KUZNETSOV, S.T.

Analytic determination of roof dislocation and pressure on stope supports in flat seam mining. Ugol' 33 no.11:39-41 N '58.
(MIRA 11:11)

1. Vsesoyuznyy nauchno-issledovatel'skiy marksheyderskiy institut.
(Subsidences (Earth movements) (Mine timbering)

KUZNETSOV, S.T.

Additional remarks on K.V. Ruppeneit's study "Rock pressure and displacement in flat coal seam longwalls". Ugol' 34 no.11:45 N '59 (MIRA 13:3)

(Subsidences(Earth movements))

KUZNETSOV, S.T., kand.tekhn.nauk; GLUSHIKHIN, F.P., inzh.; ORLOV, A.A., inzh.

Comparative laboratory tests of metal supports having an increasing and constant resistance. Ugol' Ukr. 4 no.3:26-29 Mr '60. (MIRA 13:6)

(Mine timbering--Testing)

KUZNETSOV, S.T.; DOLINSKIY, A.M.; GLUSHIKHIN, F.P.

Results of the testing of the A-3 mining machine unit in the Kuznetsk Basin. Ugol' 36 no.6:30-33 Je '61. (MIRA 14:7)
(Kuznetsk Basin--Coal mining machinery)

FILIPPOV, A.P., kand.tekhn.nauk; KUZNETSOV, S.T., kand.tekhn.nauk; BUBLIK, F.P., kand.tekhn.nauk

Rock pressure manifestations in cases of mining thick seams in the Tom'-Usa deposit with the chamber-pillar method and use of hydraulic machinery. Ugol' 36 no.10:33-35 O '61. (MIRA 14:12)

1. Trest Tomusugol' (for Filippov). 2. Vsesoyuznyy nauchno-issledovatel'skiy marksheyderovskiy institut (for Kuznetsov, Bublik).
(Kuznetsk Basin—Coal mines and mining—Hydraulic equipment)
(Rock pressure)

KUZNETSOV, S.T., kand.tekhn.nauk; DAVYDOVICH, I.L., kand.tekhn.nauk; KOROTKOV, M.V., kand.tekhn.nauk; KOLBENKOV, S.P., kand.tekhn.nauk

"Efficient development and rock-hole mining methods," V.P. Prokof'ev, K.P. Zaika. Reviewed by S.T. Kuznetsov and others. Ugol' 36 no.11:60-61 N '61. (MIRA 14:11)

1. Vsesoyuznyy nauchno-issledovatel'skiy marksheyderskiy institut.
(Coal mines and mining)
(Prokof'ev, V.P.) (Zaika, K.P.)

KUZNETSOV, S.T., kand.tekhn.nauk; SMIRNOV, M.V., kand.tekhn.nauk

Correlation in the static and dynamic determining of the carrying capacity of the soil and roof of coal layers. [Trudy] VNIMI no.40: 25-40 '61. (MIRA 14:12)

(Mining engineering)

VASIL'YEV, Petr Vasil'yevich; IVANOV, Konstantin Ivanovich; KARNYSHEV, Anatoliy Dmitriyevich; KUZNETSOV, S.T., kand. tekhn. nauk, retsenzent; KAZAKOV, B.Ye., inzh., otv. red.; OKHRIMENKO, V.A., red.izd-va; LOMILINA, L.N., tekhn. red.

[Controlling roofs in flat seams] Upravlenie krovlei na pologikh plastakh. Moskva, Gosgortekhizdat, 1962. 249 p. (MIRA 16:8)

1. Vsesoyuznyy nauchno-issledovatel'skiy marksheyderskiy institut (for Kuznetsov).
(Mine timbering) (Coal mines and mining)

KUZNETSOV, G.N., kand.tekhn.nauk; BUBLIK, F.P., kand.tekhn.nauk; KUZNETSOV, S.T., kand.tekhn.nauk

Stability of nonuniform interchamber pillars. [Trudy] VNIMI no.45:230-236 '62. (MIRA 16:4)

(Rocks—Testing)

KUZNETSOV, S.T., kand.tekhn.nauk; SMIRNOV, M.V., kand.tekhn.nauk

Results of tests of the M-87 support in Kuznetsk Basin mines and a study of its principal features on models. [Trudy] VNIMI no.45:263-281 '62. (MIRA 16:4)

(Mine timbering--Testing)

KUZNETSOV, S.T., kand. tekhn. nauk; BIBLIK, F.P., kand. tekhn. nauk; IVANOV, G.A., inzh.

Results of determining stresses in pillars by the unloading method at the POLYSAEVO-SEVERNAYA Mine. [Trudy] VNIMI no.47:41-46 '62 (MIRA 17:7)

KUZNETSOV, S.T., kand. tekhn. nauk; GLUSHIKHIN, F.P., inzh.

Interaction of powered supports with wall rocks. Ugol' 38 no.12:32-35 '63. (MIRA 17:5)

1. Vsesoyuznyy nauchno-issledovatel'skiy marksheyderskiy institut.

ANGARSKIY, Viktor Vinediktovich; KUZNETSOV, S.T., retsenzent;
BAKATIN, V.A., retsenzent; ARKHIPOV, N.A., otv. red.;

[Metal and precast reinforced concrete mine supports in the Kuznetsk Basin] Metallicheskaia i sbornaia zhelezobetonnaia krep' shakht Kuzbassa. Moskva, Izd-vo "Nedra," 1964. 211 p.
(MIRA 17:7)

KUZNETSOV, S.T., kand. tekhn. nauk; [illegible]

Dependence of the strength of coal samples on their [illegible].
[Trudy]VNIMI no.50:54-58 '63.

(MIRA 17:3)

KUZNETSOV, S.V., dots.; YEGOROV, Ye.A.

Role of the nervous system in passive immunogenesis in paratyphoid infections of guinea pigs. Nauch. trudy Samark. inst. sov. torg. 8:215-218 '57. (MIRA 12:7)
(PARATYPHOID FEVER) (IMMUNITY) (NERVOUS SYSTEM)

21891
S/177/61/000/002/004/005
D234/D305

27.6000 also 1080

AUTHOR: Kuznetsov, S.V., Colonel, Medical Services

TITLE: Assessment of the efficiency of psychological tests for flying personnel under hospital observation

PERIODICAL: Voyenno-meditsinskiy zhurnal, no. 2, 1961, 44 - 47

TEXT: Thirty-eight persons were subjected to various tests; one with hysteria, eight with neurasthenia, three with traumatic cerebral lesions, and two with neurocirculatory dystonia of the hypertonic type. Healthy persons, and others with some kind of somatic disease, 24 in all, served as a control group. The purpose of this work was to help a Hospital Aeromedical Commision in assessing flying personnel, having some kind of neuro-psychic derangement. The results of the psychological investigations are given in the following table:

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Table.

1. Методика исследования	8. Группа обследуемых					
	9. с функциональными заболеваниями нервной системы	10. с травматической церебростенией	11. с нейроциркуляторной дистонией по гипертоническому типу	12. с недостатками в летной деятельности (здоровые)	13. контрольная	14. в возрасте 40 лет и старше *
2. Исследование внимания методикой «отыскивание чисел» (черная таблица)						
а) время выполнения задания (средние данные)	50,6 сек.	55,3 сек.	46,5 сек.	47,8 сек.	40,1 сек.	49,3 сек.
б) то же (лучшие данные)	43,3 »	47,0 »	44,2 »	43,5 »	33,8 »	40,7 »
3. Исследование внимания методикой «отыскивание чисел с переключением» (черно-красная таблица)						
а) время выполнения задания	4,1 мин.	3,2 мин.	4,2 мин.	3,8 мин.	3,6 мин.	4,5 мин.
б) количество ошибок . .	1,8	0,6	1,0	0,5	0,3	1,0
4. Исследование устойчивости внимания корректурной методикой						
а) производительность . .	2200	2603	2277	2032	2384	2168
б) количество всех ошибок	27,0	27,0	13,6	17,2	10,8	23,8
в) количество ошибок на 1000 знаков	11,7	10	5,9	8,4	4,5	10,7
Исследование устойчивости						

X

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Assessment of the ...

