

Production of Metallic Manganese from Waste Products POL/39-25-11-8/26

nese can be extracted. There are 8 tables, 4 graphs and 3 references, 1 of which is Polish, 1 German and 1 Soviet.

ASSOCIATION: Instytut metalurgii żelaza - Gliwice (Institute of Iron Metallurgy, Gliwice)

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18(1,2,3)

POL/39-59-9-2/36

AUTHORS: Żakowa, Hanna and Kuliński, Zdzisław, Masters of Engineering

TITLE: Nitrided Ferroalloys and Their Use in Metallurgy

PERIODICAL: Hutnik, 1959, Nr 9, pp 342-351

ABSTRACT: Because of the shortage of nickel supplies, nitrogen is frequently added to ferroalloys to retain two important properties: to increase the austenitic state and to decrease the critical cooling speed of alloys. The nitrogen is added in the steel bath from cyanides and nitrides. The energy release during the reactions (Fig 1), and the entropy and enthalpy (Table 1) are given for several metallic nitrides. Laboratory investigations were made to determine the duration of reaction of granulated manganese and FeMn compound with nitrogen. The experiments were carried out with the laboratory equipment illustrated in Fig 3 and the results are summarized in Table 2 for manganese and Table 3 for Fe-Mn compounds as a function of the

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Nitrided Ferroalloys and Their Use in Metallurgy

grain size and of the temperature. The nitrogen content as a function of the temperature in metallic manganese is shown by Figs 4,5,6 for the granulation a,b,c as indicated in Table 2. The solubility of nitrogen in chromium was also investigated and found that a correlation between the granulation and the nitrogen exists as illustrated by Table 4. Further calculation methods are elaborated according to Ref 21. The author concludes that no difficulty is experienced in attaining 0.25% N₂ in ferroalloys. There are 5 graphs, 8 tables, 1 diagram and 23 references, 7 of which are Polish, 5 Soviet, 2 German, 2 French and 7 English.

ASSOCIATION: Instytut Metalurgii Żelaza, Gliwice (Institute of Iron Metallurgy, Gliwice). ✓

Card 2/2

Distr: 4E2c

V Nitriding of ferrochrome. H. Zak and Z. Kulinski
(Inst. Metalurgii Zlaza, Gliwice, Poland). *Prace Inst.
Hutnic.* 12, No. 1, 9-19(1960). The expts. on nitriding of
ferrochrome briquets prep. by sintering in a vacuum furnace
were described. The initial chem. compn. of ferrochrome
granules was Cr 66.80, Mn 0.15, Al 0.037, Si 0.41, and C
3.06%, or Cr 59.20, Si 0.34, Mn 0.15, Al 0.038, and C 2.98%,
depending upon the size of the granules; however, as a result
of Cr₂O₃ addn., the content of C was reduced to 0.02%
in either fraction as detd. in the briquets after the sinter-
ing process. The effect of temp., 800-1300°, and time,
0.5-3 hrs., on the nitriding process of ferrochrome was
examd. In another series of expts. the nitriding of metallic
Cr contg. Cr 98-9, Al 0.1-0.5, and C 0.03-0.05% has been
examd. The optimum temp. and granule size for nitriding
of ferrochrome was 1100° and 0.5 mm., resp. Under these
conditions and N pressure in the furnace of 0.65 abs. atm.
the N concn. in ferrochrome after 3 hrs. reached 6.5%.
Although metallic Cr combined with N more readily under
the conditions studied, its use as a charged material for
alloying of steel with N should be limited to cases when the
low-C ferrochrome was unavailable. W. Tomaszczak

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1

S/137/62/000/003/015/191
A006/A101

AUTHORS: Zak, H., Kuliński, Z.

TITLE: Decarbonization in a vacuum and nitriding of ferromanganese

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 3, 1962, 24, abstract 3V166
("Prace Inst. hutn.", 1961, v. 13, no. 1, 27-36, Polish; Russian
and English summaries)

TEXT: A method was developed to obtain Fe-Mn with low C content (about 0.25%) and N content $> 3.3\%$ which could act as an alloying admixture in melting low-carbon Cr-Mn steel, containing N_2 . The authors investigated the effects of pressure, temperature, time, and grain size of the initial material on the reaction process of decarbonization and nitriding. Roasting for 3 hours at $1,100^{\circ}C$ and pressure < 1 mm Hg of crushed Fe-Mn (< 1 mm) containing 1% C, with addition of about 9% cinder, yields a product containing about 0.25% C. Nitriding of this product yields best results when heated to $900^{\circ}C$ at 1 atm pressure; the N content in Fe-Mn is about 5% .

D. Kashayeva

[Abstractor's note: Complete translation]

Card 1/1

ZAKOWA, Hanna, dr inż.; KULINSKI, Zdzisław, mgr inż.

Production of carbonless ferrochromium. Hutnik P 29 no.9:346-349 S '62.

1. Instytut Metalurgii Żelaza, Gliwice.

KULINSKI, Zdzislaw, mgr inz

Production of low-carbon ferrochromium by means of the one-furnace method. Hutnik P 29 no.10:378-381 0 '62.

1. Instytut Metalurgii Zelaza, Gliwice.

KULINSKI, Zdzislaw, mgr inz.

Technology of producing decarbonated and nitrogen hardened iron alloys. Wlad hut 17 no.12:354-358 D '62.

1. Instytut Metalurgii Zelaza, Gliwice.

ZAK, Hanna, dr inz.; KULINSKI, Zdzislaw, mgr inz.

Teeming of iron alloys. Wiad hut 18 no.10:295-297 0 '62.

KULINSKI, Zdzislaw, mgr inż.

Carbon segregation in low-carbon ferrochromium. Hutnik P 30
no.6:182-186 Ja '63.

KULINSKI, Zdzislaw, mgr inz.

Improved quality of ferrotungsten. Wiad hut 15 [i.e. 20]
no. 4: 108-111 Ap '64.

ZAK, Hanna, dr inz.; KULINSKI, Wdzislaw, mgr inz.

The Ugine-Perrin method as applied to the production of ferroalloys. Wiad hut 19 no. 5:111-114 My '63.

KULINSKI, Zdzislaw, mgr inz.

Possibilities of increasing the titanium yield in ferro-titanium production by the thermit process. Hutnik p 31 no.5:150-156. My '64.

1. Institute of Iron Metallurgy, Gliwice.

The influence of depression of the central nervous system (narcosis) on the contents of adrenaline in the adrenal glands of white mice. N. I. Tominina (Khabarovsk Inst.). *Ukrain. Biokhim. Zhur.* 25, 273-274 (1951), 280-7 (1953).—There were 3 stages in the change in the value of adrenaline content under ether narcosis: 1st, sharp drop (>50%); 2nd, gradual increase, up to the 10th min., reaching 150%; and 3rd, slow, progressive drop, reaching 65% of normal within 2 hrs. The narcosis also tended to change the ratio of free and loosely bound (with protein) adrenaline. The adrenaline was est. by the quant. fluorescent method (modification of Frenkel, *Ukrain. Biokhim. Zhur.* 23, 348-50 (1951)). B. Gutoff

- Dept. Biochemistry

L 16174-63 EWT(1)/EWT(m)/BD3/ES(j) APD/APFTC/ASD AR/K
ACCESSION NR: AF3002381 S/2930/62/000/000/0207/0212
AUTHOR: Kulinskiy, V. I. (Kharkov) 56
TITLE: Methods of inducing acute radiation sickness 19

SOURCE: K voprosam ranney diagnostiki ostroy luchevoy bolezni;
sbornik nauchnykh rabot. Kiev, Medgiz USSR, 1962, 207-212

TOPIC TAGS: X-irradiation method, dose distribution, surface dose,
qualitative radiation index, RUM-3M unit

ABSTRACT: Specifications for dose distribution over an irradiation
field, surface dose, and qualitative radiation indices were deter-
mined to standardize experimental methods. Rabbits were used as sub-
jects for a RUM-3M unit and a medical roentgenometer was used to
measure radiation doses. The author recommends that the experimental
position of the subject be well centered to avoid asymmetric distri-
bution of the X-ray beam. A skin-focus distance of 65 cm is consider-
ed best for irradiating rabbits in a 27 X 17 X 15 cm box because it
assures dose uniformity within the limits of 5-8%. In irradiating a
surface which is considerably curved, the surface dose should be

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determined to check radiation uniformity. The half-value layer which is used as a qualitative radiation index is inadequate for non-uniform radiation and a second half-value layer index is necessary. For a RUM-3M unit with 196 kV and filters 0.5 mm Cu and 1 mm Al the first half-value layer index is 1.08 mm Cu and the second is 1.7 mm Cu. These method improvements help make experimental data more uniform when using a single tube radiation apparatus. Orig. art. has: 1 table, 3 figures.

