SOV/78-3-9-25/38

The Isothermal Lines of the Solubility of the System K_2SO_4-Na_2SO_4-$MgSO_4$-H_2O at 75°C

Potassium sulfate	-	(K_2SO_4)
Leonite	-	($K_2SO_4 \cdot MgSO_4 \cdot 4H_2O$)
Langbeinite	-	($K_2SO_4 \cdot 2MgSO_4$)
Kieserite	-	($MgSO_4 \cdot H_2O$)
Leveite	-	($Na_2SO_4 \cdot MgSO_4 \cdot 2,5H_2O$)
Van't Hoffite	-	($3Na_2SO_4 \cdot MgSO_4$)
Glaserite	-	($3K_2SO_4 \cdot Na_2SO_4$)
Tenardite	-	(Na_2SO_4).

The results obtained are important for the working out of the separation methods of potassium-magnesium salts and for the production of potassium sulfate.
There are 6 figures, 5 tables, and 23 references, 11 of which are Soviet.

SUBMITTED: April 4, 1958

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SOV/78-3-12-28/36

AUTHORS: Lepeshkov, I. N., Bodaleva, N. V., Kotova, L. T.

TITLE: Investigations Concerning the Solubilities of the Systems Li_2SO_4-Na_2SO_4-K_2SO_4-H_2O at 25°C (Issledovaniye rastvorimosti v sisteme Li_2SO_4-Na_2SO_4-K_2SO_4-H_2O pri 25°)

PERIODICAL: Zhurnal neorganicheskoy khimii, 1958, Vol 3, Nr 12, pp 2781-2785 (USSR)

ABSTRACT: The solubilities of the systems Li_2SO_4-Na_2SO_4-H_2O were investigated at 25°C. The isothermal lines of solubility of these systems have three branches, which correspond to the following crystals: $Li_2SO_4 \cdot H_2O$; double salt $Li_2SO_4 \cdot 3Na_2SO_4 \cdot 12H_2O$, and $Na_2SO_4 \cdot 10H_2O$. The double salt crystallizes to large, perfect crystals with the following indices of refraction: $N_g = 1.464$, $N_p = 1.460$. The solubility of the system Li_2SO_4-K_2SO_4-H_2O was investigated at 0°, 25° and 50°C. The double salt $Li_2SO_4 \cdot K_2SO_4$ and the solid solution which forms lithium sulfate with $Li_2SO_4 \cdot K_2SO_4$ were determined. The double salt $Li_2SO_4 \cdot K_2SO_4$

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Investigations Concerning the Sclubilities of the Systems Li_2SO_4-Na_2SO_4-K_2SO_4-H_2O at 25°C

crystallizes in bipyramides with the following refractive indices: N_g = 1.474 and N_p = 1.471. In the quaternary system of Li_2SO_4-Na_2SO_4-K_2SO_4-H_2O at 25°C there exist crystallization areas of the following salts: $Li_2SO_4 \cdot H_2O$, $Li_2SO_4 \cdot 3Na_2SO_4 \cdot 12H_2O$, $Na_2SO_4 \cdot 10H_2O$, K_2SO_4, $3K_2SO_4 \cdot Na_2SO_4$, $Li_2SO_4 \cdot K_2SO_4$, and the compound $2\ Li_2SO_4 \cdot Na_2SO_4 \cdot K_2SO_4$. There are 2 figures, 1 table, and 9 references, 5 of which are Soviet.

SUBMITTED: June 5, 1958

20-119-6-28/56

AUTHORS: Lepeshkov, I. N., Romasheva, N. N., Slovtyev, V. K.

TITLE: On the Potassium Content of Salt Deposits in Tuva (O kaliyenosnosti solyanykh otlozheniy Tuvy)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol. 119, Nr 6, pp. 1156-1158 (USSR)

ABSTRACT: In the district of the autonomous region of Tuva salt lakes and sources exist as well as the salt deposit Tuz-Tag (salt mountain) known since a long time in the southern spurs of the western Tannu Ola chain 36 km southwest of the town of Kyzyl (figure 1). A survey of publications and a short description of the lakes and of the salt deposits are given (Refs 1-6). In the present paper the salt sediments of the Tuz-Tag are described taking into account the potassium and other marine salts. In a chemical investigation considerable quantities of potassium chloride were found (up to 65 %). Table 1 shows chemical analyses of some salt samples by means of which it is to be seen that it concerns sylvinite with a high KCl-content. Furthermore cores of borings carried out by the Mining Geological Expedition (Gorno geologicheskaya

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On the Potassium Content of Salt Deposits in Tuva

ekspeditsiya '55) from different depths were investigated. Many cores especially those which had a rose and dark red as well as a yellow coloring, were intensely leached out; on this occasion potassium- and magnesium salt could be leached out to a high degree. Analyses of potassium containing inclusions within cores are shown by table 2. Figure 2 shows the distribution of ocean water in Tuva during Upper Silurian and Lower Devonian from which the mentioned salt deposits originate. There are 2 figures, 2 tables and 6 references, 6 of which are Soviet.