(Table continued)

5. внимания методикой «перепутанные линии»						
а) время выполнения задания	6,0 мин.	5,8 мин.	9,2 мин.	5,7 мин.	5,5 мин.	7,4 мин.
б) количество ошибок	1,3	0	1,4	0,2	0,5	1,7
6. Исследование переключения внимания и перестройки навыков методикой «сложение чисел с переключением»						
а) количество сложений за 1 мин.	13,0	15,1	10,9	16,2	18,2	11,5
б) количество ошибок	4,9	4,9	3,2	1,7	0,7	3,3
из них арифметических	1,1	2,3	0,6	1,5	0,28	0,7
на переключение	3,8	2,6	2,6	0,2	0,42	2,6
7. Исследование сенсомоторных реакций на аппарате НИИИАМ						
а) время сложной реакции до переключения	0,82 сек.	0,83 сек.	0,83 сек.	0,74 сек.	0,77 сек.	0,83 сек.
б) количество ошибок до переключения	6,2	2,0	5	4,5	4,0	5,5
в) время сложной реакции после переключения	0,79 сек.	0,81 сек.	1,06 сек.	0,75 сек.	0,77 сек.	0,8 сек.
г) количество ошибок после переключения	9,6	2,3	6,0	4,0	3,4	2,5

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Legend: 1 - Method of investigation; 2 - investigation of attention with the method of "finding numbers" (black table), a) time taken to execute task (average values), b) same (best values); 3 - investigation of attention with the method of "finding numbers with alternation" (black-red table), a) time taken for task, b) number of errors; 4 - investigation of stability of attention with the proof-reading method, a) productivity, b) total errors, c) number of errors per 1000 signs; 5 - investigation of stability of attention with the method of "mixed lines", a) time taken for task, b) number of errors; 6 - investigation of transfer of attention with readjustment of habits using method of "addition of numbers with alternation", a) number of additions in 1 minute, b) number of errors; arithmetical; alternation; 7 - investigation of sensori-motor reaction with NIIIAM apparatus, a) composite reaction time until alternation, b) number of errors until alternation, c) composite reaction time after alternation, c) number of errors after alternation; 8 - group of subjects; 9 - functional illness of the nervous system; 10 - traumatic cerebral lesion; 11 - neurocirculatory dystonia of

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the hypertonic type; 12 - deficient flying (healthy); 13 - control; 14 - forty years of age or older (these are included in the previous groups).

It was found that the results of psychological tests were determined not by the specific type of illness, but by the psychopathological stage reached, and by the age level. A certain inertness was found in the nervous processes of persons above 40 years of age with neurasthenia and neurocirculatory dystonia [Abstractor's note: Separate column in table]. Most of the errors were related to difficulties in the transfer of attention. Re-education of these persons was not recommended because of the possible negative effects of this inertness on the learning of new techniques. In the flying personnel with neurasthenia the stability of attention was lowered, difficulties were found in the transfer of attention, and in establishing conditioned reflexes, the memory was limited. Persons over 40 in this group were usually found unsuitable for further flying service. Psychological investigations are especially important in the cases

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with a post-traumatic condtion, since clinical observations do not give information on the degree of neuro-psychic derangement. By testing these persons before and after flying, it became possible to study the dynamics of this derangement. In addition to daficient attention it was found in the more severe cases that there was interference with conditioned reflexes, arithmetical work and memory. These characteristics meant disqualification from flying. Neurocirculatory dystonia of the hypertonic type was also found to yield bad test results. In one case this was due to aging, and in another to increased emotional instability. Short extracts of case histories are given in the paper. In all the cases under consideration, with only two exceptions, the judgement of the Aeromedical Commission was identical with that derived from psychological investigations. The conclusions are as follows: (1) Psychological tests can be used to show changes in the neuro-psychic functional state, (2) the greatest derangements were found with neurasthenia and with neurocirculatory dystonia of the hypertonic type in persons above 40 years of age, (3) the most effective tests are those concerned

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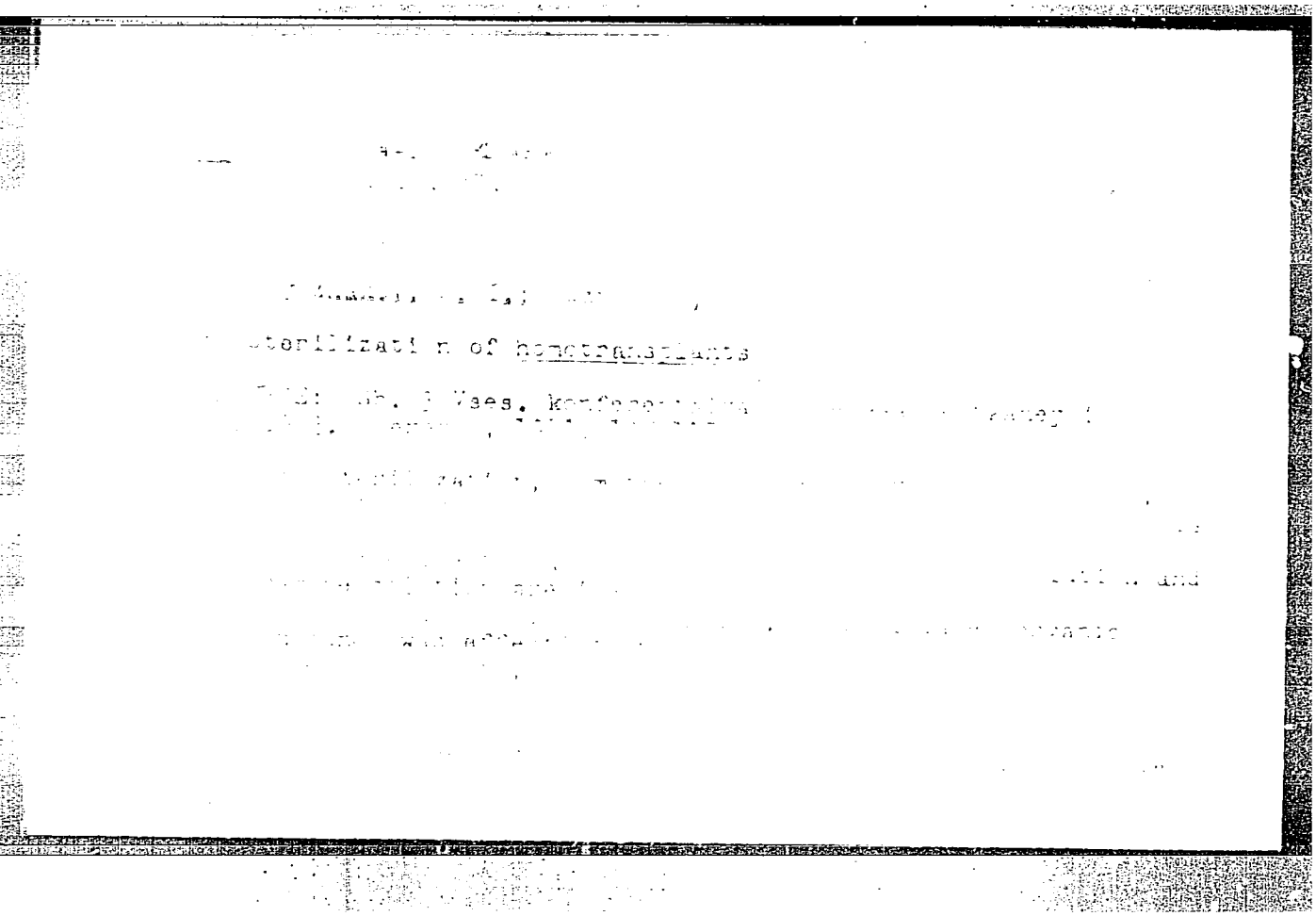
with the span and transfer of attention, formation and transformation of conditioned reflexes, and stability of attention, (4) the psychological investigations have an auxiliary role in the aeromedical examination. The results of this work show that these methods can be used to advantage in reaching correct decisions in judging flying personnel. There is 1 table.