ASSOCIATION: None

SUBMITTED: 00

DATE ACQ: 28May63

ENCL: 00

SUB CODE: AM

NO REF SOV: 007

OTHER: 003

Card 2/2

KULINSKIY, V. I. "Changes in Catecholamine Metabolism During Acute Experimental Radiation Sickness." In rabbits irradiated with doses of 800-2500 r, noradrenaline composition of the brain and heart did not sharply decrease. The character of changes in catecholamine metabolism was the same for all radiation doses.

Dissertation for the degree of Cand. Medical Sci. (Khar'kov)(1961)
Khar'kov State Med Inst. 15pp. (KL, 7-61, sup, 260)

candidate dissertation listed in Meditainskaya radiologiya, no. 7, 1964. The article did not state specifically what degree was awarded. The annotated titles deal with studies on radiation physiology, radiation biochemistry, combined trauma and the influence of radiation on regenerative processes, radiation microbiology and immunology, and radiation pharmacology.

KULINSKIY, V.I. [Kulyns'kiy, V.I.]

Content of catechol-amines in tissues of normal Macaca. Ukr. bio-
khim. zhur. 36 no.3:388-399 '64. (MIRA 17:10)

1. Kafedra rentgenologii i meditsinskoy radiologii Ukrainskogo insti-
tuta usovershenstvovaniya vrachey, Khar'kov, i radiologicheskaya labora-
toriya Instituta eksperimental'noy patologii i terapii AMN SSSR, Sukhumi.

KULINSKIY, V.I.; SEMENOV, L.F.

Catechol amine content in the tissues of macaco monkeys during early phases of whole-body γ -irradiation. Radiobiologia 5 no.4:494-500 '65. (MIRA 18:9)

1. Ukrainskiy institut usovershenstvovaniya vrachey, Khar'kov i Institut eksperimental'noy patologii i terapii AMN SSSR, Sukhumi.

KULINSKIY, V.V., inzhener.

Digging an open drainage system. Torf.prom. 33 no.7:36 1956.

(MIRA 9:12)

1. Trest Ukrtorfostroy.

(Excavating machinery) (Drainage)

KULINTSOV, F.S.; ZMAZHENKO, M.F.

Agronomist as a master of the field. Zemledelie 26 no.7:81-85 J1 '64.
(MIRA 18:7)

1. Direktor oporno-pokazatel'nogo sovkhosa "Kapal'skiy" Taldy-Kurganskogo proizvodstvennogo upravleniya, Alma-Atinskoy oblasti (for Kulintsov).
2. Glavnyy agronom oporno-pokazatel'nogo sovkhosa "Kapal'skiy" Taldy-Kurganskogo proizvodstvennogo upravleniya Alma-Atinskoy oblasti (for Zmazhenko).

Kulimushkin, A.

USSR/Farm Animals - Horses.

Q-2

Abs Jour : Ref Zhur - Biol., No 7, 1958, 30918

Author : Kulimushkin A.

Inst : -

Title : On the Vyatka Horse .
(Ovyatskoy loshadi).

Orig Pub : Konovodstvo, 1957, No 9, 19-22.

Abstract : No abstract.

Card 1/1

KULINYAK, O.Yu.

Use of gas in Kazakhstan. Gaz. delo. no.1:45-46 '63.
(MIRA 16:8)

1. Upravleniye gazovogo khozyaystva Ministerstva Kommunal'nogo khozyaystva KazSSR.
(Kazakhstan--Gas, Natural)

L 07064-67 EWT(m) IJP(c)

ACC NR: AF6021622

(N)

SOURCE CODE: UR/0089/66/020/003/0213/0217

AUTHOR: Auslender, V. L.; Kulipanov, G. N.; Mishnev, S. I.; Naumov, A. A.; Popov, S. G.; Skrinskiy, A. N.; Tumaykin, G. M.

ORG: none

46
B

TITLE: Experimental data on the interaction of beams during collision

SOURCE: Atomnaya energiya, v. 20, no. 3, 1966, 213-217

TOPIC TAGS: ^{ELECTRON BEAM} electron collision, storage ring, positron/ VEP-1 storage ring, VEPP-2 storage ring

ABSTRACT: The authors present a preliminary review of results of beam collision effects, obtained with the VEP-1 (electron-electron) storage ring and the VEPP-2 (positron-electron) storage ring. The installations and the main parameters of the beams in the storage rings are presented elsewhere (Atomnaya energiya, v. 19, 498 and 502, 1965; E. I. Zinin et al., present source, p. 220 [Acc. Nr. AF6021624]). Most of the data pertain to the VEP-1 storage ring at colliding beam energies of 43 Mev. The data presented include the diagram of resonances in the working region of the magnetic field, photographs of different spreading effects in the beams, the distribution of the densities of the particles in one beam with and without the collisions with the other beam, the dependence of the electron lifetime on the revolution frequency and on the colliding-beam current, and the dependence of the partial electron lifetime on various factors. The phenomena in the VEPP-2 storage ring were essential.

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UDC: 621.384.612.4

L 07064-67

ACC NR: AP6021622

ly similar to those in the VEP-1. Orig. art. has: 8 figures.

SUB CODE: 20/ BUEN DATE: 22Nov65/ ORIG REF: 003

Card 2/2 LC

L 07062-67 EHT(a) IJP(c)

ACC NR: AP6021624

(N)

SOURCE CODE: UR/0089/66/020/003/0220/0223

AUTHOR: Zinin, E. I.; Korobeynikov, L. S.; Kulipanov, G. N.; Lazarenko, B. L.; Matveyev, Yu. G.; Popov, S. G.; Skrinskiy, A. N.; Starodubtseva, T. P.; Tumaykin, G. M.

ORG: none

TITLE: Control and regulation system for the electron beam parameters in the VEP-1 electron-electron storage ring

SOURCE: Atomnaya energiya, v. 20, no. 3, 1966, 220-223

TOPIC TAGS: electron beam, electron accelerator, storage ring, plasmoid acceleration, synchrotron radiation

ABSTRACT: The authors describe briefly the main systems used for different stages of adjustment and physical research of the VEP-1 assembly, first described by G. I. Budker et al. (Atomnaya energiya v. 19, 498, 1965). The parameters investigated were the magnitude of the injected current, the angular divergence and transverse dimensions of the beam, its energy and energy spread, and the position and angle at the exit from the electron-optical channel. The number of injected particles and the phase difference between the input and output were measured with lead probes. The first revolutions of the captured current were observed by recording the synchrotron radiation with a photomultiplier. The captured and stored currents were also measured with the aid of the synchrotron radiation. The radial position of the orbits was controlled either by regulating their radii by changing the frequency of the accelerating

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UDC: 621.384.6

I. 07062-67

ACC NR: AF6021624

D

voltage or by producing azimuthal modifications of the magnetic field with additional turns. The positions of the orbits at the collision location were roughly monitored by means of an optical television system, and more accurately by a remotely controlled diaphragm located at the place of encounter. The systems used to measure the luminosity, to control the radial and azimuthal positions of the plasmoids, to determine the phase dimensions of the plasmoids, and to monitor and study various coherence effects are briefly described. The lifetime of the beam was monitored continuously with a special electronic system which determined the logarithmic derivative of a signal proportional to the current in the track. Orig. art. has: 6 figures.

SUB CODE: 20/ SUBM DATE: 22Nov65/ ORIG REF: 001/ OTH REF: 001

Card 2/2 *XC*

KULIS, Z.

[A large rectangular area containing extremely faint, mostly illegible text. A small portion of the text in the upper-middle section is circled in black.]