ASSOCIATION: Institut obshchey i neorganicheskoy khimii im. N. S. Kurnakova Akademii nauk SSSR (Institute of General and Inorganic Chemistry imeni N. S. Kurnakov AS USSR)

PRESENTED: September 14, 1957, by I. I. Chernyayev, Member, Academy of Sciences, USSR

SUBMITTED: September 5, 1957

Card 2/2

AUTHORS: Lepeshkov, I. N., Fradkina, Kh. B., SOV/20-120-1-21/63

TITLE: Carnallite and Syngenite in the Deposit of the Saltlake of Dzhaksy-Klych(Priaral'ye) (Karnallit i singenit v otlozheniyakh solyanogo ozera Dzhaksy-Klych (Priaral'ye))

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol. 120, Nr 1, pp. 83 - 85 (USSR)

ABSTRACT: Calium-containing minerals occur very rarely in the deposits of recent salt lakes. The lake mentioned in the title containing the deposits mentioned is situated 20 km north-east of Aral'skoye. Besides concentrated salt solutions, also salt deposits in form of astrachanite (Na_2SO_4, $MgSO_4.4H_2O$), mirabilit($Na_2SO_4.10H_2O$), tenardit (Na_2SO_4) and magnesium sulphate, hepta-, hexa- and pentahydrate and further glauberite ($Na_2SO_4.CaSO_4$) and finally gypsite ($CaSO_4.2H_2O$) occur here. The total thickness of the layer reached 4,5 to 5m. Underneath a thick upper layer of salt the two first-mentioned minerals are to be found in the order mentioned. The magnesium sulphate hydrates occur in form

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of crystals in the lower part of the astrachanite layer together with gypsite. Between the clusters of crystals thin crystalline inclusions of the latter mineral, syngenite, and Mg-pentahydrate (table 1) are to be found. Crystal-optical constants of synthetic and natural syngenite are mentioned. The heating curve of the sodium chlorite of the lake mentioned shows thermal effects which indicate a content of syngenite and astrachanite and also of the hydrates mentioned(figure 1). The forming of syngenite is probably a result of interaction between the lake salt solutions containing KCl up to 2% and gypsite. Syngenite is a rarety. Its synonymus is caluscite (Reference 2). The crystallization of carnallite was brought about by evaporation of salt solutions in summer. In addition, the magnesium sulphate hydrates and bischofites ($MgCl_2.6H_2O$) mentioned are formed. Table 2 describes the chemical and mineralogical analysis of the salt of the lake surface, figure 2 shows the heating curve of this salt, which consists of the three last-mentioned salts (including magnesium sulphate-hexahydrate). There are 2 figures, 2 tables and 2 references, which are Soviet.

Carnallite and Syngenite in the Deposit of the Salt- SOV/20-120-1-21/63
lake of Dzhakay-Klych (Priaral'ye)

ASSOCIATION: Institut obshchey i neorganicheskoy khimii im. N. S. Kurnakova Akademii nauk SSSR (Institute of General and Inorganic Chemistry imeni N. S. Kurnakov, AS USSR)

PRESENTED: November 1, 1957, by I. I. Chernyayev, Member, Academy of Sciences, USSR

SUBMITTED: October 31, 1957

1. Inland waterways--Sedimentation 2. Minerals--Sources
3. Minerals--Chemical analysis

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LEPESHKOV, I.N.; LUK'YANOVA, Ye.I.

Physicochemical study of natural salts and water - salt systems of the sea water type. Itogi nauki: Khim.nauki 4: 62-91 '59. (MIRA 13:4)
(Salts) (Systems (Chemistry))

5(2) SOV/78-4-8-42/43

AUTHOR: Lepeshkov, I. N.

TITLE: Symposium on Geochemistry, Mineralogy, Chemistry, and Chemical Technology of the Mineral Salts in Berlin (German Democratic Republic) (Simpozium po geokhimii, mineralogii, khimii i khimicheskoy tekhnologii mineral'nykh soley v Berline (GDR))

PERIODICAL: Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 8, pp 1939-1940 (USSR)

ABSTRACT: The symposium was convened by the (East German) Academy of Sciences and took place from June 16-22, 1958. Representatives of scientific institutes and enterprises of halurgy of the German Democratic Republic, the Soviet Union, France and the German Federal Republic attended the symposium. 28 lectures were heard. The following Soviet scientists took part: from the Institut obshchey i neorganicheskoy khimii im. N. S. Kurnakova AN SSSR (Institute of General and Inorganic Chemistry imeni N. S. Kurnakov of the AS USSR): I. N. Lepeshkov, N. P. Luzhnaya, M. I. Ravich, G. S. Sedel'nikov; from Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Moscow State University imeni M. V. Lomonosov): M. G. Valyashko;

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Symposium on Geochemistry, Mineralogy, Chemistry, and Chemical Technology of the Mineral Salts in Berlin (German Democratic Republic)

from the Vsesoyuznyy nauchno-issledovatel'skiy institut galurgii (All-Union Scientific Research Institute for Halurgy): V. V. Vyazovev and A. V. Zdanovskiy; from the Leningradskiy elektrotekhnicheskiy institut (Leningrad Institute of Electrical Engineering): Ye. I. Akhumov; from the Leningradskiy vsesoyuznyy nauchno-issledovatel'skiy institut geologii Arktiki (Leningrad All-Union Scientific Research Institute for the Geology of the Arctic) N. S. Spiro; from the Solikamskiy kaliynyy kombinat (Solikamsk Potassium Kombinat): A. K. Shishakov, and from the Bereznikovskiy khimicheskiy kombinat (Berezniki Chemical Kombinat): V. M. Nesteranko. The representatives of the USSR delivered the following lectures: I. N. Lepeshkov: "On Some Investigations Carried out by the School of N. S. Kurnakov in the Field of Physico-chemical Analysis of Natural Salts and Water - Salt - Equilibria in Systems of the Marine Type"; N. P. Luzhnaya (on her own behalf and on behalf of the co-author Ye. I. Luk'yanova): "On Metamorphization of Natural Brines of Marine Type"; G. S. Sedel'nikov: "On the State of the Hydrochemical Processes and the Formation of

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Symposium on Geochemistry, Mineralogy, Chemistry, and Chemical Technology of the Mineral Salts in Berlin (German Democratic Republic)