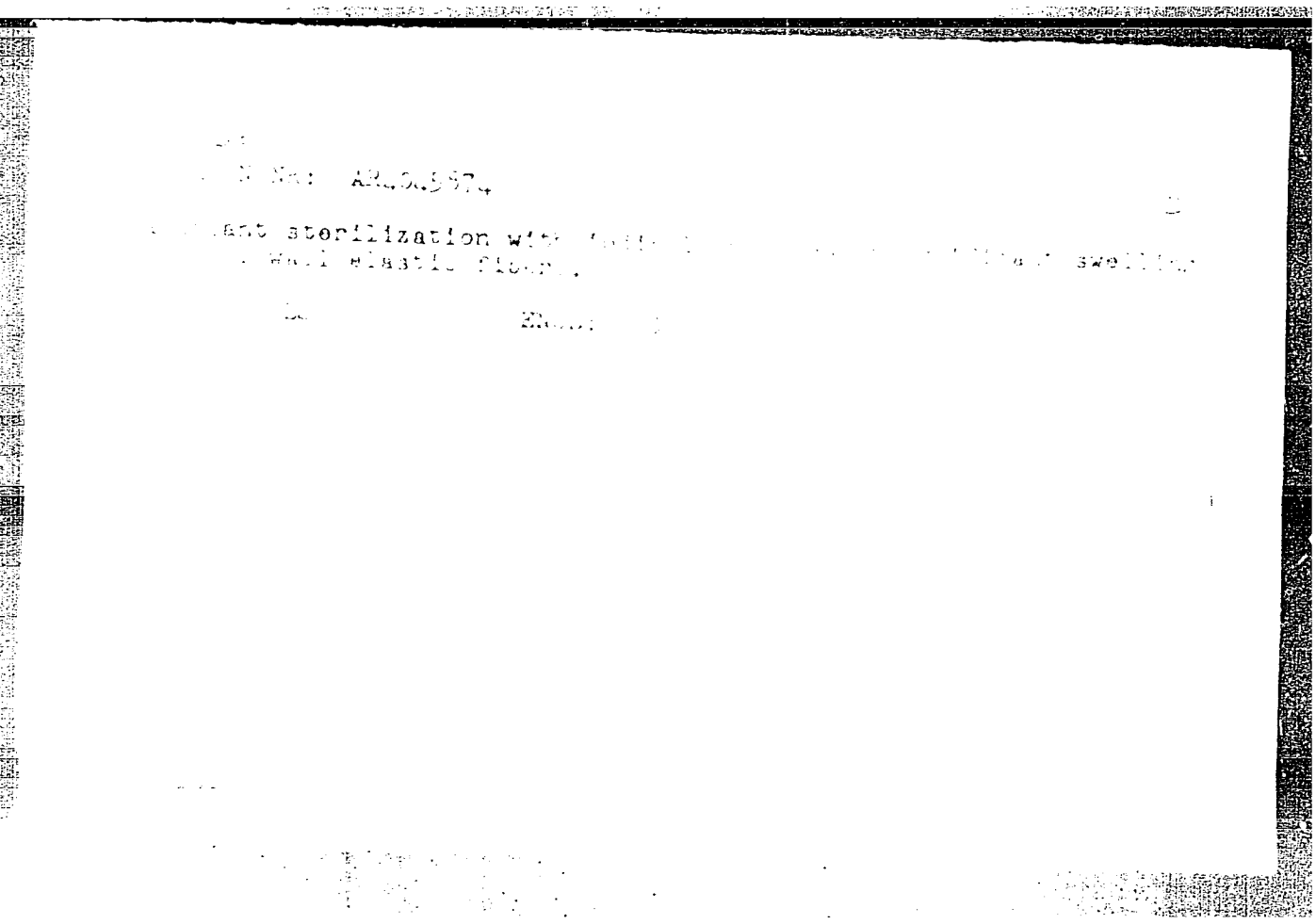
SUBMITTED: August, 1960

Card 7/7

KUZNETSOV, S.V., dots.

Epidemiological role of meat from Karakul sheep with allergic reactions to brucellosis. Nauch. trudy Samark. inst. sov. torg. 8:211-213 '57. (MIRA 12:7)
(Karakul sheep) (Brucellosis)





KUZNETSOV, S.V. (Novosibirsk)

Distribution of gas pressure ahead of an advancing coal face.
PMTF no.3:43-51 S-O '61. (MIRA 14:8)
(Mine gases) (Coal mines and mining)

KUZNETSOV, S.V. (Novosibirsk)

Interaction of rock pressure and the gas pressure within a coal seam. PMTF no.4:57-66 Jl-Ag '61. (MIRA 14:10)
(Rock pressure) (Gas, Natural)

KUZNETSOV, S.V. (Novosibirsk)

Porous ground model; geometric parameters and ground permeability. PMTF no.1:85-94 Ja - F '61. (MIRA 14:6)
(Soil physics) (Permeability)

KUZNETSOV, S. V.

Dissertation defended for the degree of Candidate of Technical Sciences at the Joint Scientific Council on Physicomathematical and Technical Sciences; Siberian Branch

"Marvel of a Deformed Porous Medium and Its Application to Problems of Rock Mechanics."

Vestnik Akad. Nauk, No. 4, 1963, pp 119-145

KUZNETSOV, S.V. (Novosibirsk)

"The problems of rock mechanics with reference to the development of coal strata".

report presented at the 2nd All-Union Congress on Theoretical and Applied Mechanics, Moscow, 29 Jan - 5 Feb 64.

KUZNETSOV, S.V.

Regularities and correlations determining the artificial caving of a longwall. Fiz.-tekh. probl. razrab. pol. iskop. no.5:3-19 '65. (MIRA 19:1)

1. Institut teoreticheskoy i prikladnoy mekhaniki Sibirskogo otdeleniya AN SSSR, Novosibirsk.

KUZNETSOV, Semen Vladimirovich; EMKSER, A.A., redaktor; LURIN, M.S., tekhnicheskiy redaktor

[Automatization of superphosphate production] Avtomatizatsiia proizvodstva superfosfata. Moskva, Gos. nauchno-tekhn. izd-vo khim. litry, 1956. 99 p. (MLRA 9:10)
(Automation) (Phosphates)

KUZNETSOV, S.V.

Automation of sulfuric acid production by the contact method.
Khim.prom. no.3:132-134 Ap-My '57. (MLRA 10:7)

1. Gosudarstvennyy institut po proyektirovaniyu predpriyatiy osnovnoy khimicheskoy promyshlennosti.
(Sulfuric acid)

5(1)

SOV/112-59-3-5623

Translation from: Referativnyy zhurnal. Elektrotekhnika, 1959, Nr 3, p 193 (USSR)

AUTHOR: Kuznetsov, S. V.

TITLE: Automation of the Superphosphate Industry
(Avtomatizatsiya superfosfatnykh proizvodstv)

PERIODICAL: V sb.: Avtomatiz. khim. i koksokhim. proiz-v. M., Metallurgizdat, 1958, pp 41-51

ABSTRACT: An experience is reported of the automated operational division of Vinnitskiy superfostatnyy zavod (Vinnitsa Superphosphate Plant), as well as of the economic effect obtained. The automatic system ensured continuously diluting the sulfuric acid to a specified concentration, maintaining a specified acid temperature after its mixing, and feeding the necessary quantity of the diluted acid to be mixed with the phosphate raw material. The scheme of automation of the continuous superphosphate chamber and the chamber gate is described. A table is presented of the expected personnel cut at various phases

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SOV/112-59-3-5623

Automation of the Superphosphate Industry

of production when various improvements are introduced, particularly the decrease due to mechanization of labor-consuming operations. Objectives in complex automation of production are considered. Four illustrations.

A.A.S.

Card 2/2

KUZNETSOV, S.V., insh.; GOLUBOVA, S.G., insh.

Automatic control of contact processes in the manufacture of sulfuric acid. Bum.prom. 34 no.12:8-12 D '59. (MIRA 13:4)

1. Giprokhim.

(Sulfuric acid industry--Equipment and supplies)
(Automatic control)

KUZNETSOV, S.V.

All-Union Conference on the Automation of the Soda Ash Manufacture. Khim.prom. no.5:367 My '61. (MIRA 14:6)
(Sodium carbonate—Congresses)

KUZNETSOV, S.V.

Organizing automatic control of the manufacture of sulfuric acid by the contact process. Khim.prom. no.8:549-553 Ag '61. (MIRA 14:8)

1. Opytno-konstruktorskoye byuro po avtomatike.
(Sulfuric acid) (Automation)

KUZNETSOV, S.V.

Seminar on the automation of chemical industries. Khim.prom. no.12:872-873 D '61. (MIRA 15:1)
(Chemical industries) (Automation)

L 09269-67 EWT(1)/EWG(k)-2 SCTB TT/DD/GD/GW

ACC NR: AT6036480 SOURCE CODE: UR/0000/66/000/000/0034/0036

AUTHOR: Arzhanov, I. M.; Boregovkin, A. V.; Bryanov, I. I.; Buyanov, P. V.; Zaloguyev, S. N.; Kamen'shchikov, Yu. V.; Kovalev, V. V.; Krasovskiy, A. S.; Kuznetsov, S. V.; Litsov, A. N.; Nikitin, A. V.; Nistratov, V. V.; Poruchikov, Ye. A.; Potkin, V. Ye.; Teret'yev, V. G.; Fedorov, Ye. A.; Khlebnikov, G. F.; Yaroshenko, G. L.

ORG: none

TITLE: Results of clinical and physiological investigations of the crew of the first multiman Voskhod spacecraft [Paper presented at the Conference on Problems of Space Medicine held in Moscow from 24 to 27 May 1966]

SOURCE: Konferentsiya po problemam kosmicheskoy meditsiny, 1966. Problemy kosmicheskoy meditsiny. (Problems of space medicine); materialy konferentsii, Moscow, 1966, 34-36

TOPIC TAGS: space medicine, space physiology, weightlessness, bodily fatigue, stress reaction, combined stress, cardiovascular system, central nervous system, manned spaceflight/Voskhod-1

ABSTRACT: The inclusion of a physician in the crew of the Voskhod-1 made it possible to increase medical investigations of the crew members during flight and to compare them with results of preflight and postflight examinations. The scope of the physiological examinations was selected in order to obtain a more complete evaluation of the functional condition of the cardiovascular and central nervous systems, and the function of

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external respiration of the cosmonauts. Physical exercises and orthostatic tests were included to detect earlier signs of physiological shifts.

Examinations were carried out before and after training in the ship, where certain conditions of flight were simulated, and also two weeks before flight. Postflight examination was begun fifteen minutes after landing and was continued for the first four days after the flight and also two weeks later.

After landing, the cosmonauts were active, looked somewhat excited, and complained of general fatigue. They were found to have hyperemia of the mucosa of the upper respiratory tract and conjunctivitis.

Komarov's weight dropped by 2.6%, Feoktistov's weight dropped by 4%, and Yegorov's by 3.9%. Weight loss was determined by Zhdanov to be due to water and fat loss. Neurological examination revealed a light swaying in the Romberg position, a tremor of the fingers, and increased perspiration. In addition, Yegorov showed a contraction of the retinal arteries. Disruption of vision and vestibular difficulties were not noted. Changes in EEG indicated an increase in inhibitory processes in the cortex of the brain. A diminution in work capacity was established by

psychological experiments (increase in the number of mistakes, increase in latent periods).