KULISA, Kazimierz

Communication devices for mining rescue teams. Wiadom gorn
12 no.9:311-312 S '61.

KULISA, Kazimierz

Equipment of industrial television for mines. Wiadom gorn 10 no.6:
205-206 Je '59.

Z/040/61/000/005/003/004
D005/D102

AUTHOR: Kulišan, Jaroslav, Engineer
TITLE: Aircraft maintenance problems
PERIODICAL: Letecký obzor, no. 5, 1961, 148-150

TEXT: The article deals with the problems of modern aircraft maintenance. The ever increasing tasks of air transportation call for maximum utilization of the air fleet which, in turn, implies reduction of maintenance time and attainment of a higher number of flying hours per year and aircraft. Time required for each inspection, and still more for overhauls, is extraordinarily important especially for aircraft with a large seating capacity, since grounding of these aircraft for a longer period means financial losses. The prevailing system of periodic overall inspections does not insure maximum utilization of aircraft. The intervals between inspections are comparatively short and the aircraft is out of service for several days and even weeks. The rotation plan for aircraft maintenance must be strictly adhered to so as to attain a uniform workload distribution

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among existing maintenance facilities and avoid expensive overtime. For this reason, an increasing number of air transportation companies are introducing a method of systems maintenance. The basic idea of the method is to divide the prescribed periodic inspections into a number of partial inspections of individual systems which can be accomplished in a shorter time and are scheduled so that the prescribed inspection intervals are adhered to. During each of these partial inspections, only a small portion of the overall regular inspection is performed and by gradual completion of these partial inspections, the entire prescribed inspection is eventually accomplished. Thus the grounding of aircraft due to inspections, previously lasting a long time, is divided into short periods. A partial inspection takes only a few hours to perform and the aircraft may eventually be ready for flight the same day. This method is one of the means for attaining maximum utilization and efficiency of aircraft. The larger the scope of the prescribed inspection, the greater the advantage; therefore, it is most advantageous for aircraft which can be expected to undergo several complete overhauls

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during their service life. Comparing the old and the new methods for the same period, it was found that with the new method the number of days during which the aircraft were repaired decreased by 45%, the percentage of aircraft grounded due to inspection dropped by 40%, and average daily serviceability increased by 30%. In order to take full advantage of the new method, each of the partial inspections should involve a definite assembly or system of the aircraft, e.g. controls, undercarriage, fuel system, de-icing system, radio and electroequipment, instruments, engines, etc. Maintenance personnel is divided into groups of specialists and their work is organized so that they do not interfere with each other during their work. If the systems inspection is to be completed within a few hours, it is not possible to perform repairs of parts or assemblies. The defective parts must be exchanged for new or repaired ones, and the removed parts sent to the workshops for repair. Parts and assemblies which already completed the prescribed period of service must also be exchanged. Therefore, accurate records must be kept for each part or assembly as to when and into which aircraft they were installed; the number of flying hours and reasons for their re-

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moval; what repairs and exchanges of their components were carried out; etc. These records provide the basis for scheduling specific jobs to be carried out during an aircraft inspection in addition to operations required by regulations. The fact that the exchange of some units e.g. engines or undercarriage is more laborious presents a problem of coordination with other, lighter jobs to be carried out. Due to the different service lives of the various assemblies, it is often difficult to time their exchange to correspond with due inspections. Thorough knowledge of the aircraft, use of devices which record the stresses and material fatigue of aircraft parts during flight, operating experience, and suitable modifications and improvements can help to master this difficulty. Even less perfectly organized workshops can secure these inspections if a sufficient stock of spare parts is available. However, excessive stocks of spare parts are very expensive and require funds which could be used for other purposes. This can be prevented by reducing spare-part stocks to an economically justified size and by ensuring quick and continuous repairs of defective parts and units so that they become

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available for re-use within a short time. It is, therefore, of advantage for an air transportation company to use a minimum of different aircraft types since the interchangeability of parts is thus increased and the spare-parts stock can be reduced. This policy has the additional advantage that fewer types of special testing and auxiliary equipment are required. The maintenance of modern aircraft weighing several tons, with complicated hydraulic, electrical and pneumatic systems, intricate radio communication and navigation equipment, requires a large variety of special testing equipment by which defects of all kinds can be detected and repaired. In addition, the mechanization of maintenance operations is constantly increasing and placing ever higher requirements on the technical skill and theoretical knowledge of maintenance personnel. The complete overhaul of a modern aircraft is a complicated task considering that its purpose is to extend the aircraft's serviceability by several thousand flying hours until the next overhaul. It means the exchange of all parts, assemblies, instruments, systems etc., which have to be replaced under regulation, and exchange and/or

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repair and testing of others. Further, it is necessary to repair all defects, renew the anti-corrosion paint, upholstery etc. A careful examination of the entire airframe even at inaccessible places for any material damage, loose joints, or corroded spots also requires special equipment, such as portable X-ray sets by which material defects of various fittings and entire assemblies can be detected without dismantling. Dismantling of aircraft assemblies is facilitated and accelerated by the use of special platforms. A modern maintenance center of an air transportation company is virtually a plant whose final product are aircraft flying hours. Its operation must be carefully planned, organized and supervised if the company is to fulfill its tasks adequately and economically. There are 5 figures.

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OPLETAL, Zdenek, RNDr PhMr; KULISEK, Boris, MUC

Improved agglutination method for detection of mump antibodies in hyperimmune mump serum. Lek. listy, Brno 9 no.19:436-437 1 Oct 54.

1. Z Bakteriologicke laboratore K.T.S. v Brne, prim. MUDr L.Bilkova.
(IMMUNE SERUMS,
agglut. method of detection of antibodies in)
(ANTIGENS AND ANTIBODIES,
mumps antibodies, agglut. method for detection in immune
serum)

20992

1.1110 2208,2808

Z/031/61/009/005/003/004
D007/D102

AUTHORS: Poláček, J., Engineer; Lauterbach, J.; Vošahlík, R.;
and Kulišek, B.

TITLE: Theory and application of explosive metal forming

PERIODICAL: Strojírenská výroba, v. 9, no. 5, 1961, 240 - 245, 248

TEXT: The Závody na výrobu vzduchotechnických zařízení, n. p. Milevsko, (Plant for the Production of Pneumatic Equipment, Milevsko) is preparing the introduction of explosive forming for VLC pressure containers mounted on RR carriages. The article describes tests on a one-third-size model (actual dimensions of the vessel are shown in Fig. 1), performed to study the technology of this advanced metal forming method. Factors which must be considered in explosive forming are: (1) Choice of a suitable explosive charge; (2) the transmitting medium; (3) shape, dimensions and material of the mold; (4) material for forming; and (5) technological preparation of the working site. All types of brisant explosives are suitable for explosive forming. Those used in the described tests were cast TNT, plastic

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NP 10, gelatine high explosive (Perunit 20) and ammonium nitrate high-explosive powder. Properties of Czechoslovak commercial explosives are listed in Table I. The plastic NP 10 explosive was chosen for testing of annular-, ball-, rod-, and pear-shaped charges. The annular shape is not suitable since it is not possible to ignite the entire ring simultaneously and the blank corrugates and tears. The ball-shaped charge (Fig. 4) is more suitable and can be ignited with one detonator placed in the center. However, great pressure acts on the bottom of the mold and a secondary reaction presses the blank upwards with a resultant negative influence on the final shape of the forging. Better results were achieved with rod-shaped charges which can be ignited either at the top, at the middle, or at the bottom (Fig. 6). When bottom ignition is applied (Fig. 7), shock-waves disperse conically and the pressure acting on the mold bottom is considerably smaller, reaching only 2,000 - 2,500 kg/cm². Since the top part could not be drawn out completely with any of these charge shapes, a modified pear-shaped charge was tested which was suspended with the smaller end downwards and ignited at the bottom.