Salts in the Kara-Bugaz-Gol Bay"; M. G. Valyashko: "The Most Important Geochemical Characteristic Values, Which Determine the Formation of Potassium Deposits"; M. I. Ravich: "Heterogeneous Equilibria in Systems Water - Salt at High Temperatures"; A. V. Zdanovskiy: "Investigation of the Kinetics of the Dissolution of Natural Salts"; V. V. Vyazovov "On the Investigations of the All-Union Scientific Research Institute of Halurgy in the Field of the Processing of Potassium Salts". The following East German experts delivered reports: L. Rombok, W. Huppe, G. Marr, W. Jung, O. Brasche, A. Harmann (Institute of Mineral Salts) reported on trace elements in salt- and mud sediments (Mn, Zn, Pb, Sn, Al etc). Great attention is paid to the agrochemical effect of these elements which penetrate the soil with the potassium fertilizer. Professor F. Serovy (Director of the Institute of Mineral Salts of the Academy of Sciences Berlin (East Germany)) reported on the composition of carnallite and the utilization of magnesium chloride lyes. F. Buch (Scientific Research Institute of the potassium industry, Sondershausen) dealt with the dehydration and the decomposition of bischofite. M. Tittel reported on the gradual

dehydration of carnallite. The Thaelmann-Kali-Kombinat and various towns of East Germany were visited.

5(2), 3(5) SOV/78-4-10-40/40

AUTHOR: Lepeshkov, I. N.

TITLE: Physical-chemical Investigation of Natural Salts of Tsaidam (Chinese People's Republic)

PERIODICAL: Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 10, pp 2414 - 2415 (USSR)

ABSTRACT: The Tsaidam Basin lies in the province Ch'ing-hai, in the northeast of the lake Kuku-nor (Abstracter's Note: Obviously a typographical error, because Tsaidam lies in the west of Kuku-nor). In 1958 the author participated for three months in the work of the physical-chemical expedition of the Academy of Sciences of the Chinese People's Republic with the aim of investigating the salt deposits in Tsaidam, on the strength of the agreement concerning scientific cooperation. In this basin there are numerous large salt lakes, the concentrated brines of which are rich in K, Mg, B, Li. The salt deposits contain NaCl, mirabilite, ($Na_2SO_4.10H_2O$), astrakhanite ($Na_2SO_4.MgSO_4.4H_2O$), carnallite ($KCl.MgCl_2.6H_2O$), borax ($Na_2B_4O_7.10H_2O$), bornantrocalcite ($Na_2O.CaO.5B_2O_3.16H_2O$). (Abstracter's Note: should correctly

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be called boronatrocalcite) and other salts. In the basin and its neighborhood there are boron-containing springs which are partly hot. Quite recently petroleum, mineral coal, iron ore, sulfur and ores of non-ferrous metals and rare metals were found in the adjacent mountains. Since a railway is planned to this area, favorable conditions are to be expected for the development of the chemical, metallurgical and petroleum industry. The Institute of Chemistry of the Academy of Sciences of the Chinese People's Republic has started in 1957 with the investigation of some salt lakes of Tsaidam. The expedition in 1958 was headed by Professor Li Ta-kang. Chemists, geologists and technologists of the Institute of Chemistry of the Academy of Sciences of the Peking University, of the Institute of Mineral Raw Materials of the Ministry of Geology, of the Shanghai Scientific Research Institute of Chemical Industry and of the Administration of Halurgy of the Ministry of Consumer's Good Industry took part. The salt deposits belong to the first class of salt lakes according to the classification of N. S. Kurnakov, Academician. Figures 1 and 2 show strange crystal forms of rock salt and gypsum. The mineral findings were submitted

Physical-chemical Investigation of Natural Salts of Tsaidam (Chinese People's Republic) SOV/78-4-10-40/40

to the Chair of Chemistry of the Lien-chou University. The preparation of borax and potash fertilizer has already set in at the big lakes. The author also mentions the numerous iron melting furnaces and plants for petroleum distillation established by the people. There are 2 figures.

ASSOCIATION: Institut obshchey i neorganicheskoy khimii im. N. S. Kurnakova Akademii nauk SSSR (Institute of General and Inorganic Chemistry imeni N. S. Kurnakov of the Academy of Sciences, USSR)

Card 3/3

LEPESHKOV, I.N.; SOLOV'YEV, V.K.; MINKO, G.M.; KOLOSOV, A.S.; VASILEVSKAYA, A.G.

Calcium content of natural salts of Krasnoyarsk Territory. Izv. Sib. otd. AN SSSR no. 10:36-46 '60. (MIRA 13:12)

1. Institut obshchey i neorganicheskoy khimii imeni N.S. Kurnakova i Khimiko-metallurgicheskiy institut Sibirskogo otdeleniya AN SSSR.
(Krasnoyarsk Territory--Calcium salts)

KHRIPIN, L.A.; LEPESHKOV, I.N.

Physicochemical study of the system K_2SO_4 - Cs_2SO_4 - $Al_2(SO_4)_3$ - H_2O. at 50°. Zhur.neorg.khim. 5 no.2:481-493 F '60. (MIRA 13:6)

1. Yaroslavskiy gosudarstvennyy pedagogicheskiy institut imeni K.D. Ushinskogo.
(Potassium sulfate) (Cesium sulfate) (Aluminum sulfate)

LEBEDEV, I.N.

On the one hundredth anniversary of the birth of Nikolai Semenovich Kurnakov. Zhur. neorg. khim. 5 no.11:2382-2394 N '60.
(MIRA 13:11)

(Kurnakov, Nikolai Semenovich, 1860-1941)

LEPESHKOV, I.N.; ROMASHOVA, N.N.