Indices of cardiovascular activity during rest did not exceed wide norms. However, an increase in pulse frequency was noted (Komarov up to 96, Feoktistov up to 100, and Yegorov up to 94 beats/min), as well as moderate drop in arterial pulse pressure at the expense of an increase in diastolic pressure. All three cosmonauts, when subjected to exercise, showed a significant increase in the pulse rate and inertia in the stroke volume. Feoktistov and Yegorov showed a significant diminution in the heart stroke volume and minute circulation of the blood during the passive orthostatic test. This could indicate a disruption of the venous inflow to the heart.

Postflight blood examinations indicated neutrophilic leukocytosis and eosinopenia. Urine was found to contain significant quantities of salts, chiefly urates, single erythrocytes (in the field of vision), and an increase in the excretion of 17-oxycorticosteroids. Eosinopenia, an increase in excretion of products of hormone decomposition, indicated the development of a stress reaction in cosmonauts. Since some of the indications found on the flight were also found after training in the train-

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ACC NR: AT6036480

ing ship, there is reason to attribute them to limitation of motor activity under conditions of weightlessness. The functional shifts found after flight are indications of a general fatigue, a moderate stress reaction, and a certain amount of detraining. In general, the changes observed in the cosmonauts were of one type. The differences found between the cosmonauts can be attributed to individual differences. [W.A. No. 22; ATD Report 66-116]

SUB CODE: 06, 22 / SUBM DATE: 00May66

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L 08268-67 FSS-2/EWT(1)/EEC(k)-2 SCTB TT/DD/GD/GW

ACC NR: AT6036481 SOURCE CODE: UR/0000/66/000/000/0036/0037

10

AUTHOR: Arzhanov, I. M.; Bryanov, I. I.; Baturenko, V. A.; Beregovkin, A. V.; Buyanov, P. V.; Kovalev, V. V.; Kondrakov, V. M.; Krasovskiy, A. S.; Kuznetsov, O. N.; Kuznetsov, S. V.; Nikitin, A. V.; Nistratov, V. V.; Teret'yev, V. G.; Fedorov, Ye. A.; Khlebnikov, G. V.

52
B+1

ORG: none

TITLE: Some results of the postflight examination of P. I. Belyayev and A. A. Leonov following their flight on the Voskhod-2 spacecraft [Paper presented at the Conference on Problems of Space Medicine held in Moscow from 24 to 27 May 1966]

SOURCE: Konferentsiya po problemam kosmicheskoy meditsiny, 1966. Problemy kosmicheskoy meditsiny. (Problems of space medicine); materialy konferentsii, Moscow, 1966, 36-37

TOPIC TAGS: space medicine, postflight medical examination, bodily fatigue, body weight, cardiovascular system, oculocardiac reflex, unconditioned reflex, space psychology, oxygen consumption, respiration, pulmonary ventilation/Voskhod-2

ABSTRACT: Postflight examinations of the Voskhod-2 crew members, Leonov and Belyayev, were performed on the third and fourth days after the flight and again a month later. The cosmonauts complained of light fatigue. They were found to have hyperemia of the mucosa of the nose and throat and conjunctivitis of the eyelids and eyeballs. They had lost weight

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Their pulse showed a certain lability. Pulse frequency rose significantly during mild physical exertions and changes in the position of the body. There was an increase in intraventricular conductivity, an increase in the systolic index (7—11%), and a delay in restoration of hemodynamic indices after physical exercise.

Belyayev's oxygen consumption increased by 23% and Leonov's by 14% as compared with preflight levels. Vital capacity of the lungs diminished by 8—12%, while pulmonary ventilation increased by 51—18%.

Neurological examinations revealed a light tremor of the fingers, a high orthostatic reflex with an absence of pulse reaction to the oculo-cardiac reflex, and an increase in the slow bioelectrical activity of the brain cortex. Psychological tests revealed an increase in distribution and in the middle magnitudes of the duration of the period of sensory motor reaction. Since this was not accompanied by errors, it is possible to assume that the fatigue observed in cosmonauts was a compensatory reaction. Blood and urine examination on the third day after flight did not differ substantially from preflight levels. Biochemical examination uncovered an increase of chlorides, adrenalin, noradrenalin, and 17-oxycorticosteroids in the urine.

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ACC NR: AT6036481

The observed shifts in physiological indices were short-term and reversible. They indicated the development of moderately marked fatigue in the subjects. Thus, despite the complexity of the flight, the postflight examinations revealed only moderate functional changes in the two cosmonauts. There was no difference in the nature of these changes in the cosmonauts. This indicates a high degree of training and a good neuropsychological and physical preparation for spaceflight. [W.A. No. 22; ATD Report 66-116]

SUB CODE: 06, 22 / SUBM DATE: 00May66

Card 3/3 egk

LUR'YE, L.S.; KHRUSHCHEV, V.G.; YELISEYEV, V.S.; KUZNETSOV, S.V.

Irradiation plants at the All-Union Scientific Research Institute for the Electrification of Agriculture. Atom. energ. 19 no.2:212-216 Ag '65. (MIRA 18:9)

KUZNETSOV, S. YA.

Q

USSR / Farm Animals. Swine.

Abs Jour : Ref Zhur - Biologiya, No 5, 1959, No. 21270

Author : Spirin, K. T.; Kuznetsov, S. Ya.
Inst : Not given
Title : Using Raw and Cooked Potatoes in the Fattening of Pigs

Orig Pub : Sots. tvarinnitstvo, 1958, No 2, 15-16

Abstract : The control group obtained cooked mashed potatoes in a mixture with barley waste, the experimental group, raw potatoes reduced to fragments in a grinder, also mixed with barley waste and thickly mixed with water. All nursing piglets were additionally given corn-cobs and soured milk. In the course of the entire experiment the control group consumed its ration completely, in the experimental group raw potatoes were left over every day averaging 0.8 kg per animal (it consumed 1.8 kg instead of 2.6 kg). On the average the control group

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, No 5, 1959, No. 21270 Q

used per head 2.29 feed units and 1[illegible] g of protein. The average daily weight gain with expenditure of 5.1 feed units per 1 kg of weight gain amounted to 442 g for the control group, for the experimental group to 223 g at a feed expenditure of 9.6 feed units. -- O. I. Myagkova

Card 2/2

KUZNETSOV, S.Ya.

For further improvement in managing apartment houses. Gor. khoz. Mosk. 32 no.2:4-6 F '58. (MIRA 11:1)

1. KUZNETSOV, S. E.

2. USSR (600)

4. Agriculture

7. Agricultural courses [illegible] at a collective farm. Les i step' 4 no. 10, 1952

9. Monthly List of Russian Accessions, Library of Congress, January, 1953. Unclassified.

KUZNETSOV, S.Ye.

Slope protection. Put' i put.khoz. 8 no.12:33 '64.
(MIRA 18:1)

1. Starshiy inzh. geologicheskoy bazy, stantsiya Tuapse, Severo-Kavkazskoy dorogi.

KUZNETSOV, S. YE.

4498

Antikorpoziynoye Azotirovaniye Itsvetnoye Oksidirovanistal'nykh Izdeliy. (Material K Tipovomu Proektu Tsekha I Ustanovki Po Azotirovaniyu, Razrabot. Po Zadaniyu Rospromsoveta..) M., Nitinf, 1954. 36 s. 22 sm. (Sovet Promysl. Kooderatsii Rsfsr (Rospromsovet). Tekhn. Upr.) 2.COC Ekz B. Ts. -Avt. Ukazan Na Oborote Tit l. -(55-559) P 621. 785. 53

SO: Letopis Zhurnal'nykh Statey, Vol. 37, 1949

KUZNETSOV, S.Ye.

Vegetation for the stabilizing of embankment slopes. Put'i put. khoz. 4 no.7:20-21 Jl '60. (MIRA 13:7)

1. Starshiy inzh.-lesomeliorator inzhenerno-geologicheskoy bazy, g.Sochi.

(Soil binding)

KUZNETSOV, S. Ye., kand. sel'skokhoz. nauk (Sochi)

Stabilization of sliding slopes by means of tree planting.
Put' i put. khoz. 7 no.3:6 '63. (MIRA 16:4)

(Soil stabilization)

GERASHCHENKO, S.K.; KUZNETSOV, T.A.

Loss of sugar-beet transplants resulting from diseases in roots for seeding. Sakh.prom. 30 no.7:55-56 Jl '56. (MLRA 9:11)

1. Voronezhskiy sel'skokhozyaystvennyy institut (for Gerashchenko).
2. Semennaya inspektsiya Voronezhskogo sakhsveklotresta (for Kuznetsov).

(Sugar beets)

VISHNEVSKIY, A.M.; VISHNEVSKIY, E.A.; KUZNETSOV, T.A.; PETROV, A.V.; RUKEVICH, L.V.; ADEL'FINSKAYA, Yu.N., red.; SAYTANIDI, L.D., tekhn. red.

[Manual on sugar-beet seed production] Spravochnik po sveklovichnomu semenovodstvu. Moskva, Izd-vo M-va sel'.khoz. RSFSR, 1961. 90 p. (MIRA 15:3)

1. Ministerstvo sel'skogo khozyaystva RSFSR (for all except Adel'finskaya, Saytanidi).
(Sugar beets)

KULAE/Sov 1.t

LISOVENKO, S.I.; ZOLOTUKHIN, I.M.; KOSTYUK, A.P.; LISOVENKO, E.V.; FEL'DMAN, M.F.; KUKHETSOV, T.F.; PIVOVAROV, L.A., inzhener, retsenzent; SHAROYKO, P.M., inzhener, retsenzent; TURIK, E.A., inzhener, retsenzent; KIRILLOV, Yu.G., inzhener, retsenzent; SHVEDOV, E.A., inzhener, retsenzent; RUDENSKIY, Ya., tekhredaktor.

