 1957. 337 p. (MLRA 10:?)

1. Kivioli Polevkivikeemia Kombinaat.
(Oil shales)

KULL, Eduard; RIIKOJA, L., red.; EINBERG, K., tekhn. red.

[Automation of production and its development in industries of the Estonian S.S.R.] Tootmise automatiseerimisest ja selle arengust Eesti NSV toostuses. Tallinn, Eesti Riiklik Kirjastus, 1961. 54 p. (Eesti NSV Politiliste ja Teaduslaste Teadmiste Levitamise Uhing, no.313) (MIRA 15:8)
(Estonia--Automation)

BRUTUS, L., kand. ekon. nauk, glav. red.; ANTONS, R., red.; POLISINSKI, U., red.;
KAGANOVITS, I., kand. ekon. nauk, red.; KULL, E., kand. ekon.
nauk, red.; MUREL, R., red.; RANNIK, E., red.; VINT, E.,
kand. ekon. nauk, red.; RIIKOJA, L., red.; KOHU, H., tekhn.
red.

[Economic life of Soviet Estonia, 1940-1960] Nõukogude Eesti
majandus, 1940-1960. Tallinn, Eesti Riiklik Kirjastus,
1960. 478 p. (MIRA 16:6)

1. Eesti NSV Teaduste Akadeemia. Majanduse Instituut. 2. Chlen-
korrespondent AN Estonskoy SSR (for Antons).
(Estonia--Economic conditions)

KULL,E; FREIDIN,P., red.; LAUL, Ü., tekhn. red.

[Planning in industrial enterprises] Planeerimine tööstusettevõtetes. Tallinn, Eesti Riiklik Kirjastus, 1962. 335 p.
(MIRA 16:12)

(Industrial management)

KIVIT, A.A., red.; ANTONS, R.I., red.; AARNA, A.Ya., prof., doktor
tekh.nauk, retsenzent; KULL', E.V., kand.ekon.nauk, retsenzent;
RAZINA, G.M., vedushchiy red.; YASHCHURZHINSKAYA, A.B., tekh.red.

[Technology and economic aspects of the industrial semicoking of
oil shales] Voprosy tekhniki i ekonomiki pronyahlennogo polukokso-
vaniia goriuchikh slantsev. Leningrad, Gos.nauchno-tekhn.izd-vo
neft. i gorno-toplivnoi lit-ry, Leningr.otd-nie. No.2, 1959.
429 p. (MIRA 12:10)

1. Kiviõli Põlevkivikaemia Kombinaat.
(Oil shales)

KULL', I., kandidat fiziko-matematicheskikh nauk

Linear transformations of certain classes of double sequences.
In Russian. Eesti tead akad tehn fuus 10 no.1:13-21 '61.
(EELI 10:7)

1. Tartuskiy gosudarstvennyy universitet.
(Series) (Transformations (Mathematics))
(Convergence)

S/023/62/000/002/002/002
D234/D308

AUTHORS: Kull', I., Candidate of Physical and Mathematical Sciences, and Landra, E.

TITLE: Method of solving the generalized transport problem

PERIODICAL: Akademiya nauk Estonskoy SSR. Izvestiya. Seriya fiziko-matematicheskikh i tekhnicheskikh nauk, no. 2, 1962, 120 - 127

TEXT: The authors offer a method superior to that given in the papers of V.V. Shkurba, and M.K. Gavurin, G.Sh. Rubinshteyn and S.S. Surin at the 4th All-Union Mathematical Congress in 1961. The problem is formulated in terms of distribution of different kinds of fuels among different power stations, and solved by generalizing A. L. Lur'ye's method (V. sb. "Primeneniye matematiki v ekonomicheskikh issledovaniyakh" (Application of Mathematics in Economic Investigations), Moscow 1959, 354-389). The method is stated to be especially suitable for finding nearly optimal distributions. A numerical example is given. There are 6 tables. ✓

Card 1/2

Method of solving the generalized ... S/023/62/000/002/002/002
D234/D308

ASSOCIATION: Tartuskiy gosudarstvennyy universitet (Tartu State
University) Institut energetiki AN Estonskoy SSR (In-
stitute of Power Engineering, AS EstSSR) ✓

SUBMITTED: September 18, 1961

Card 2/2

Name: KULL', I. G.

Dissertation: Multiplication of additive binary series

Degree: Cand Phys-Math Sci

Defended at
Affiliation: Tartu State U, Chair of Geometry

Publication
~~Defense~~ Date, Place: 1956, Tartu

Source: Knizhnaya Letopis', No 45, 1956

KULL, M. H.

KULL, M. H.: "The therapeutic effect of rostin (clinical-laboratory investigation)." Tartu State U. Tartu, 1956.
(Dissertation for Degree of Candidate in Medical Sciences).

SO: Knizhnaya letopis', No 23, 1956

L 29212-66

ACC NR: AP6019079

SOURCE CODE: UR/0239/65/051/005/0564/0571

AUTHOR: Looga, R. Yu.; Kull, M. M.; Looga, I. K.

25
B

ORG: Department of Pathological Physiology, State University, Tartu (Kafedra patologicheskoy fiziologii Gosudarstvennogo universiteta)

TITLE: Changes in arterial pressure and in the cardiac rhythm of dogs on administration of adrenalin

SOURCE: Fiziologicheskij zhurnal SSSR, v. 51, no. 5, 1965, 564-571

TOPIC TAGS: dog, blood pressure, pharmacology

ABSTRACT: Intravenous administration of adrenalin in moderate doses (10-80 gamma) to anesthetized or unanesthetized dogs produced a reaction of the cardiovascular system which consisted of the following stages: 1) increase of blood pressure and slowing down of cardiac activity; 2) drop of blood pressure and acceleration of cardiac activity; 3) increase in blood pressure and slowing down of cardiac activity; 4) a slow drop of blood pressure and acceleration of cardiac activity to the initial rate. The changes in blood pressure were produced by a direct (1st and 3rd stages) and reflex (2nd and 4th stages) action of adrenalin on the blood vessels. A pressor and a depressor effect were exerted. With increasing doses of adrenalin, the pressor effect became stronger, while the depressor effect decreased. At adrenalin doses greater than 80-100 gamma, the

Card 1/2