Solubility in the system Li_2SO_4 - Na_2SO_4 - $MgSO_4$ - H_2O at 75° C.
Zhur. neorg. khim. 5 no.11:2512-2517 N '60. (MIRA 13:11)
(Lithium sulfate) (Sodium sulfate)
(Magnesium sulfate)

S/030/61/000/003/011/013
B105/B215

AUTHOR: Lepeshkov, I.N., Doctor of Chemical Sciences

TITLE: Physicochemical analysis and its application

PERIODICAL: Vestnik Akademii nauk SSSR, no. 3, 1961, 115 - 117

TEXT: The 19th Kurnakov lecture was held in Moscow in December 1960, and the IV vsesoyuznoye soveshchaniye po fiziko-khimicheskomu analizu (Fourth All-Union Conference on Physicochemical Analysis) took place from December 7, to 10, 1960 in connection with the hundredth anniversary of the birthday of N.S. Kurnakov, Soviet chemist and metallurgist, who developed the physicochemical analysis. Over 1200 representatives of scientific institutions and industrial enterprises of 67 towns of the Soviet Union participated in the conference. In the Kurnakov lecture, I.V. Tananayev analyzed the role played by physicochemical analysis in modern chemistry and technology. 142 reports on problems of physicochemical analysis in modern chemistry metals and semiconductors, salts and solutions, silicates and inorganic polymers, organic systems and other substances, and on the application of

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Physicochemical analysis and ...

physicochemical analysis in analytical chemistry were given at the plenary and sectional meetings of the conference. Furthermore, the following reports are mentioned: G.B. Bokiy on the determination of the composition of imaginary Kurnakov compounds by the methods of crystallochemistry and physichochemical analysis; V.I. Mikheyeva: on the correctness of the assumption regarding berthollides as chemical compounds in which a continuous transition of several valence stages takes place; V.Ya. Anosov mentioned the agreement between special points of Mendeleyev and the singular points of Kurnakov; V.K. Semenchenko presented some new problems of physicochemical analysis in connection with a more ample knowledge on phases and phase transitions; by studying the equilibrium between phases in aqueous salt systems at high temperatures and pressures, M.I. Ravich obtained results of fundamental importance for the development of the theory of solubility, and the explanation of conditions for hydrothermal syntheses of crystals, and the examination of geochemical processes in the earth's crust; V.I. Spitsyn and collaborators showed that preparations of radioactive elements have characteristic properties depending on radiation phenomena which occur in the interior of a solid substance and are reflected by the properties of its surface. O.S. Ivanov: on phase dia-

Physicochemical analysis and ...

grams and phase transformations of uranium, plutonium, thorium, zirconium, beryllium, and other metals and their alloys, and their application in modern technology; N.P. Luzhnaya, N.Kh. Abrikosov, V.G. Kuznetsov: on the production of new semiconducting substances on the basis of studies on complicated systems and the separation of phases with semiconducting properties; N.V. Ageyev emphasized that a neutron diffraction study of the spin superstructure is required for an insight into the behavior of atoms and electrons in metals and alloys. I.I. Kornilov reported on groups of elements forming continuous and restricted solid solutions or metallic compounds with metals of the periodic system. A number of reports dealt with the physicochemical analysis of systems including rare metals, nonferrous metals and actinides. Despite considerable success in this connection, the insufficient rates and volumes of studies are emphasized, mainly in the fields of crystallochemistry, thermodynamics and the development of a modern theory on metal alloys. N.K. Voskresenskaya, and A.G. Bergman reported on systems of salts and oxides of various metals in molten state, and on salt - metal systems. S.I. Vol'fkovich: on the application of physicochemical analysis in the production of mineral fertilizers; I.N.

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S/030/61/000/003/011/013
B105/B215

Lepeshkov on the development of N.S. Kurnakov's ideas on the investigation of salt equilibria and their application for the examination and utilization of natural salts of the eastern and southeastern rayon of the country: Turkmenistan, Kirgiziya, Uzbekistan, Belorussiya, and other salt-containing rayons, and the production of mineral fertilizers and rare elements used in modern technology. The conference outlined the possibilities of further studies in the development of theoretical problems of physicochemical analysis and its application for the solution of problems in national economy and modern technology. The necessity for a coordination of the work conducted in this field by various scientific institutions of the Soviet Union is emphasized.

S/078/61/006/001/010/019
B017/B054

AUTHORS: Lepeshkov, I. N., Fradkina, Kh. B.

TITLE: Study of Solubility at 50°C in the System Li, Na || SO_4, CO_3 - H_2O

PERIODICAL: Zhurnal neorganicheskoy khimii, 1961, Vol. 6, No. 1, pp. 199 - 207

TEXT: The authors studied the solubility in the quaternary system Li, Na || SO_4, CO_3 - H_2O at 50°C, and determined the crystallization ranges. Results are shown as Jänecke diagrams in Figs.2 and 3. Fig.1 shows the distribution of crystallization ranges. The following ranges were found: Li_2CO_3, $Na_2CO_3 \cdot H_2O$, $Na_2CO_3 \cdot 2Na_2SO_4$, Na_2SO_4, $Na_2SO_4 \cdot Li_2SO_4$, and $Li_2SO_4 \cdot H_2O$. The crystallization range of Li_2CO_3 comprises the major part of the diagram. Table 3 gives the ratio of components of simultaneous crystallization Li_2CO_3 + $Na_2CO_3 \cdot 2Na_2SO_4$. Fig.4 shows microphotographs of crystals from Li_2CO_3 + $Na_2CO_3 \cdot H_2O$ (a), Li_2CO_3 + Na_2SO_4 (b),

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$Na_2SO_4.Li_2SO_4$ (v), and $Li_2SO_4.H_2O$ (g). Fig.5 shows thermograms of Li_2CO_3 (a), $Li_2SO_4.H_2O$ (b), Na_2SO_4 + $Li_2SO_4.Na_2SO_4$ (v), and Li_2CO_3 and $Na_2CO_3.2Na_2SO_4$ (g). Fig.6 shows the distribution curves of components between liquid and solid phases in simultaneous crystallization of Li_2CO_3 and $Na_2CO_3.2Na_2SO_4$. Hence it appears that limited solid solutions are formed in simultaneous crystallization of Li_2CO_3 and $Na_2CO_3.2Na_2SO_4$. The crystallographic investigations were made by M. N. Lyashenko. G. G.Urazov, Z. I. Lifatova, P. S. Kindyakov, L. S. Itkina, and N. M. Chaplygina are mentioned. There are 6 figures, 3 tables, and 21 references: 12 Soviet, 3 US, 1 British, 1 Canadian, 1 French, 1 German, and 1 Italian.