[Locomotives]Parovozy. Pt. 2. [Theory, design, and calculations for machinery, underframe, and auxiliary parts. Dynamics, traction calculations, and brief information on operation] Teoriia, konstruktsiia i raschet mashiny, ekipazha i vspomogatel'nykh ustroist, dinamika, tiagovye raschety i kratkie svedeniia po eksploatatsii. Kiev, Gos. nauchno-tekhn. izd-vo mashinostroit. i sudostroit. lit-ry. 1954. 475 p. [Microfilm] (MLRA 7:11)

(Locomotives)

KUZNETSOV, TIMOFEY FEDOROVICH

Teplovoz TE2; ustroystvo, ukhod i remont (Locomotive TE2; layout, maintenance and repair, by) N. A. Tertychko (and) Timofey Fedorovich Kuznetsov. Izd. 2, dop. Moskva, Transzheldorizdat, 1955.
359 p. illus., diagrs., tables.

TERTYCHKO, Nikolay Alekseyevich; KUZNETSOV, Timofey Fedorovich; DACHUK, L.Ya., redaktor; VERINA, G.P., tekhnicheskiy redaktor.

[The new TE3 main line diesel locomotive] Novyi magistral'nyi teplovoz TE3. Moskva, Gos.transp.zhel-dor. izd-vo, 1956. 94 p. (MLRA 9:6)
(Diesel locomotives)

KUZNETSOV, T.F., kand.tekhn.nauk

Answers to readers' questions. Elek. i tepl.tiaga 3 no.1:43 Ja '59. (MIRA 12:2)
(Diesel locomotives--Electric equipment)

KUZNETSOV, T.F., kand.tekhn.nauk, dotsent

Theoretical basis and methods for the calculation of viscous fuel injection in internal-combustion piston engines. Trudy KHIIT no.35: 13-19 '60. (MIRA 13:10)

(Diesel engines--Fuel systems)

BOBROV, V.F., inzh. (g.Khar'kov); KUCHETSOV, T.F., kand.tekhn.nauk (g.Khar'kov)

Effect of the wear of the fuel system on the operation of the D50 diesel locomotive. Elek. i tepl. tiaga 5 no.5:26-28 My '61. (MIRA 14:7)

(Diesel locomotives)

39524

S/262/62/000/013/004/005
I007/I207

26.2144

AUTHOR: Kuznetsov, T. F.

TITLE: Shock waves in high-pressure pipes of the engine fuel-feeding system.

PERIODICAL: Referativnyy zhurnal, otdel'nyy vypusk. 42. Silovyye ustanovki, no. 13, 1962, 74, abstract 42.13.492. "Tr. Kharkovsk. in-ta inzh. zh.-d. transp.", no. 43, 1961, 62–74

TEXT: An attempt is made to formulate the hydrodynamical principles of the theory of propagation of intense perturbations in high-pressure pipes of the fuel-feeding system, assuming a linear dependence of the compressibility factor of the fuel. Relationships are derived for determining the time and place of shock wave formation. There are 2 figures and 6 references.

[Abstracter's note: Complete translation.]

X

Card 1/1

KUZNETSOV, T.F., dotsent, kand.tekhn.nauk; SURZHENKO, Z.I., inzh.; BOBROV, V.F., inzh.

Development of fuel system apparatus for the type D50 hopped-up engine. Trudy KHIIT no.50:52-58 '61. (MIRA 15:12)
(Diesel engines--Fuel systems)

GOLOVANOV, V.A., kand.tekhn.nauk; KUZNETSOV, T.F., kand.tekhn.nauk

Replies to the inquiries of our readers. Elek. i tepl. tiaga no.6:42-43 Je '62. (MIRA 15:7)
(Electric locomotives--Maintenance and repair)
(Diesel locomotives--Maintenance and repair)

PUSHKAREV, I.F., inzh.; ZASLAVSKIY, G.N.; KUZNETSOV, T.F., starshiy nauchnyy sotrudnik; KHATSKELEVICH, M.N., inzh.

Replies to the inquiries of our readers. Elek. i tepl. tiaga 6 no.10:35-36 O '62. (MIRA 15:11)

1. Zaveduyushchiy bazovoy teplovoznoy laboratoriyey Khar'kovskogo instituta inzhenerov zheleznodorozhnogo transporta im. Kirova (for Zaslavskiy).

(Diesel locomotives)
(Railroads--Rolling stock)

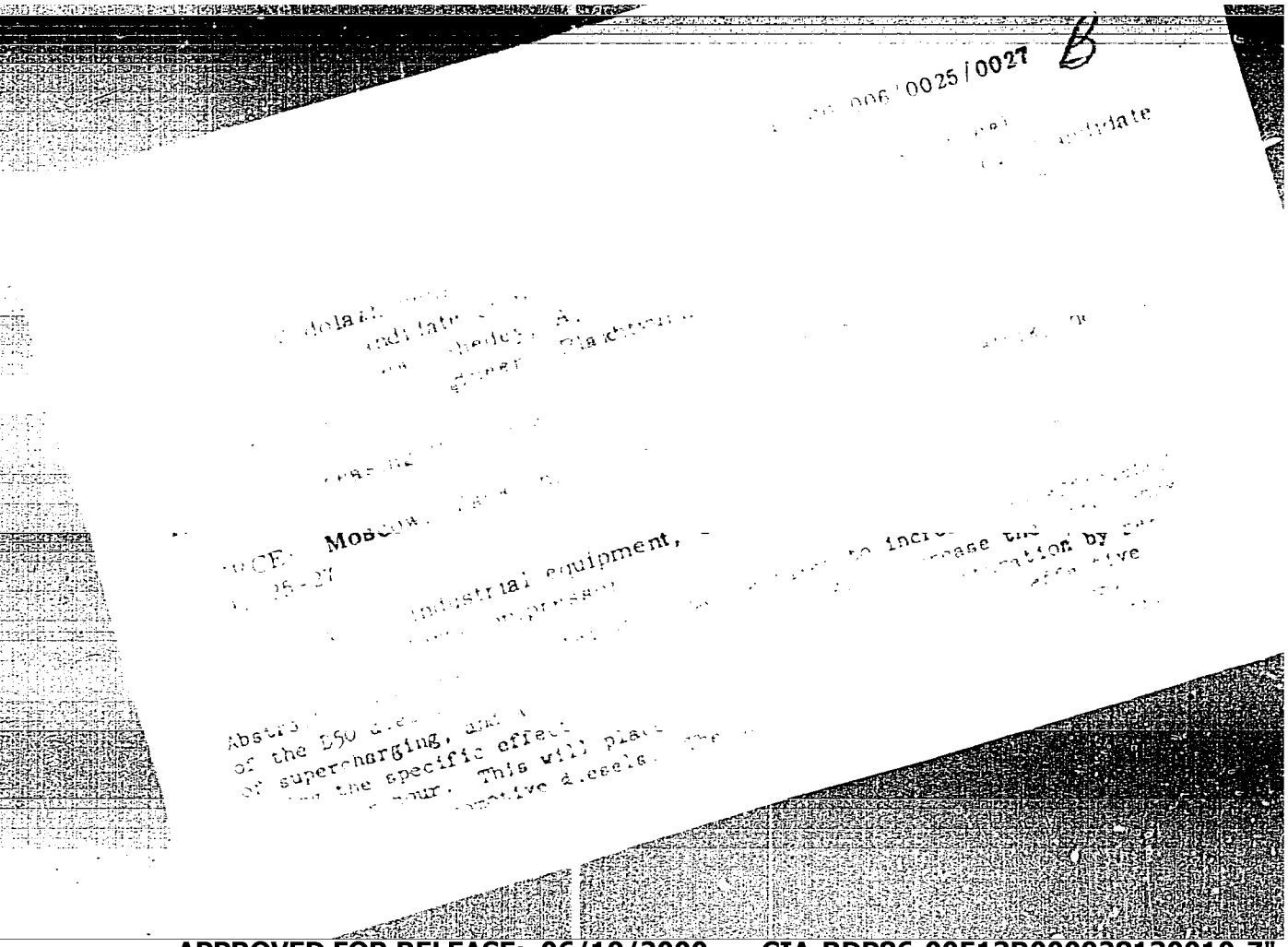
KUZNETSOV, T.F., dotsent, kand. tekhn. nauk; BOBROV, V.F., kand. tekhn. nauk; SURZHENKO, Z.I., inzh.

Investigating the fuel system of the type D50 engine in connection with the increase of its power and economic efficiency. Sbor. nauch. st. KHIIT no.63:21-26 '62. (MIRA 16:11)

KUZNETSOV, T.F., starshiy nauchnyy sotrudnik; ZASLAVSKIY, G.N., inzh.