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However, the desired effect was still not reached. Since empirical results are still insufficient, the proper charge shape and initiation point will have to be experimentally found for each specific case. Water was used in the tests to transmit the explosive force to the blank. The more advantageous closed mold (requiring smaller charges) could not be used since the mold in this specific case would have been too heavy. However, in the upper regions of an open mold, the transmitted pressure rapidly decreases due to the dilution of the transmitting medium, which explains the fact that the upper regions of the blank were not drawn out completely. The mold used in the tests consisted of two welded halves made of 11 523 grade steel sheet. The mold shell was reinforced by 2 strong hoops and a number of radial struts. The mold was not annealed, despite the large number of welds which caused considerable stresses, and was loosely placed on the base plate. The blank was secured either by clay to the steel base plate, or by a 50 mm thick rubber lining clipped to the blank. The tests revealed that the mold bottom should be made of a material with elastic properties. The originally used 50 and 80 mm thick plates of rolled 11 370 steel bent and

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ruptured after several tests with the grain structure of the fracture resembling that of cast steel. When covered with a 50 mm rubber lining, the steel bottom plates resisted shock waves till the lining was mechanically damaged. A gap formed by placing spacers between the two mold halves facilitated air escape from the space between the mold and the blank. The gap width was varied within the range of 2 - 6 mm. Since the tests were made in an open mold, adequate safety measures had to be taken. When observing the safety regulations of Edict no. 305, published in issue 132 of the Úřední listy (Official Bulletin), dated Oct 24, 1952, explosive forming does not imply any more danger than common pressing. Approximately 45 tests were performed on the rather large one-third-size model. They revealed some technological problems which would not have been recognized had the tests been performed with a smaller model. The gathered experiences, which led to the final design of the mold, can be summarized as follows: (1) Most advantageous is a rod-shaped charge with bottom initiation; (2) the shock-wave effect on the bottom of the mold must be reduced by increasing the distance

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between the charge's lower end and the bottom; (3) the upper part of the blank must be extended by 50 mm to achieve complete drawout; (4) the effect of the explosive must be increased by raising the water level above the charge; (5) a better securing of the blank must be developed to prevent its damage at each explosion; (6) rubber with a hardness of 60 - 70° Sh offers the best resistance to shock waves; (7) the sheet thickness of the actual-size blanks must be increased 10% to obtain the desired wall thickness of pressings. The actual-size mold, designed according to these experiences, is shown in Fig. 9. The reinforced shell-type mold is horizontally split into 2 halves (1 and 2). The upper half is provided with an extension for a higher water level. Due to the large dimensions, the air between the mold and the blank cannot be evacuated, but escapes thru a gap between the 2 mold halves and an annular slit in the upper section of the mold. The rather curved bottom (7) is embedded in a reinforced-concrete bed. On the inside, the bottom is lined with a 200 mm thick rubber layer (8). The molds for both the scaled-down model and the actual-size pressings were made of 11 373 and 11 523

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grade steels. Steel was chosen since the effect of shock waves on other potential mold materials is not yet known. However, test results obtained thus far indicate that plastic materials and reinforced concrete can probably be used for molds. The test blanks (Fig. 10) were made of certificated 11 373.1 - size sheets, welded from 1 or 2 pieces with BH 48 electrodes. The welds were made using backing bars. To prevent cracking of the pressings observed in previous tests, blanks were normalized after welding. However, this treatment produced no substantial improvement and was abandoned in later tests. The thinout of the material was measured with micrometers at several points and results are listed in Table II. During explosive forming, the material is compressed which results in thinout of the final pressed product. This material reduction, which is rather uniform despite differences in material stretching ranging from 6.90 to 11.64%, must be compensated for by adding a 10% allowance to the blank. The material used for explosive-forming tests was 3 mm thick, 11 373.1 sheet metal, certificated according to ČSN 41 1373. The original properties of the material underwent

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the following changes by explosive forming: The strength increased from 36 - 38 kg/mm² to 49 - 52.9 kg/mm² at the place of greatest deformation; to 43.5 - 50.3 kg/mm² in the top section; and to 43.3 - 50.6 kg/cm² in the bottom section. (The maximum permissible standard strength for this material is 48 kg/mm²). The ductility increased from 26.4 - 28.8 kg/mm² to 38.8 - 49.8 kg/mm² (in one case even to 50.8 kg/mm²). The elongation decreased considerably and ranged from 6.6 - 18.9%, extreme values being 6 and 24.4% respectively. Contraction values ranged from 59 - 67.8%. Notch-bar strength for 6 mm wall thickness ranged from 5.3 - 19.6 kgm/cm²; in one case only was it as low as 3.7 kgm/cm². Microstructure tests made on samples taken from welds and other places revealed ferritic structure with a small amount of fine-grained perlite. The weld metal had the same structure. The ferrite grains had the same shape as those of the unformed material, which means that deformation (grain stretching), typical for cold-forming, did not take place. A central part, explosively formed during the tests in June 1960, was used for the construction of a one-third-size pressure vessel assembled 4 months

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Theory and application...

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later. This test vessel was filled with water and the pressure was increased until failure. At 20 - 25 atm, deformation took place rounding both conical sections, however, failure did not occur until 30 atm. The rupture originated in the bottom section at a distance of 20 mm from and parallel to the weld. The central part remained undamaged, which proves that explosive forming influences the properties of the formed material which retains its toughness despite increased strength and reduced ductility. However, the effects of various explosives on the change of mechanical properties of the formed material are still completely unknown. The insufficient knowledge of laws governing the explosive-forming technique is the greatest obstacle to a wider, economical use of this method. A contribution towards solving this problem was made by Soviet scientist N. Akulov who discovered the laws of plastic flow of metals. To comply with the above safety regulations, a site for explosive-forming was chosen at a sufficient distance from factory buildings. Fork lifts and a truck-mounted crane were used for handling the mold. The mold was partially installed underground in a forming pit (Fig.

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17) surrounded by a protective earth embankment. The curved bottom of the mold was embedded into the reinforced-concrete base plate. Surroundings of the mold bottom were also concreted with a slope towards a drain to draw-off water ejected from the mold. The drainage pipes end in a river at a distance of about 50 m. The top part of the mold is lifted by three HZ 5 hydraulic jacks. A shelter at a distance of 25 m protects the blastman and houses the controls for water pump and hydraulic jack operation. In conclusion, the author states that explosive-forming, a suitable metal-working method for large, intricate forgings and very hard materials, is not yet used in the ČSSR, partly because little is known about the properties of explosives except their destructive properties. There are 20 figures and 2 tables.

ASSOCIATION: Závody na výrobu vzduchotechnických zařízení, n. p. Milevsko (Plant for the Production of Pneumatic Equipment, National Enterprise, Milevsko).

Card 9/16

11210

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Z/034/62/000/002/002/002
E073/E535

AUTHORS: Poláček, J., Engineer, Lauterbach, J., Kulíšek, B.
and Vošahlík, R.

TITLE: Equipment for explosive forming of hollow bottomless
vessels. Patent Application Class 7c, 14, PV 7700-60
dated December 23, 1960

PERIODICAL: Hutnické listy, no.2, 1962, 137

TEXT: The die 4 (Fig.3), together with the hollow blank to
be formed, are fitted watertight on one arm of the communicating
vessels 1, 2, 3. Prior to forming, the fluid level is equal or
higher than the level of the top edge of the blank 6 which is to
be formed. The attachment 5 permits using a higher fluid level.
The fluid dampens the unutilised energy during forming. Compared
to forming in a die submerged into a container with a fluid, this
equipment has the advantage that a large and deep container is
not required and that the level of the fluid can be easily
regulated. There is 1 figure. X

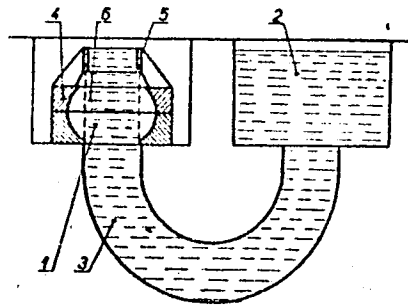
[Abstractor's note: Complete translation.]

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Equipment for explosive forming ...

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E073/E535

Fig. 5



Card 2/2

STEINER, P.; KULISEK, D.; SLAMEN, J.; BIRINGER, A.; MEDLA, F.

Experiences with surgical treatment of aortic stenosis.
Bratisl. lek. listy 63 no.3:169-172 '63.