SUBMITTED: June 2, 1960

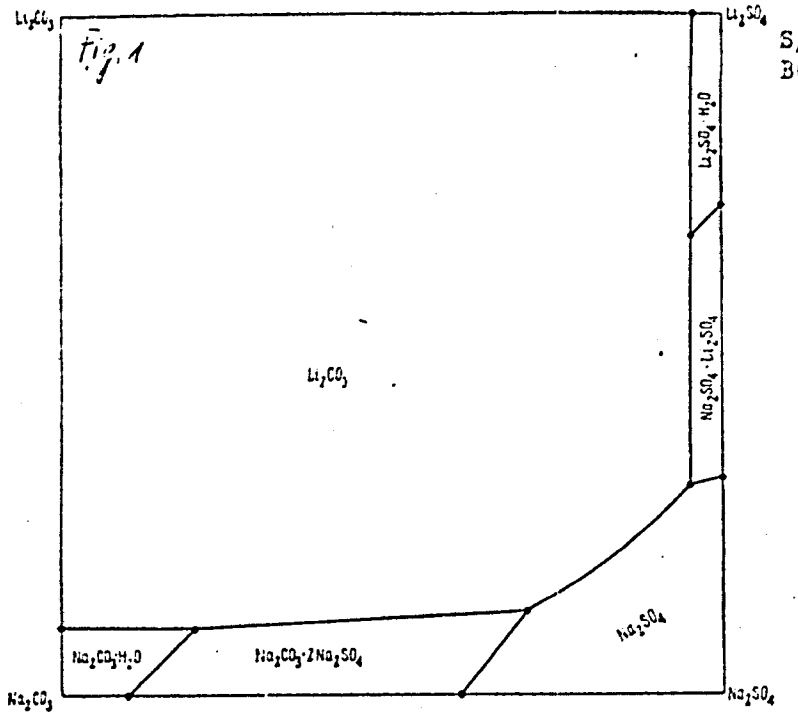

Fig. 1

S/078/61/006/001/010/019
B017/B054

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B017/B054

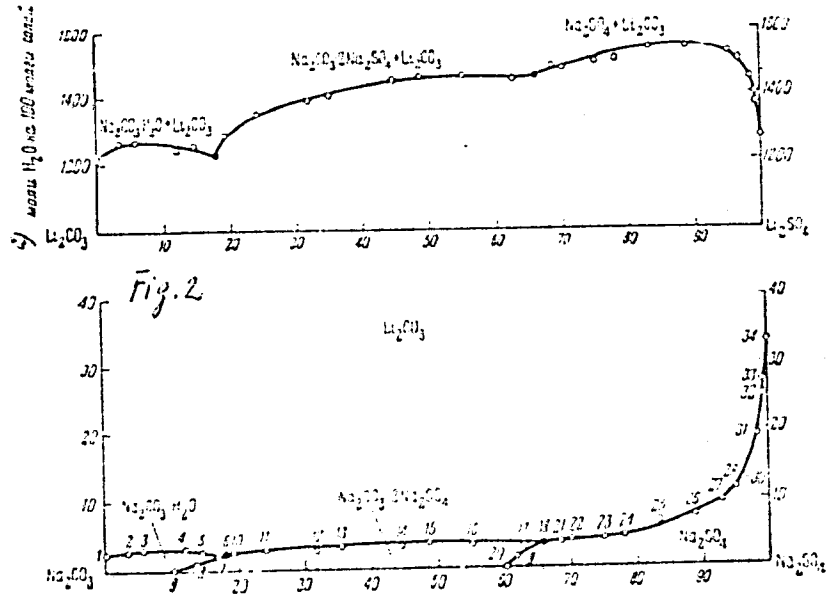

Fig. 2

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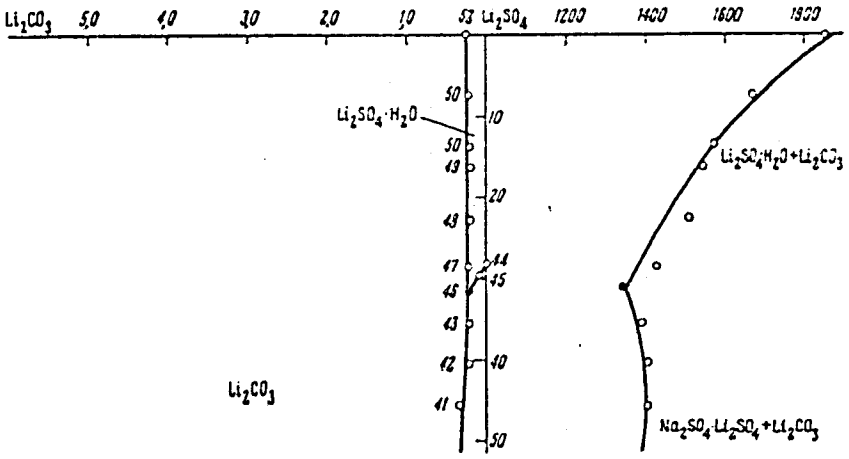
B017/B054



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S/078/61/006/001/010/019
B017/B054