Investigating the performance of the D50 diesel engine with various modifications of jet sprayers. Izv. vys. ucheb. zav.; mashinostr. no.10:118-122 '63.
(MIRA 17:3)

1. Khar'kovskiy institut zheleznodorozhnogo transporta.



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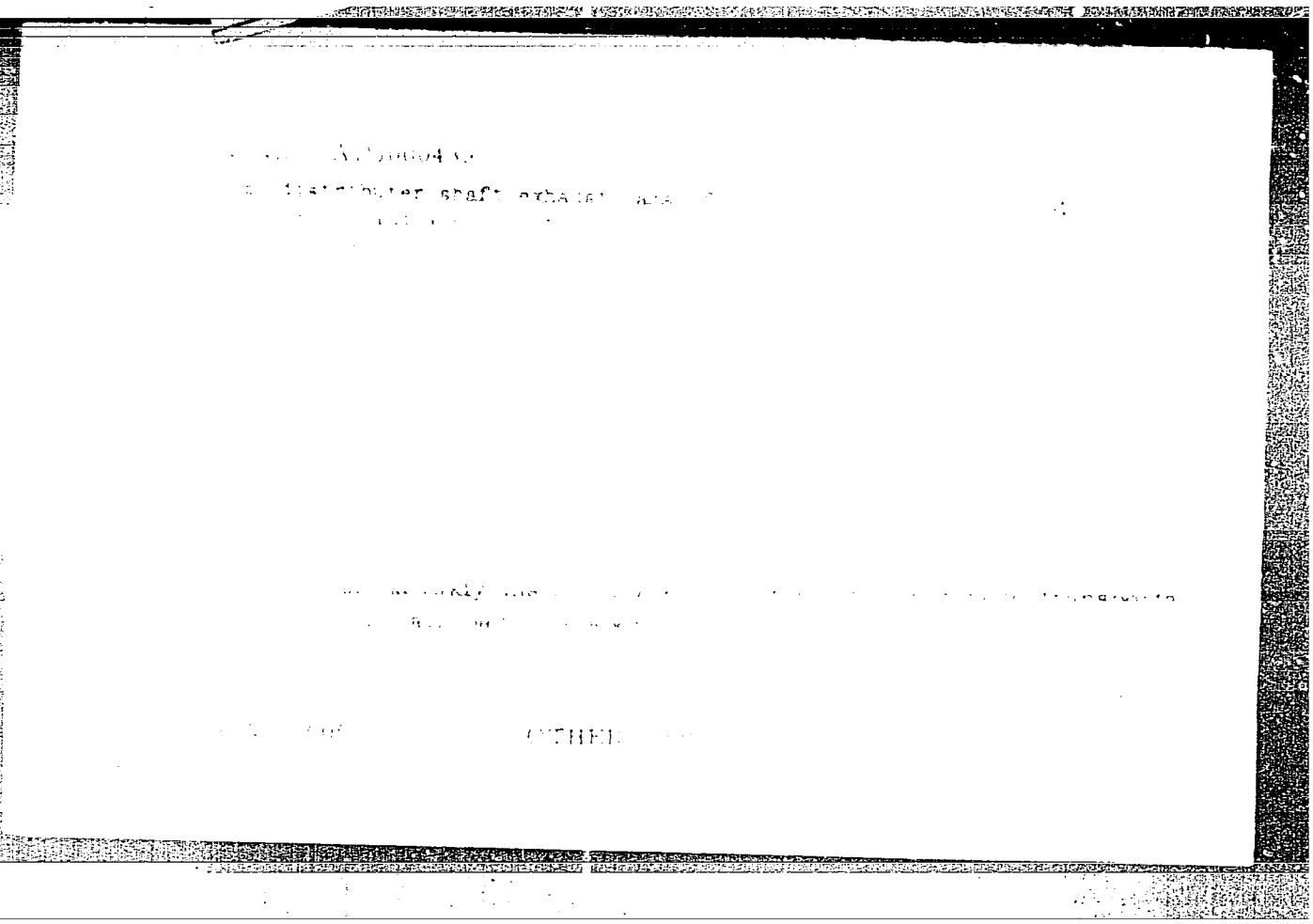

VODOLAZHCHENKO, V.V., kand. tekhn. nauk; KURITS, A.A., kand. tekhn. nauk; KUZNETSOV, T.F., kand. tekhn. nauk; SHEDEY, A.I., kand. tekhn. nauk; ZASLAVSKIY, G.N., inzh.; PLAKHTYURIN, V.M., inzh.

Improving the economic characteristics of type D50 diesel locomotive engines. Vest. TSNII MPS 23 no.6:25-27 '64. (MIRA 17:10)

1. Khar'kovskiy institut inzhenerov zheleznodorozhnogo transporta.

L 6912-66

ACCESSION NR: AP5000430 S/0231/64/000/006/0025/0027 16

AUTHOR: Vodolazhchenko, V. V. (Candidate of technical sciences); Kurits, A. A. (Candidate of technical sciences); Kuznetsov, T. F. (Candidate of technical sciences); Shedey, A. I. (Candidate of technical sciences); Zaslavskiy, G. N. (Engineer); Plakhtyurin, V. M. (Engineer) 14 B

TITLE: Increasing the economy of type D50 diesels

SOURCE: Moscow. Vses. n.-i. inst. zh.-d. transporta. Vestnik, no. 6, 1964, 25-27

TOPIC TAGS: industrial equipment, diesel engine, turbocompressor/D50 diesel, TK-30 turbocompressor 26 10

Abstract: Measures are listed which may be taken to increase the efficiency of the D50 diesel. Carrying out these measures will increase the efficiency of supercharging, and also improve gas distribution and carburation by reducing the specific effective fuel consumption by 20 grams per effective horsepower hour. This will place D50 diesels (with respect to economy) among modern locomotive diesels. The necessary structural changes in the

Card 1/2

L 6912-66

ACCESSION NR: AP5000439

piston bottom, distributer shaft exhaust cams, fuel pump delivery valve and cam, injector nozzle, and also in the installation of type TK-30 turbo-compressors may be carried out both on newly produced diesels and on those in operation without impairing the interchangeability of mass produced units and components. The use of high temperature cooling, raising the efficiency of supercharging and several other measures make it possible to count on the potential for a further increase in the efficiency of the D50 diesel. A saving of 8-10% in fuel in a locomotive with 1000 hp represents an economy of 80-100 tons of fuel per year per locomotive, so that the money spent in modernization of the locomotive fleet will be paid back in less than a year. There will be no increase in the cost of diesel production in carrying out these measures. Orig. art. has: 1 figure and 2 graphs.

ASSOCIATION: Khar'kovskiy institut inzhenerov zheleznodorozhnogo transporta (Khar'kov Institute of Railroad Transport Engineers)

SUBMITTED: 00 ENCL: 00 SUB CODE: PR, IE

NO REF SOV: 005 OTHER: 000 JPRS

Card 2/2 rds

KUZNETSOV, T. I. Doc Agr Sci -- (diss) "Bases of ~~classification~~ systematization of sheep breeds according to the quality of their wool ~~coats~~ and ~~the type~~ classification of wool." Mos, 1957. 24 pp 20cm. (Min of Agr USSR. Mos Vet Acad), 140 copies (KL, 13-57, 100)

SOV/28-59-1-19/29

AUTHOR: Kuznetsov, T. I., Candidate of Agricultural Sciences

TITLE: Wool Purchasing Standards and Basic Trends for Their Revision. (Zagotovitel'nyye standarty na sherst' i osnovnyye napravleniya pri ikh peresmotre)

PERIODICAL: Standartizatsiya, 1959, Nr 1, pp 48 - 52 (USSR)

ABSTRACT: Wool purchase standards were approved in April 1956, after 4 years of discussion (Gost 7763-55, Gost 7937-56, Gost 7938-56, Gost 7939-56), but as soon as they were introduced, they were attacked by the sheep-breeding organization. At present these standards are again being revised. The basic problem is the interpretation of the bases of wool classification. The author proposes the stablishment of a single qualitative conception, and of a single scientifically-based classification of wool, in accordance with which purchasing standards would be created, which were organically connected with industrial standards. There are 3 tables and 2 Soviet references.

Card 1/1

KUZNETSOV, T.I.

Fundamentals for the standardization of wool. Standartizatsiia 25 no.12:40-43 D '61. (MIRA 14:11)
(Wool--Standards)

KUZNETSOV, T.I., doktor sel'skokhozyaystvennykh nauk

Fundamental notions on the quality and classification of fine wool. Tekst.prom. 22 no.11:18-21 N '62. (MIRA 15:11)
(Wool--Standards)

KUZNETSOV, T. K.

"Amperometric Determination of Iron, Chromium, and Vanadium in Ores, Cast Irons, and Steel," Thesis for degree of Cand. Chemical Sci. Sub. 13 Jun 49, Moscow Inst of Fine Chemical Technology imeni M. V. Lomonosov.

Summary 82, 18 Dec 52, Dissertations Presented For Degrees in Science and Engineering in Moscow in 1949. From Vechernyaya Moskva, Jan-Dec 1949.

MURACHEV, A.; SHAKHOVA, V.; KUZNETSOV, V.

Aeronautical kaleidoscope. Grazhd. av. 21 no.5:16-17 My '64. (MIRA 18:4)

DERKVYANKO, Ye., podpolkovnik; [illegible], V., mayor [illegible], vrach-letchik; MIL'NIKOV, V., mayor meditsinskoy sluzhby, vrach-letchik

Precise simulation of a flight on a link trainer. Av. i kosm. 47 no.3:37-40 Mr '65. (MIRA 18:3)

KUZNETSOV, V.; KHMEL'NITSKIY, V.