1. Chirurgická katedra SUDL a Kardiochirurgické stredisko
v Martine, veduci doc. dr. P. Steiner.
(AORTIC STENOSIS) (HEART SURGERY)
(HEART, MECHANICAL)

KULISEK, V.

Surgery of common bile duct. Lek. listy 5:12, 15 June 50. p. 349-54

1. Of the Third Surgical Department of the State Faculty Hospital in Brno-Zlutý Kopec (Head-Head-Physician Ant. Novotný).

CLPL 19, 5, Nov., 1950

EXCERPTA MEDICA Sec 9 Vol. 9/11 Surgery Nov 55

~~KULÍSEK V.~~
5987. KULÍSEK V. III. chir. Odd. KKN, Brno. *Pozorování žaludeční cysty.
A case of gastric cyst LÉK.LISTY 1954, 9/18 (411-414)

A case is reported of a subcardial gastric cyst, which had given rise to symptoms for 26 yr. Surgical removal led to complete recovery. The symptoms of gastric cyst, like those of other benign gastric tumours, are quite noncharacteristic; the diagnosis should be confirmed by laparotomy. These very rare cases are congenital abnormalities, which grow and give rise to symptoms in the course of years.

Wondrak - Litoměřice

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KULISEK, Vlad.

Double gallbladder. Rozhl. chir. 38 no.8:564-567 Aug 59

1. III. chir. oddeleni fakultni nemocnice v Brne, prednosta prim.
dr. Ant. Novotny.
(GALLBLADDER, abnorm.)

KULISEK, V.

Prim. Dr.

Czechoslovakia

Surgical Hospital OUNZ (Z chirurgickej nemocnice OUNZ Brno --
venkov na Zlutom kopci), Brno; Director: V. Kulisek, prim. Dr.

Brno, Vnitřni lékařství, No 10, Oct 62, pp 1110-1112.

"A Contribution to the Question of Pseudophaeochromocytomas."

KULISH, A., inzh.-podpolkovnik

We filter fuel in a filling station pump. Tyl i snab. Sov. Voor.
Sil 21 no.11:89 N '61. (MIRA 15:1)
(Gasoline--Cleaning)

SALO, D.P.; OVCHARENKO, F.D.; KULISH, A.A. [Kulish, H.A.]

Palygorskite as an adhesive and disintegrating agent in tablets and granules. Report No. 1: Palygorskite as an adhesive and disintegrating agent in drug tablets. Farmatsev. zhur. 20 no.5: 9-13 '65. (MIRA 18:11)

1. Kafedra tekhnologii lekarstv i galenovykh preparatov
Khar'kovskogo farmatsevticheskogo instituta i Institut obshehey
i neorganicheskoy khimii AN UkrSSR. Submitted December 21, 1964.

BELOV, I.G., KULISH, G.M.

Site selection for stress transmitters in remote dynamometric systems. Neft. khoz. 38 no.3:28-31 Mr '60. (MIRA 13:7)
(Strains and stresses) (Remote control)

USSR/Chemistry - Organic chemistry

Card 1/1 Pub. 22 - 23/49

Authors : Petrov, A. D. Memb. Corresp. of Acad. of Sc. USSR.; Chernyshev, E. A.;
and Kulish, I. A.

Title : Acylation of trimethylbenzylsilane according to Friedel-Crafts

Periodical : Dok. AN SSSR 100/5, 929-932, Feb 11, 1955

Abstract : Experimental data are presented regarding the alkylation and acylation of arylsilane in the presence of $AlCl_3$. Following the Friedel-Crafts reaction method the authors succeeded in acylating trimethylbenzylsilane and trichlorobenzylsilane. The reaction products obtained and their physico-chemical properties are described. Ten references: 5 USSR, 6 USA and 1 English (1951-1954). Table.

Institution : Academy of Sciences USSR, The N. D. Zelinsky Institute of Orgna. Chemistry

Submitted : July 10, 1954

KULISH, I.M., podpolkovnik meditsinskoy sluzhby

"VB-1" small dressing kit. Voen.-med.zhur. no.10:75 0 '56.
(BANDAGES AND BANDAGING) (MLRA 10:3)

KULISH, I.P.; GORDIYENKO, I.M.

We will build machiner for mining steep coal seams. Ugol' Ukr. 4
no.10:5-6 O '60. (MIRA 13:10)

1. Zamestitel' glavnogo konstruktora Gorlovskogo mashinostroitel'
nogo zavoda im. Kirova (for Kulish). 2. Vedushchiy inzhener Spetsial'
nogo konstruktorskogo byuro po vnedreniyu novoy tekhniki Gorlovskogo
mashinostroitel'nogo zavoda im. Kirova (for Gordiyenko).
(Ukraine--Coal mining machinery)

1. KULISH, I. U.
2. USSR (600)
4. Zaporozh'ye Province--Impregnation, Artificial
7. Artificial insemination of cattle on collective farms in the zone of the Molochansk State Breeding Farm, Sots. zhiv., 15, No. 12, 1952.

9. Monthly List of Russian Accessions, Library of Congress, April, 1953, Uncl.

1. KULISH, I. U.
2. USSR (6:00)
4. Impregnation, Artificial - Zaporozh'ye Province
7. Artificial insemination of cattle on collective farms in the zone of the Molochansk State Breeding Farm. Sots. zhiv., 15 no. 1, 1953.

9. Monthly List of Russian Accessions, Library of Congress, April 1953, Uncl.

IVANOV, V.A.; KULISH, M.S.; YARTSEV, Ye.I.

Rapid method of intravital determination of radiostrontium
in the body of animals and man. Radiobiologiya 3 no.2:321
'63 (MIRA 17:1)

KULISH, M. Ya. and OKUN', L. M.

"Radio Relay Equipment TU-500-2," SvyazIzdat, Moscow, 1953, pp 111.

OKUN', L.M.; KULISH, M.Ya.

[TU-500-2 diffusion unit] Radiotranslatsionnaia apparatura TU-500-2.
Moskva, Gos. izd-vo lit-ry po voprosam aviatsii i radio, 1953. 110 p.
(MLRA 6:12)
(Radio--Apparatus and supplies)

KUZNETSOV, A.N.; KULISH, N.F.

Reducing activity of carbon monoxide and hydrogen in respect to cobalt
oxides. Ukr.khim.zhur. 24 no.5:674-680 ' 58. (MIRA 12:1)

1. Dnepropetrovskiy khimiko-tehnologicheskii institut.
(Carbon monoxide) (Hydrogen) (Cobalt oxides)

KULISH, N. F.

AUTHORS: Kuznetsov, A. N., Shestopalova, A. A., 76-1-11/32
Kulish, N. F.

TITLE: The Kinetics and the Mechanism of the Reduction of Cobalt Oxides (O kinetike i mekhanizme vosstanovleniya oksidov kobal'ta).

PERIODICAL: Zhurnal Fizicheskoy Khimii, 1958, Vol. 32, Nr 1, pp. 73-78 (USSR)

ABSTRACT: The authors refer to the fact that the oxygen compounds of cobalt were insufficiently investigated hitherto and the reduction processes of cobalt oxides were apparently not investigated at all. Examples of kinetic differential curves of the process of a reduction of $Co_3O_4 \cdot O_y$ by hydrogen at various temperatures are given. The authors show that cobalt oxides can be reduced more easily by means of hydrogen than by the corresponding iron oxides. This, moreover, is possible at a lower temperature: Fe_2O_3 is practically not reduced by hydrogen below $250^\circ C$ while $Co_3O_4 \cdot O_y$ can even be reduced with a velocity well measurable at $195^\circ C$. The reduction of $Co_3O_4 \cdot O_y$ at the respective temperatures takes place in two