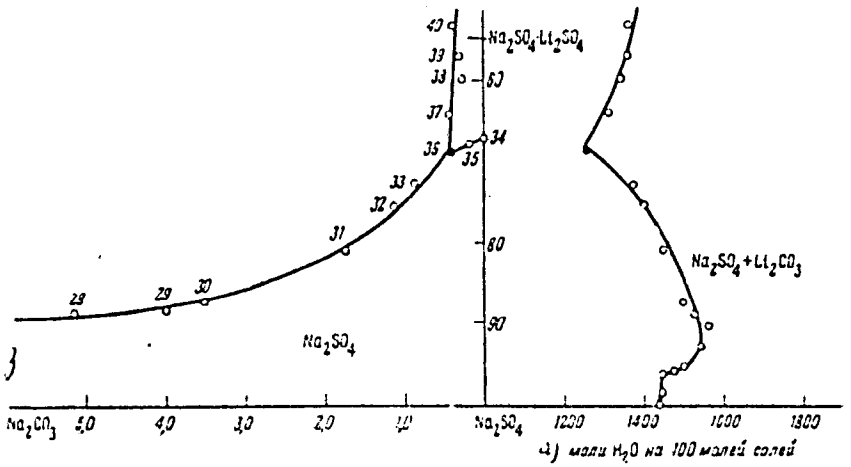

Fig. 3

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Legend to Fig.1: Crystallization fields in the system Li, $Na||SO_4, CO_3 - H_2O$ at 50°C.

Legend to Fig.2: Solubility in the system Li, $Na||SO_4, CO_3 - H_2O$ at 50°C in the range of crystallization of $Na_2CO_3.H_2O$, $Na_2CO_3.2Na_2SO_4$, Na_2SO_4, and Li_2CO_3; a) moles of H_2O per 100 moles of salts.

Legend to Fig.3: Solubility in the system Li, $Na||SO_4, CO_3 - H_2O$ at 50°C in the range of crystallization of Na_2SO_4, $Na_2SO_4.Li_2SO_4$, $Li_2SO_4.H_2O$, and Li_2CO_3; a) moles of H_2O per 100 moles of salts

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S/078/61/006/006/013/013
B110/B206

AUTHOR: Lepeshkov, I. N.

TITLE: Fourth All-Union Conference on physical-chemical analysis dedicated to the 100th birthday of N. S. Kurnakov

PERIODICAL: Zhurnal neorganicheskoy khimii, v. 6, no. 6, 1961, 1490-1492

TEXT: In his lecture on the theory of metallic alloys, N. V. Ageyev pointed out the necessity of the determination of the spin superstructure by neutron-diffraction studies and the determination of the dependence of the properties of metals and alloys on the spin order, to obtain a complete characteristic of the behavior of atoms and electrons in atoms and alloys. I. I. Kornilov studied the metallochemical properties of the elements on the basis of the ratio of the atomic radii, the electronegativity, and the types of the crystal lattice of the elements, and in his report tried to divide the groups of elements into sections, which with the metals of the periodic system form continuous solid solutions, limited solid solutions, and metallic compounds. It was established that the majority of the

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metals which form continuous solid solutions in binary systems are concentrated in the group of transition elements with unfilled d-electron shell. Starting from the proposed classification of the types of reactions of metals with other elements, different compositions of the metallic alloys with any given number of components can be anticipated. The lectures by N. P. Luzhnaya, N. Kh. Abrikosov, V. G. Kuznetsov, and others dealt with data of physical-chemical investigations of the phase diagrams of systems containing As, Te, In, Bi, S, etc., in order to prepare new phases with semiconductor properties. The necessity of investigating phase diagrams in very close concentration intervals due to the effect of slight admixtures on the semiconductor properties was established. Apart from clarifying the effect of the phase composition on the semiconductor properties, the degree of dispersion of the phases, their behavior in thin layers, the transitions from amorphous and glass-like states into crystalline ones, etc. must be considered. The lectures by O. S. Ivanov, Ye. M. Savitskiy, V. F. Terekhova, Ye. I. Gladyshevskiy, N. N. Zhuravlev and others dealt with physical-chemical analysis of metal systems with actinide part. A remarkable success was achieved in the investigation of

Fourth All-Union Conference...

phase diagrams of alloys on the basis of plutonium , germanium, uranium, rhenium, cerium,lanthanum, niobium, vanadium, etc., and in the production of alloys with properties of special interest for the new technology. [Abstracter's note: Complete translation.]

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S/079/61/006/007/011/014
B121/B207

AUTHORS: Lepeshkov, I. N., Ivanova, N. A., and Koreva, L. T.

TITLE: Solubility study in the system Li_2SO_4 - Na_2SO_4 - K_2SO_4 - H_2O at 50 and 100°C

PERIODICAL: Zhurnal neorganicheskoy khimii, v. 6, no. 7, 1961, 1695 - 1701

TEXT: The solubility in the four-component system Li_2SO_4 - Na_2SO_4 - K_2SO_4 - H_2O at 50 and 100°C, and the crystallization zones of the $Li_2SO_4 \cdot H_2O$, $Li_2SO_4 \cdot Na_2SO_4$, Na_2SO_4, 3 $K_2SO_4 \cdot Na_2SO_4$, K_2SO_4, $Li_2SO_4 \cdot K_2SO_4$ and 2 $Li_2SO_4 \cdot Na_2SO_4 \cdot K_2SO_4$ salts were studied. The following crystallization zones occur in the three-component system Li_2SO_4 - K_2SO_4 - H_2O at 50 and 100°C: $Li_2SO_4 \cdot H_2O$, $Li_2SO_4 \cdot K_2SO_4$, K_2SO_4. The double salt forms a solid solution with lithium sulfate. The solid solution range at 100°C is very

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Solubility study in the system...