Mechanism for loading and unloading cable drums. Avt.transp. 41 no.10:40-41 O '63. (MIRA 16:10)

KUZNETSOV, V., inzh.

Relay of innovations and inventions. Avt. transp. 42 no.6:11 Je'64 (MIRA 17:7)

Integrated brigades at the transportation of silage. Ibid: 14-15

1. Nachal'nik Volgogradskogo avtoupravleniya.

SHUPLYAKOV, S.; KUZNETSOV, V.

New developments in the organization of grain transportation. (MIRA 17:11)
Avt. transp. 42 no.10:10-12 O '64.

1. Zamestitel' ministra avtomobil'nogo transporta i shosseynykh dorog RSFSR (for Shuplyakov). 2. Nachal'nik Volgogradskogo oblastnogo avtotransportnogo upravleniya (for Kuznetsov).

L 13180-66 EWT(m)/EWP(j)/T/EWP(t)/EWP(b) JD/WW/WB/RM

ACC NR: AP6001852 SOURCE CODE: UR/0310/65/000/009/0042/0042

AUTHOR: Kuznetsov, V. (Candidate of chemical sciences); Verzhbitskiy, B. (Engineer)

ORG: None

TITLE: Testing of nonmetallic coatings for corrosion protection

51
B

SOURCE: Rechnoy transport, no. 9, 1965, 42

TOPIC TAGS: corrosion protection, corrosion inhibitor, protective coating, synthetic material

ABSTRACT: At the Perm water gate the authors tested four 500 x 300 x 3 nonmetallic coatings deposited on steel surfaces on the pressure side of the gates. The coating composition was: 1) ethynol dye EKZhS-40; 2) protective base + ethynol dye EKZhS-40; 3) epoxy resin ED-6, 100; dibutylphthalate, 15; portland cement-400, 100; aluminum powder, 10; and polyethylenepolyamine, 10 weight %; and 4) epoxy resin ED-6, 48.65%; Kuzbass lacquer, 13.51%; dibutylphthalate, 1.08%; iron minium, 21.62%; talcum, 5.41%; dichlorethane, 9.73%; and thylenepolyamine 9% of the resin weight. All coatings performed satisfactorily over periods exceeding two years; the authors believe, however, that the compositions 3 and 4 are slightly superior. The article also contains detailed procedures concerning the actual preparation of surfaces and the coating and drying processes.

SUB CODE: 11 / SUBM DATE: none

Card 1/1 HW

UDC: 620.197.1.002

ACC NR: AP6033028 (N) SOURCE CODE: UR/0135/66/000/010/0006/0009

AUTHOR: Kuznetsov, V. A. (Engineer); Silin, L. L. (Candidate of technical sciences)

ORG: Institute of Metallurgy im. A. A. Baykov (Institut metallurgii)

TITLE: Automatic quality control of ultrasonic welds

SOURCE: Svarochnoye proizvodstvo, no. 10, 1966, 6-9

TOPIC TAGS: ultrasonic welding, automatic quality control, ~~welding~~ quality control, ~~ultrasonic welding, automatic quality control~~ evaluation, vibration analysis, shear strength

ABSTRACT: Two methods of automatic quality control of ultrasonic welds have been developed. In the first method, the weld quality is evaluated from the amplitude of vibrations transferred to an anvil. At the predetermined optimal level of vibrations, the shear strength of the welds was found to vary within not more than ±5%. In the second method, the weld quality is evaluated from the depth of depressions made by the welding tool. The scatter of the strength values usually does not exceed ±8%. Prototypes of equipment for both methods of automatic qulaity control of ultrasonic welds have been designed. Orig. art. has: 6 figures and 1 table.

SUB CODE: 13/ SUBM DATE: none/ ORIG REF: 009/ OTH REF: 002

Card 1/1 UDC: 621.791.052.08:620.179.16

24(1), 24(6) SOV/46-5-3-20/32

AUTHOR: Kuznetsov, V.A.

TITLE: On a Modification of a Receiver for Measuring Dynamic Elasto-Viscous Properties of Rubber (O vidoizmenenii priyemnika dlya izmereniya dinamicheskikh uprugo-vyazkikh parametrov kauchuka)

PERIODICAL: Akusticheskiy zhurnal, 1959, Vol 5, Nr 3, pp 371-372 (USSR)

ABSTRACT: Nolle (Refs 1-2) developed a travelling acoustic wave method for measurement of the dynamic elasto-viscous properties of rubber (such as the dynamic Young's modulus and the dynamic viscosity). A piezo-electric receiver used by Nolle and later by Volodin (Ref 3) was fixed rigidly to a carriage which was moved along two rods by means of a screw. Under such conditions it was difficult to achieve constant pressure of the receiver against the sample. The present note describes a receiver in the form of a lever-balance (Fig 1). One of the arms consisted of a ceramic barium titanate plate 1 with a holder 2. The other arm had a weight in the form of a small disk 3 which could be moved along a screw 4. The pressure of the receiver on the rubber sample could be controlled by adjustment of the weight 3. The leads from the barium titanate plate were only 0.05 mm thick and their weight could be neglected. This receiver was used to measure the velocity and attenuation of longitudinal progressive waves in the region 1-3.5 kc/s. Nolle's formulae were then

Card 1/2

On a Modification of a Receiver for Measuring Dynamic Elasto-Viscous Properties of Rubber

used to calculate the dynamic Young's modulus E and the dynamic viscosity η. Figs 2 and 3 show the results of measurements of E (in megadyne/cm^2) and η (in kilopoise) of divinyl-styrene rubber SKS-30 A (non-vulcanized and non-plasticized). The velocity of sound was measured with an error of 2% at low frequencies (1 kc/s) and with an error of 5% at high frequencies (3.5 kc/s). Attenuation was measured with an error of 7%. There are 3 figures and 3 references, 1 of which is Soviet and 2 English.

ASSOCIATION: Yaroslavskiy meditsinskiy institut (Yaroslavl' Medical Institute)

SUBMITTED: March 12, 1959

15.9300 1474, 1372, 1451

11.2314

S/138/61/000/003/003/006
A051/A129

AUTHOR: Kuznetsov, V. A.

TITLE: An investigation of the dynamic elastic-viscous properties of rubber by the traveling sound wave method

PERIODICAL: Kauchuk i rezina, no. 3, 1961, 20-22

TEXT: The acoustic method for investigating the dynamic properties of polymers is useful in determining these properties within a wide range of frequencies and temperatures by acting upon them with low amplitudes of tension and deformation. This process does not affect the initial properties of the material. The author describes the experimental investigation of the relationship of the dynamic Jung's modulus and the dynamic elasticity coefficient of butadiene-styrene СКС-30 (SKS-30) and СКС-30А (SKS-30A) rubbers to the sound frequency within a range of 1 - 3.5 kcycles at room temperature (22°C). The traveling sound wave method was used (A. W. Nolle - Ref. 1: J. Acoust. Soc. Amer., 19, no. 1, 194, 1947; Ref. 2: J. Appl. Phys., 19, no. 8, 753, 1948). The experimental set-up is shown in Figure 1. It works on the following principle: one end of the narrow strip of rubber is fas-

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A051/A129

tened by an aluminum wire to the smaller diffuser of the dynamo (the larger one is removed). The other end of the strip is stretched over a pulley. The sound generator of the set-up activates the dynamo. A ceramic plate made of barium titanate located across the rubber strip accepts the oscillations occurring due to Poisson deformations in the distribution of the transverse wave. The oscillations are increased by an amplifier of low frequency and are sent to the vertical plates of an electronic oscillograph. The horizontal plates are joint directly to the sound generator. The receiving element of the set-up is made according to the principle of lever weights. The receiving ceramic plate made of barium titanate serves as one of the levers together with the holder; the other one is the weight in the form of a small disk, sitting on a screw. By shifting the weight along the thread, the pressure on the rubber strip can be regulated (V. A. Kuznetsov - Ref. 3: Akust. zh., 5, no. 3, 371, 1959). The velocity of sound was determined by the phase shift method between the source and the receiver. The said method can only be applied within a small range of frequencies and to certain materials only. The results of the experiments showed that the velocity of sound (within the measured frequency range) does not depend on the frequency, whereby in the SKS-30 rubber the velocity of sound is greater than in the SKS-30A rubber.

An investigation of the...

The damping of the sound increases with an increase in the frequency, whereby in SKS-30A the damping is greater than in SKS-30 rubber. It is shown that the dynamic Jung's modulus does not depend on the frequency of the sound (whereby the modulus is greater for SKS-30 than for SKS-30A rubber) and the dynamic elasticity coefficient drops with a growth in the frequency. In vulcanization of non-filled SKS-30A rubber the velocity and damping of the sound, the values of Jung's modulus and elasticity coefficient increase (as compared to non-vulcanized rubber). There are 5 sets of graphs, 1 diagram and 4 references: 2 Soviet, 2 English.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy i konstruktorsko-tekhnologicheskiy institut asbestovykh tekhnicheskikh izdeliy, g. Yaroslavl' (All-Union Scientific Research and Technological Designing Institute of Technical Asbestos Articles, Yaroslavl')

X

ACC NR: AP6025652 SOURCE CODE: UR/0413/66/000/013/0103/0103

INVENTOR: Kuznetsov, V. A.