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stages. G. I. Chufarov and collaborators showed in ref. 3 that Co_3O_4 is reduced in two stages: $\text{Co}_3\text{O}_4 \rightarrow \text{CoO}$ and $\text{CoO} \rightarrow \text{Co}$. The authors state that this takes place only above 300°C where Co_3O_4 is reduced in 2 and correspondingly $\text{Co}_3\text{O}_4 \cdot \text{O}_y$ in 3 stages. Subsequently it appears, that in the case of the reduction of cobalt oxides, there exists a temperature limit, at the surpassing of which the Co-phase (which is accumulated in the phase just being reduced) becomes stable. The characteristics of the reduction of $\text{Co}_3\text{O}_4 \cdot \text{O}_y$ at above 300°C will be given in the next work. - In the first stage of the reduction of $\text{Co}_3\text{O}_4 \cdot \text{O}_y$ no autocatalytic development of the process takes place, the induction period is lacking. The reaction of the reduction begins with a maximum velocity which gradually decreases and reaches a minimum at the transformation point of the corresponding phases. In the 2nd stage the reduction process shows a clearly marked autocatalytic character. At lower temperatures of 195 to 200°C autocatalysis is less clearly marked than at higher

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The Kinetics and the Mechanism of the Reduction of Cobalt Oxides 76-1-11/32

temperatures (271-296°C). At above 230°C in the second stage immediately after the autocatalytic range the velocity of the process is about half the value of the initial velocity of the $\text{Co}_3\text{O}_4 \cdot \text{O}_y$ reduction. In the range from 200-230°C, however, the velocity of the process increases in the second stage to the double of the initial velocity of the $\text{Co}_3\text{O}_4 \cdot \text{O}_y$ reduction. The apparent activation energy of the process

$\text{Co}_3\text{O}_4 + 4\text{H}_2 \rightarrow 3\text{Co} + 4\text{H}_2\text{O}$ was 17,8 kcal. The experimental data speak convincingly in favor of the fact that the process of the reduction of cobalt oxides shows great similarity with that of the reduction of iron oxides. The authors are of opinion that in both cases the characteristics of the kinetic regularities are connected with the crystal-chemical transformation of the reducing solid phases, with the peculiar reaction - diffusion of elementary particles of crystalline lattices of reduced oxides. A scheme for the process in the reduction of the $\text{Co}_3\text{O}_4 \cdot \text{O}_y$ -phase is given. According to the author's opinion the experimental data can be well explained

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The Kinetics and the Mechanism of the Reduction of Cobalt Oxides 76-1-11/32

by means of this scheme.

There are 4 figures, and 5 references, 5 of which are Slavic.

ASSOCIATION: Chemical-Technological Institute, Dnepropetrovsk
(Dnepropetrovskiy khimiko-tekhnologicheskiy institut).

SUBMITTED: October 1, 1956

AVAILABLE: Library of Congress

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67278

18.3100

SOV/180-59-4-9/48
(Dnepropetrovsk)

AUTHORS: Kuznetsov, A.N. and Kulish, N.F.

TITLE: Some Peculiarities of the Kinetics and Mechanism of the Reduction Process of Cobaltocobaltic Oxide by Hydrogen

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Metallurgiya i toplivo, 1959, Nr 4, pp 52-58 (USSR)

ABSTRACT: The broad rules for the kinetics and mechanism of the reduction of metal have been formulated by G.I.Chufarov and his school (Ref 1), who have propounded the "adsorption-catalytic" theory. The present authors describe their attempt to formulate more precisely the detailed mechanism and kinetics of the reaction of Co_3O_4 by hydrogen and compare them with those observed by A.N.Kuznetsov et al, for Fe_3O_4 reduction (Ref 2,5). A pure artificial preparation of Co_3O_4 was reduced by a previously described (Ref 2,6) method in a closed circulating apparatus. The oxide was prepared from $\text{Co}_3\text{O}_4\text{O}_y$ by prolonged heating in air at 825°C to constant weight. 0.5 g Tablets, 11 mm in diameter and 3 mm thick, made from the powder obtained were reduced at 220 to 342°C with chemically pure hydrogen. The results are shown as plots of the rate of reduction (represented by the volume of

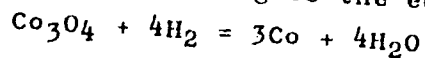
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Some Peculiarities of the Kinetics and Mechanism of the Reduction Process of Cobaltcobaltic Oxide by Hydrogen

hydrogen used by 1 g of initial oxide) in one minute against the degree of reduction (represented by the volume of hydrogen used for the reduction of 1 g of initial oxide). Fig 1 and 2 give curves for Co_3O_4 for various temperatures while Fig 3 gives corresponding curves for Fe_2O_3 . The former is more easily reducible but below $300^{\circ}C$ the general character is similar; the autocatalytic nature of the process is evident. To get more information on Co_3O_4 reduction above $300^{\circ}C$ specimens were pre-reduced by hydrogen at 225 to $480^{\circ}C$ until exactly 93 ml of hydrogen, ie that required to reduce 1 g of Co_3O_4 to CoO , had been consumed and the reaction was then frozen. The material obtained was analysed for metallic cobalt by a copper-sulphate or silver-nitrate method. The results (Fig 4) are represented as a plot of the ratio of the weight metallic cobalt per 1 g sample to that calculated for reduction according to the equation



Card 2/4 for the quantity of hydrogen consumed. Between 286 and

Some Peculiarities of the Kinetics and Mechanism of the Reduction
Process of Cobaltocobaltic Oxide by Hydrogen

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290°C a 1.8-fold reduction in metallic-cobalt content occurs; below and above this range the content is practically constant. This indicates that there is a temperature (291°C) below which cobaltous oxide becomes thermodynamically unstable and cannot accumulate in the stoichiometric quantity during the reduction of higher oxides. Although there are many similarities between the reduction of corresponding iron and cobalt oxides, the stages in the latter are much less distinct. The X-ray patterns from oxide partly reduced at 226 and 480°C in Fig 5a and 5b, respectively, show that in the first, metallic cobalt and cobaltocobaltic oxide are present; in the second, cobaltous and not cobaltocobaltic oxide is present. The reduction curve for Co_3O_4 only begins to show a break corresponding to $Co_3O_4 \rightarrow CoO$ at reduction temperatures over 300°C. The authors discuss this effect and the nature of the induction period for the reduction process, though they announce their intention of dealing with this also in a future paper. They show that the autocatalytic mechanism can explain the observed decrease

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Some Peculiarities of the Kinetics and Mechanism of the Reduction
Process of Cobaltocobaltic Oxide by Hydrogen

in metallic-cobalt content of a partially-reduced sample.
X-ray patterns (Fig 6) of metallic cobalt obtained from
 Co_3O_4 by hydrogen reduction at different temperatures
provide further information on the accumulation of phases.
There are 6 figures and 17 Soviet references.

ASSOCIATION: Dnepropetrovskiy khimiko-tekhnologicheskii institut
Kafedra neorganicheskoy khimii (Dnepropetrovsk Chemical-
Technological Institute, Chair of Inorganic Chemistry)

SUBMITTED: February 19, 1959

Card 4/4

KUZNETSOV, A.N.; KULISH, N.F.

Some relationships in the reduction of metal oxides of the iron family. Zhur. fiz. khim. 36 no.4:720-725 Ap '62. (MIRA 15:6)

1. Dnepropetrovskiy khimiko-tekhnologicheskij institut.
(Iron group) (Oxides)

RYSS, I.G.; KULISH, N.F.

Hydrolysis kinetics of the hexafluogermanate ion: GeF_6^{2-} Zhur.-
neorg.khim. 8 no.2:342-348 F '63. (MIRA 16:5)

1. Dnepropetrovskiy transportnyy institut i Dnepropetrovskiy
khimiko-tekhnologicheskii institut.
(Fluogermanates) (Hydrolysis)

VEKHOV, V.A.; GARANZHA, L.P.; NEKRASOVA, Z.D.; KULISH, N.F.

Some regularities of the changes in the solubility of chlorolignin
in alkalies. *Gidroliz. i lesokhim.prom.* 17 no.2:16-17 '64.
(MIRA 17:4)

1. Dnepropetrovskiy metallurgicheskiy institut.

RYSS, I.G.; KULISH, H.F.

Hydrolysis of potassium hexafluorogermanate in aqueous solutions. Zhur. neorg. khim. 9 no.6:1382-1386 Je'63
(MIRA 17:8)

1. Dnepropetrovskiy institut inzhenerov zheleznodorozhnogo transporta i Dnepropetrovskiy khimiko-tekhnologicheskij institut.