limited. Three endothermic effects appear on the thermogram of the double salt $Li_2SO_4 \cdot K_2SO_4$. The effect at 440°C indicates the polymorphous transformation of this salt from the α- into the β-modification. The effect at 560°C also indicates a polymorphous transformation, and the effect at 720°C gives the melting point of this salt. In the three-component system Na_2SO_4 - K_2SO_4 - H_2O, also a double salt appears forming solid solutions with sodium- and potassium sulfate. Crystallization zones of the following salts occur at 50°C in the system Li_2SO_4 - Na_2SO_4 - K_2SO_4 - H_2O: $Li_2SO_4 \cdot H_2O$, $Li_2SO_4 \cdot K_2SO_4$, $Li_2SO_4 \cdot Na_2SO_4$, ? $Li_2SO_4 \cdot Na_2SO_4 \cdot K_2SO_4$, Na_2SO_4, ? $K_2SO_4 \cdot Na_2SO_4$, and K_2SO_4. The crystallization zone of the ? $Li_2SO_4 \cdot Na_2SO_4 \cdot K_2SO_4$ salt is at 50°C almost twice as big as at 25°C and remains unchanged at a further temperature rise. Endothermic effects appear on the melting curve of the ? $Li_2SO_4 \cdot Na_2SO_4 \cdot K_2SO_4$ salt at 490, 420, 510 and 605 - 650°C. These effects are not due to a dehydration. The crystals of the trimeric salt ? $Li_2SO_4 \cdot Na_2SO_4 \cdot K_2SO_4$ have

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a rhombic lattice and the following refractive indices: Ng = 1.486; Nm = 1.480; Np = 1.477. The crystallization zone of the $Li_2SO_4 \cdot K_2SO_4$ salt increases with temperature increase that of the $Li_2SO_4 \cdot Na_2SO_4$ salt also increases at a temperature rise of from 50 to 100°C. At 25°C, this salt does not exist, but a double salt of the following composition: $Li_2SO_4 \cdot 3Na_2SO_4 \cdot 12H_2O$. The crystallization zone of glaserite is smaller at 100°C than at 50°C, the crystallization zone of potassium sulfate also decreases at a temperature rise. Figs. 3 and 4 show the isothermal lines of solubility of the system $Li_2SO_4 - Na_2SO_4 - K_2SO_4 - H_2O$ at 50 and at 100°C. The crystal optical analysis were carried out by M. N. Lyashenko and N. N. Romashova. There are 5 figures, 3 tables, and 12 references: 9 Soviet-bloc and 3 non-Soviet-bloc. The references to English language publications read as follows: L. B. Rogers, E. R. Caley, Ind. Eng. Chem., 15, 209 (1943) A. N. Campbell, E. M. Kartzmark, Canad. J. Chem., 36, 171 (1958)

SUBMITTED: June 15, 1960

Card 3/5

LEPESHKOV, I.N.; ROMASHOVA, N.N.

Solubility in the system LiCl - NaCl - $MgCl_2$ - H_2O at 25 and 75°. (MIRA 14:8)
Zhur.neorg.khim. 6 no.8:1967-1971 Ag '61.
(Lithium chloride) (Sodium chloride) (Magnesium chloride)

LEPESHKOV, I.N., doktor khim.nauk

Physicochemical analysis and its application. Vest.AN SSSR 31 no.3:115-117 Mr '61. (MIRA 14:3)
(Chemistry, Analytical)

LEPESHKOV, I.N.

Outstanding chemist and researcher of mineral resources of our country; on the 100th anniversary of N.S. Kurnakov's birth. Zap.Vses.min.ob-va 89 no.6:691-698 '61. (MIRA 15:5)
(Kurnakov, Nikolai Semenovich, 1860-1941)

LEPESHKOV, I.N.; ROMASHOVA, N.N.

Solubility and solid phases in the system LiCl - NaCl - $MgCl_2$ - H_2O at 25 and 75°. Izv.AN Kir.SSR.Ser.est.i tekh.nauk 4 no.9:33-40 '62. (MIRA 16:4)

(Chlorides) (Salts) (Solubility)

KURNAKOV, Nikolay Semenovich[deceased]; ZVYAGINTSEV, O.Ye., doktor khim. nauk, otv. red.; LEPESHKOV, I.N., doktor khim. nauk, otv. red.; VASIL'YEVA, Ye.A., red.; LAUT, V.G., tekhn. red.

[Selected works] Izbrannye trudy. Moskva, Izd-vo AN SSSR, Vol.3. 1963. 567 p. (MIRA 16:10)
(Chemistry, Physical and theoretical)

LEPESHKOV, I.N.; FRADKINA, Kh.B.

Study of salt equilibria in the system Li, Na // SO_4, CO_3 - H_2O at 100°C. Zhur.neorg.khim. 8 no.2:447-456 F '63. (MIRA 16:5)

1. Institut obshchey i neorganicheskoy khimii imeni N.S.Kurnakova AN SSSR.

(Salts) (Phase rule and equilibrium)

LEPESHKOV, I.N.; BODALEVA, N.V.; KOTOVA, L.T.

Solubility in the system
$(2LiCl + K_2B_4O_7 \rightleftarrows 2KCl + Li_2B_4O_7) + H_2O$ at 25°. Zhur.
neorg. khim. 8 no.11:2597-2602 N '63. (MIRA 17:1)

1. Institut obshchey i neorganicheskoy khimii imeni N.S. Kurnakova AN SSSR.

MAKIN, A.V.; LEPESHKOV, I.N.

Salt equilibria in the system $NaNO_3$ - Na_2SO_4 - Na_2HPO_4 - H_2O at 25°.
Zhur. neorg. khim. 9 no.2:495-498 F'64. (MIRA 17:2)

1. Yaroslavskiy gosudarstvennyy pedagogicheskiy institut imeni K.D. Ushinskogo.

LEPESHKOV, I.N., doktor khim. nauk

Gifts of the sea; natural salts as a valuable raw material for mineral fertilizers. Priroda 53 no.2:65-69 '64. (MIRA:17:2)

1. Institut obshchey i neorganicheskoy khimii im. N.S. Kurnakova AN SSSR (Moskva).

IEPESHKOV, I.N.; BORISOV, V.M.; SHAPOZHNIKOVA, A.N.; ZAYTSEVA, I.S.