ORG: none

TITLE: Mechanism for sampling the working fluid from an aircraft hydraulic system. Class 42, No. 183474

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 13, 1966, 103

TOPIC TAGS: hydraulic engineering, hydraulic equipment

ABSTRACT: An Author Certificate has been issued for a device with a receiving tank, which is designed to take working-fluid samples from an aircraft hydraulic system. To obtain working-fluid samples with a closed system, a cover is attached to the receiving tank by an articulated stirrup, inside of which is a cut-off control valve; on each of its lateral surfaces (with two diametrically opposed sides) are mounted two release valves connected telescopically. These consist of a housing outlet, a closing valve head, and a spring with two centering bearings which assure the self-orientation of the valve head during the closing of the outlet. [WH]

SUB CODE: 01, 13/ SUBM DATE: 03Sep64/ ATD PRESS: 5051

Card 1/1 UDC: 531.75.542.3:629.13.01/06

LYSENKO, Vsevolod Konstantinovich. Prinimali uchastiye: KUZNETSOV, V.A., dots.; KUDINOV, N.N., inzh.; KRUGLOVA, Ye.M., red. izd-va; KHLOPOVA, L.K., tekhn. red.

[Marine nuclear power plants] Sudovye atomnye silovye ustanovki. Moskva, Izdvo "Morskoi transport," 1961. 153 p. (MIRA 15:3)

(Atomic ships) (Marine engines)

KUZNETSOV, V.A., dots.

Atomic, helium-cooled gas turbine plant. Sud.sil.ust. no.1:7-24 '61. (MIRA 15:7)

1. Kafedra parovykh dvigateley Leningradskogo vysshego inzhenernogo morskogo uchilishcha im. admirala Makarova.
(Atomic ships) (Marine gas turbines)

21 (1)

AUTHORS: Kirillov, P. L., Kuznetsov, V. A., Turchin, N. M., Fedoseyev, Yu. M. SOV/89-7-1-3/26

TITLE: Some Designs and the Operation of Pumps for Sodium and Alloys of Sodium With Potassium (Nekotoryye konstruktsii i ekspluatatsiya nasosov dlya natriya i splavov natriya s kaliyem)

PERIODICAL: Atomnaya energiya, 1959, Vol 7, Nr 1, pp 11 - 17 (USSR)

ABSTRACT: The following pumps are described: 1. A centrifugal pump which is able to lift the liquid 23 m at 990 rpm and 55 m at 1450 rpm. In the former case, the pump conveys 10 m^3/h. The greatest difficulty is caused by the correct selection of the material for ball bearings and sealing the rotating axis towards the exterior. The following material is recommended for the pump, a sectional drawing of which is given: For the hub: steel RF-1 and for the bearing box: beryllium bronze BrB2. The space between hub and bearing box amounted to 0.2 - 0.25 mm in a cold state. All other parts of the pump are made from steel of the type 1Kh18N9T. The pump is driven by an asynchronous electric motor. After 1500 hours of operation with a sodium-potassium alloy at temperatures of 200 - 400°C, the ball bearings were already used up. The greatest disadvantage of these pumps is

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the fact that e.g. the ball bearings are difficult to exchange, and that it is difficult to take off the sealing cylinder. The pump was developed under the supervision of G. V. Skladnev and V. D. Rostovtsev. 2. Centrifugal pump with beryllium bronze ball bearings and an ordinary electromotor. This pump, a sectional drawing of which is given, is distinguished by the fact that the electric motor is completely enclosed and is water-cooled. A noble gas circulates within the pump. Also in this case the question of ball bearings is of decisive importance; after numerous experiments, the materials were selected, which were used for the first-described pump. The pump was tested for 2000 hours with a sodium-potassium alloy, and 7000 hours with sodium alone, at a temperature of 200°C. Besides the ball-bearing problem, a second difficulty arises, viz. the fact that during operation sodium vapors penetrate into the casing of the electric motor, which destroy the insulation of the motor coiling by the formation of hydroxide. The pump described was developed under the supervision of M. N. Ivanovskiy. 3. Centrifugal pump with a ball-bearing made from "frozen" sodium. The pump shown in form of a sectional drawing conveys about 25 m^3

of liquid per hour 100 m high (2960 rpm). The power developed by the electromotor is 14 HP. The finish of the ball bearing, which, at the same time, seals the rotating shaft towards the outside, is shown separately in form of a sectional view. This bearing may be cooled by means of water. The sodium loss amounts to 1 - 2 g/24 hours. The pumps operate 2000 hours at 400 - 500°C, and remain in operation. The construction of these pumps is by V. I. Orlov. 4. Conductive electromagnetic single-phase pump for alternating current. By means of this pump it is possible to convey 4 m^3 of metal per hour, in which case a resistance of 2 kg/cm^2 may be overcome. The brands of wire necessary for the coils are listed separately. This type of pump should be used only if small quantities are to be conveyed. The pump, which is shown by a figure, was constructed under the supervision of N. M. Turchin. 5. Electromagnetic induction pump. This pump consists of two parallel inductors between which there is a channel, through which the liquid metal is able to flow. The indentations of the inductors contain an 8-pole three-phase winding, which may be cooled by means of copper tubes, through

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which water flows. The width of the channel is 150 mm, and its height in the case of one pump is 6.1 and in the case of the other 8.7 mm. In the interior of the channel copper elements are located at the same height as the ends of the inductors, which are the short-circuit rings for the rotor of the asynchronous motor. The pumps have been in operation for a long time at temperatures of 200 - 250°C (conveying output 30 m^3/h). I. A. Tyutin distinguished himself particularly in the course of the construction of this type of pump. There are 7 figures and 7 references, 3 of which are Soviet.

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TITLE: Instruments for Measuring Pressure, Flow, and Level of Molten Alkaline Metals

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TEXT: The present article deals with problems of construction, design, and application of instruments for measuring pressure, flow, and level of molten alkaline metals. The instruments described here are designed for reactors with liquid-metal coolants. First of all, the authors describe pressure gauges. The simplest method is a connection to a separation tower which is filled with a noble gas (Fig. 1). This method has, however, several disadvantages. The zavod "Manometr" ("Manometr" Factory) developed an inductive pressure transmitter of the diaphragm-type MMC-4 (MMS-4), whose cross-sectional view is schematically shown in Fig. 2. The diaphragm is made of special steel. The range of application of these instruments extends to 10 atm and 450°C (sodium). The two-bellows sealed pressure

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gauge, made of 1X18H9T (1Kh18N9T) steel, which is shown in Fig. 3, is a simple and dependable instrument. The indication of this pressure gauge is linearly dependent on the ratio of the hardness of the bellows to their cross-sectional area. Fig. 4 gives the calibration of this pressure gauge as a function of A/F. For A/F = 1.25 kg/cm^3, e.g., the calibration scale is shifted by 2.5%. Fig. 5 shows the calibration straight lines of such pressure gauges for bellows of different hardness A (A/F = 10.7, 3.6, and 1.25 kg/cm^3). Formulas are given for the two components of the temperature error. Choke flow-meters with inductive differential diaphragm pressure gauges proved to be unsuitable for flow measurements on sodium. Magnetic flow-meters in which an electromotive force is measured are the simplest and most reliable. Fig. 6 reproduces a photograph of such an instrument designed for BP-5 (BR-5) reactors cooled with liquid sodium. The stability of this instrument largely depends on the material used for the magnet, which must retain its properties at high temperatures for a long time of operation. For this purpose, the authors used the alloy "Magnico", the induction of which as a function of temperature is shown in Fig. 7. Examination of the stability of three flow-meters of this type for one year

(mean sodium temperature: 400°C) showed that the induction in the pole gaps had decreased by 1% after one month; in the following months, it decreased by 0.5% and less. The results of measurement of the emf between the electrodes are given in tabular form. Fig. 8 schematically shows how the electrodes were welded to the tube. The indication of the flow-meter is slightly influenced by the contact resistance on the inner surface of the tube (cf. Fig. 9). Fig. 10 shows calibration curves at 10 and 200 m^3/hour of flow-meters on a BR-5 reactor. These curves are in good agreement with the theoretical characteristics. In the course of time, iron and nickel particles settle inside the tube at the places of the poles. Fig. 12 reproduces a photograph of the inside of such a tube after 1000 hours of operation (tube diameter: 27 mm). The deposits on the two sides have grown together in the center, and reduce the cross-sectional area of the tube considerably. The error in indication of the flow-meter is 12.5% in this case. Of the various level-meters, the authors first discuss those which are not well suited or even unsuited for reactor operation as, e.g., the УР-4 (UR-4) level-meter which operates without contact and by means of Co^{60} γ-emission, but is unsuited for measurements

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on radioactive liquid metals. Furthermore, the authors describe the ultra-short wave level-meter and a potentiometer level-meter suggested by V. D. Kolesnikov. This instrument is schematically represented in Fig. 13. Its construction, especially that of the transmitter (Fig. 14), is described in detail. It has a linear scale, and was tested on a eutectic Na-K alloy at 200°, 300°, and 450°C. There are 14 figures, 1 table, and 4 references: 3 Soviet and 1 US.

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