RYSS, I.G.; KULISH, N.F.

Equilibrium of the first step of hydrolysis of a hex-
afluogermanate ion. Zhur. neorg. khim. 9 no.5:1103-1108
My '64.
(MIRA 17:9)

1. Dnepropetrovskiy institut inzhenerov zheleznodorozhnogo
transporta i Dnepropetrovskiy khimiko-tekhnologicheskii
institut.

RYSS, I.G.; KULISH, N.F.

Rate of the hexafluorogermanate ion decomposition in aqueous
solutions at 0°. Zhur. neorg. khim. 9 no.9:2103-2110 S '64.

(MIRA 17:11)

1. Dnepropetrovskiy institut inzhenerov zheleznodorozhnogo
transporta i Dnepropetrovskiy khimiko-tekhnologicheskiy institut.

RYSS, I.G.; KULISH, N.F.

General equilibrium constant of hexofluogermanate ion GeF_6^{2-} hydrolysis
at 25°C. Zhur.neorg.khim. 10 no.8:1827-1832 Ag '65. (MIRA 19:1)

1. Dnepropetrovskiy institut inzhenerov zheleznodorozhnogo
transporta i Dnepropetrovskiy khimiko-tehnologicheskii institut.
Submitted June 20, 1964.

KULISH, N.I., brigadir puti (st. Chudnov-Volynskiy, Yugo-Zapadnoy dorogi)

Track lining with shock absorbers. Put i put.khoz. 6 no.6:26 '62.
(MIRA 15:7)

(Railroads--Track)

KULISH, N.I. (Krym, Livadiya, d.1 kv.21)

Unusual case of penetrating injury of the thorax. Vest.khir. 85
no.12:105-106 D '60. (MIRA 14:1)

1. Iz Livadiyskoy kurortno-klinicheskoy bol'nitsy (gl. vrach -
Ye.S. Filippova), gor. Yalta.
(CHEST-WOUNDS AND INJURIES)

KULISH, N.I.

Features in the healing of fractures of the bones in patients
with tuberculosis. Ortop., travm. i protez. no. 9:43-47 '61.

(MIRA 14:10)

1. Iz Livadiyskoy kurortnoy bol'nitsy (glavnyy vrach - N.I.
Kulish) Krymskoy oblastni i Ukrainskogo nauchno-issledovatel'-
skogo instituta ortopedii i travmatologii im. M.I. Sitenko
(dir. - chlen-korrespondent AMN SSSR prof. N.N. Novachenko).
(TUBERCULOSIS) (FRACTURES)

KULISH, N. I.

Traumatism and its prevention on the southern shore of the Crimea.
Ortop., travm. i protez. no.3:58-62 '62. (MIRA 15:6)

1. Iz Livadiyskoy kurortnoy bol'nitsy (glavnyy vrach - T. U.
Toguzov)

(CRIMEA--HEALTH RESORTS, WATERING PLACES, ETC.)
(ACCIDENTS--PREVENTION)

L 01057-67 FWT(1)/EAP(e)/EAT(m)/EFC(k)-2/T/ENT(1) T/ENT(1) R/SE/WH

ACC NR: AT6015133

SOURCE CODE: UR/0000/66/000/000/0091/0106

AUTHOR: Lisitsa, M. P.; Yaremko, A. M.; Kulish, N. R.

64
63
B+1

ORG: Institute of Semiconductors, AN UkrSSR (Institut poluprovodnikov AN UkrSSR)

TITLE: Investigation of some laser parameters ✓

SOURCE: Respublikanskiy seminar po kvantovoy elektronike. Kvantovaya elektronika (Quantum electronics); trudy seminara. Kiev, Naukova dumka, 1966, 91-106

TOPIC TAGS: laser, laser theory, solid state laser

ABSTRACT: The classical electrodynamics theory is used for investigating possible modes in a solid-state cylindrical laser. The effect of resonator length on the pumping threshold, output, and divergence angle is studied both theoretically (in the geometrical-optics approximation) and experimentally. The well-known A. G. Fox and T. Li model (BSTJ, 1961, 40, 453) is not equivalent to practical laser systems. Hence, a different model -- a cylindrical rod whose end surfaces have a unity reflection factor -- is adopted. For deduction of formulas, this rod is replaced by an infinite-length rod excited with a period l equal to the original-rod length. Starting

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ACC NR: AT6015133

with the Maxwell equations and material equations of the medium, an equation of the oscillation stability is deduced. An analysis of the roots of this equation yields the conditions of isolation of (near-) axial modes; energy characteristics of the latter are considered under no-loss and lossy conditions. An experimental verification was performed on a ruby laser whose resonator length was varied within 0.8—3.5 m. A plot of laser output energy vs. angle between mirrors shows three maxima; the central maximum represents axial and side maxima nonaxial modes. Experimental curves of the threshold pumping energy, divergence angle, and output vs. resonator length are in qualitative agreement with the theory. Orig. art. has: 7 figures and 55 formulas.

SUB CODE: 20 / SUBM DATE: 12Feb66 / ORIG REF: 005 / OTH REF: 003

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Card 2/2

REF ID: A6011572

SOURCE CODE: UR/0051/66/020/003/0908/0510

AUTHOR: Masitsa, M. P.; Kulish, N. R.; Geyets, V. I.; Koval', P. N.

5/

ORG: none

13

TITLE: Laser Q-switching with KS-19 filters ^{of} 10

SOURCE: Optika i spektroskopiya, v. 20, no. 3, 1966, 508-510

TOPIC TAGS: ruby laser, giant pulse laser, laser r and d, Q switching, passive switching, optic filter/KS 19 filter

ABSTRACT: In view of the fact that Q-switching by spectrally absorbing filters with reversible bleaching is much simpler than electro-optical or rotating Q-switching devices, the authors investigated the influence of transparency of KS-19 filters on the amplitude of the peaks of the output emission and their numbers in a ruby laser (120 mm long, 12 mm diameter, Cr₂O₃ concentration 0.05 wt.%). The Q-switching was produced with the aid of five glass filters cut from a single block, having different transmissions in the region of the operating wavelength of the laser. Introduction of the filter into the laser resonator increased the lasing threshold by an average of 12% (over the nominal value 1.65 kJ). At a definite laser emission density, the filter became bleached and the energy stored by the excited chromium ion was emitted in the form of a giant pulse consisting of several spikes whose number increases with increasing pump energy and whose amplitude exhibits saturation. At maximum pump energy (double the threshold value), the amplitude of the giant peaks was ~40 times

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UDC: 621.375.9: 535

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ACC NR: AP6011572

larger than the amplitude of the ordinary lasing spikes under similar conditions. Increasing the reflection coefficient of the mirrors increased the output peaks and eliminated some of the saturation. An increase in the optical density of the filter first increases the spike amplitudes, but subsequently results in a decrease, for at large optical density the number of photons necessary to bleach the filter increases. Orig. art. has: 4 figures. [02]

SUB CODE: 20/ SUBM DATE: 12Jul65/ ORIG REF: 003/ OTH REF: 012/ATD PRESS: 4258

Card 2/27/

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ACC NRI AFG025955 SOURCE CODE: UR/0051/66/021/001/0076/0031

AUTHOR: Lisitsa, M. P.; Kulish, N. R.; Yarenko, A. M.; Koval', P. M.; Gayets, V. I.

ORG: none

TITLE: Study of the emission characteristics of a ruby laser

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B

SOURCE: Optika i spektroskopiya, v. 21, no. 1, 1966, 76-81

TOPIC TAGS: ruby laser, laser resonator, optic pumping, laser emission

ABSTRACT: In a theoretical and experimental study of the effect of the size of a laser resonator with plane and confocal mirrors on the emission parameters, the dependence of the threshold pumping energy, divergence angle, and output power on the length of the resonator was determined. The results of the calculations are shown in Fig. 1. Fig. 2 shows the corresponding experimental curves. The experimental part of the study was carried out on a ruby laser with external dielectric mirrors at room temperature. The length of the resonator ranged from 0.8 to 3.5 m. The variation in the energy emitted by the laser with changing angle of the interferometric mirrors was determined; the observed decrease in output energy with increasing resonator length may be due to a decrease in the working part of the active material caused by a narrowing of the coherent beam, and, like the other laser parameters studied, is determined by the multimode character of the resonator. In conclusion, authors thank V. V.

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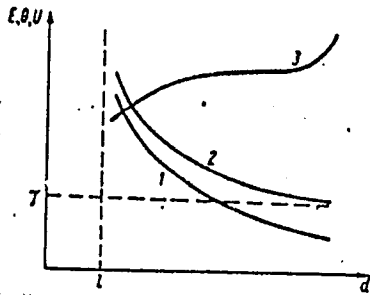


Fig. 1. Theoretical curves of the dependence of laser-emitted energy (1), divergence angle (2), and threshold pumping energy (3) on the resonator length.

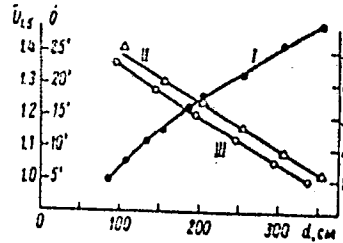


Fig. 2. Experimental curves of the dependence of threshold pumping energy (I), divergence angle (II), and laser-emitted energy (III) on the resonator length.

Andryushchenko for preparing the multilayer dielectric mirrors. Orig. art. has: 4 figures and 17 formulas. [27]

SUB CODE: 20/ SUBM DATE: 19Nov64/ ORIG REF: 004/ OTH REF: 006/ ATD PRESS:

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Card 2/2 hs

KULISH, P.A.

Regularities in the separation of suspensions under conditions
of the interaction between filtration and settling processes.
Trudy KTIPP no.17:91-101 '57. (MIRA 13:1)
(Filters and filtration)

KULISH, P.A., Cand Tech Sci--(sic) "Study of the effect of the precipi-
tation process ^{up} in the filtration of ^{the liquid} ~~water~~ of the first saturation."
Kiev, 1951. 17 pp with drawings. (In: Higher Education USSR. Kiev
Techno^{ical} Inst of the Food Industry), 200 copies. (11, 16-58, 140)

KULISH, P.A.

Investigation of filter press operations under conditions of interaction between the filtration and the precipitation processes.
Izv.vys.ucheb.zav.;pishch.tekh.no.5:130-138 '60. (MIRA 13:12)

1. Kiyevskiy tekhnologicheskii institut pishchevoy promyshlennosti.
Kafedra spetsoborudovaniya pishchevykh proizvodstv.
(Filters and filtration)
(Precipitation (Chemistry))

KULISH, P.A.

Switch lantern posts have to be hollow. Put' i put. khoz.
8 no.5:41 My '64. (MIRA 17:6)

1. Pomoshchnik uchastkovogo revizova po bezopasnosti
dvizheniya poyezdov, stantsiya Kaliningrad, Pribaltiyskoy
dorogi.

S/125/61/000/006/010/010
D040/D112

AUTHORS: Pokhodnya, I. K., Kulish, R. M.

TITLE: At the Welding Materials Commission

PERIODICAL: Avtomaticheskaya svarka, no. 6, 1961, 95-96

TEXT: Brief information is given on a newly-organized permanent Welding Materials Commission at the Institut elektrosvarki im. Ye. O. Patona (Electric Welding Institute im. Ye. O. Paton), its functions, and its first session. The Institute is leading in the welding branch in the Soviet Union. It has two Sub-Commissions: one dealing with electrodes for manual welding and surfacing, the other with materials for machine welding and surfacing. The Commission's functions are: a) Determining the welding materials requirements for the USSR economic regions and branches of industry; providing data for production planning; b) Examining the quality of materials produced by the industry; certifying quality; giving recommendations to stop the output of obsolete low-quality materials; c) Organizing tests for new materials; d) Supervising the construction and equipment of new plants and shops for the production of welding materials; e) Assisting materials standardization; f) Giving recommendations for centralized production. The first session in

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At the Welding Materials Commission

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February 1961 was attended by specialists from industrial plants, research and planning organizations and sovnarkhozes, and scientists. Candidate of Technical Sciences I. K. Pokhodnya (Electric Welding Institute im. Ye. O. Paton) presented a report on "Production of welding materials in Gr. Britain" (summary report of his mission to Gr. Britain). The work plan for 1961 was considered and approved, and the following reports heard and discussed: by Engineer T. Ye. Mikhalevskiy (of "Giprometiz") - "Draft standard plan for electrode shop with 25,000 ton annual output"; Engineer M. F. Khrobastov (TsNIITMASH) - "Pilot unit of a high-production electrode-coating machine with 18-20 ton/shift capacity"; Engineer A. S. Varshavskiy (OKB "Elektropech", Moscow) - "High-production conveyer furnaces for drying and roasting electrodes, with 10-20 ton/shift capacity"; Engineer E. P. Lugovoy (SKB-9, Rostov Sovnarkhoz) - "High-production machines for straightening and cutting electrode wire"; Engineer A. A. Gustov - "A rotor line for production of welding electrodes". The submitted projects were considered by work groups of experts. The "Giprometiz" draft plan was criticized in part, and it was recommended to consider this criticism in further planning of electrode shops for 25 and 60,000 tons annual output. The electrode-coating set of TsNIITMASH is being assembled at the Opytno-svarochnyy zavod Mosgorsovnarkhoza (Experimental-Welding Plant of the Moscow City Sovnarkhoz). The novelty
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of the set was appreciated and it was recommended to test it in 1961 at the Odesskiy zavod im. Dzerzhinskogo (Odessa Plant im. Dzerzhinskiy), but some serious faults in its design were pointed out, and the Subcommittee recommended TsNIITMASH and OSZ to continue work and simplify and improve design, as well as reduce its weight and size. The OKB-463A (OKB-463A) and OKB-463B (OKB-463B) drying-roasting furnaces of OKB-"Elektropech" are used, but they are not free from faults and too few of them have been produced. The faults committed in the "OKB-463A" had been repeated in the 3-ton "OKB-830" furnace. Urgent design improvements and tests under conditions of prolonged operation were recommended. The Subcommittee concluded that designing and research work is necessary for improvement of conveyor furnaces. Some design changes were considered necessary in the ИАО-32 (IAO-32) machine for straightening and cutting wire before starting series output. Another design of SKB-9 was criticized - ИО-34 (IO-34) for straightening and cutting steel, copper and aluminum wire. It was found only suitable for low-carbon steel and series output of this machine was not advised. The application of УМ-7 (TSM-7) electrodes was discussed in view of protests from sanitation and labor protection authorities. It was decided that iron powder can be used to coat these electrodes in order to reduce ✓

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the toxicity and raise the work productivity. The Electric Welding Institute was advised to test different high-production electrodes to replace the Ts-M7 grade. As iron powder is scarce, the Electric Welding Institute, TsNIITMASH, VNIIST and "Promstal'konstruktsiya" will have to develop low-toxicity electrodes suitable for high current and having not much iron powder in the coating. The Commission decided to apply at the Committee of Standards for raising the standard no-load voltage of welding transformers in view of the higher no-load voltage needed for high-production electrodes. Powder iron produced by the Sulinskiy metallurgicheskiy zavod (Sulin Metallurgical Plant) was stated to have a very unstable chemical composition and to frequently have high contents of carbon, sulfur and phosphorus. It is therefore not suitable for electrodes. Powder iron produced by a process developed at the Institut metallokeramiki i spetssplyavov AN USSR (Institute of Powder Metallurgy and Special Alloys AS UkrSSR) meets the requirements best.

Card 4/4

KULISH, S.A., inzh.

Economic expediency in increasing timber supplies. Izv. vys. ucheb.
zav.; gor. zhur. no.3:35-38 '60. (MIRA 14:5)

1. Khar'kovskiy inzhenerno-ekonomicheskiy institut. Rekomendovana
kafedroy ekonomiki i organizatsii material'no-tehnicheskogo
snabzheniya.

(Mine timbering—Storage)
(Coal mines and mining—Costs)

KULISH, S.A.

Over-all mechanization of operations in mine lumber yards. Ugol'
Ukr. 4 no.7:36 J1 '60. (MIRA 13:8)
(Coal mines and mining--Equipment and supplies)
(Mine timbering)