Separation of natural polyhalite salt in hydrocyclones. Khim. prom. no.6:437-439 Je '64. (MIRA 18:7)

FASIUK, M.I.; LEPESHKOV, I.N.

Potassium salt potential of drilling muds of White Russia.
Zhur. neorg. khim. 10 no.3:684-686 Mr '65.
(MIRA 18:7)

TURNETSKAYA, A.F.; LEPESHKOV, I.N.

Solubility in the system KCl $KClO_3$ - H_2O at 25 and 50°C. Zhur. neorg. khim. 10 no.9:2163-2165 S '65. (MIRA 18:10)

L 13640-66 EWT(m)/ETC(F)/EPF(n)-2/EWG(m)/EWP(t)/EWP(z)/EWP(b) LJP(c)
ACC NR: AP6000765 SOURCE CODE: UR/0078/65/010/012/2845/2847
DS/JD/WW/HW/JG/RM

AUTHOR: Plyushchev, V. Ye.; Lepeshkov, I. N.

ORG: none

TITLE: Second all-union conference on the rare alkali metals

SOURCE: Zhurnal neorganicheskoy khimii, v. 10, no. 12, 1965, 2845-2847

TOPIC TAGS: metallurgic conference, chemical conference, alkali metal, cesium, lithium, rubidium, metal compound, metal extraction, metal purification, ion exchange, inorganic synthesis, chemical bonding, polyhalide salt, phase diagram, solubility, aqueous solution

ABSTRACT: The Second All-Union Conference on Rare Alkali Metals was held 13—16 October 1964 in Novosibirsk and was jointly sponsored by the Siberian Department and Department of Physical Chemistry and Technology of Inorganic Materials of the AS USSR, the USSR State Committee on Coordination of Scientific Research, and the Novosibirsk section of the All-Union Chemical Society im. D. I. Mendeleyev. More than 50 scientific papers were presented which dealt with general subjects of the synthesis and properties of the rare alkali metal compounds, methods of determination, extraction, separation, and purification of the rare alkali metals, chemical

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interactions in aqueous solutions and melts of their compounds, and applications of these metals and their compounds. There was a significant number of papers on the synthesis and properties of the compounds. The following topics were noted in this category: new data on zirconates and hafnates of alkali metals (Plyushchev, V. Ye., and A. A. Grizik); fluorozirconates and fluorohafnates of Rb and Cs (Tananayev, I. V., and L. S. Guzeyeva); reactions of hydroxides and carbonates of the rare alkali metals with hydrogen peroxide (Dobrynina, T. A., B. S. Dzyatkevich, N. A. Akhapkina, and A. I. Chernysheva); cesium superoxide and ozonide (Vol'nov, I. I., and V. V. Matveyev); thermal stability of Rb and Cs compounds (Breusov, O. N., N. I. Kashina, G. V. Revzin, N. A. Druz', A. O. Lesovaya, P. D. Komissarova, and R. M. Shklovskaya); lithium aluminohydride and gallohydride (Arkhipov, S. M., and V. I. Mikheyeva); lithium and boron complexes (Arkhipov, S. M., G. Ye. Revzin, and P. D. Komissarova); ion-exchange properties of ferrocyanides and application in the extraction of the rare alkali metals (Kozlov, A. S., and Yunden Mizhidiyn); ion-exchange property of granulated nickel and alkali metal ferrocyanides (Vol'khin, V. V., S. A. Kolesova, and A. F. Kalashnikova); amalgam method of preparing Rb and Cs hydroxides (Sklyarenko, S. I., A. F. Rysev, and I. V. Smirnov); and Li reduction on the liquid gallium cathode (Ponomarev, V. P.

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V. P., V. P. Porubayev, and A. I. Zazubin). Three papers were given on Rb and Cs determination by different methods. Nine papers dealt with selective extraction of the rare alkali metals from raw materials, six of them with Li, one with Rb, and two with unspecified alkali metals. The following papers were noted in the series on separation and purification: separation of the rare alkali metals by continuous counter-current ion-exchange (Gorshkov, V. I., G. M. Panchenkov, G. M. Gulyayeva, S. N. Dmitriyev, N. N. Savenkova, and G. M. Medvedev); separation of Li from certain alkali and alkali earth metals by ion-exchange (Suvorovskaya, N. A., V. V. Shikhova, and I. A. Shmarinova); purification of Rb and Cs compounds by crystallization (Vulikh, A. I., A. O. Lesovaya, V. A. Kaz'minskaya, L. P. Zherdiyenko, S. M. Arkhipov, and R. M. Shklovskaya); and preparation of high-purity Cs and its compounds (Gulyayeva, G. M.). The papers on melts and aqueous solutions of salts of the rare alkali metals attracted special attention. G. V. Samsonov reported on the nature of the chemical bond and phase structure of the rare alkali metal compounds with non-metallic elements and indicated directions to follow in the synthesis of these compounds with given properties. Two papers were noted on the phase diagram of fused salt systems $MeCl_3$—RbCl and $MeCl_3$—CsCl, where Me = Ga or In (Arbekov, V. N., V. A. Sryvtsev, and Ye. S. Petrov), and MeCl—$ScCl_3$, where

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ACC NR: AP6000765

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Me = Li, Rb, or Cs (Fedorov, N. Ya., and Ye. S. Petrov). The aqueous salt systems were treated in several papers, one which was on solubility at 25C in the Cs compound-K compound-H_2O system (Kirgintsev, A. N., and L. N. Trushnikova). Three papers dealt with polyhalide systems as a means of purification of Rb salts (Kuznetsova, G. P., V. I. Safonova, and B. D. Stepin; Fakeyev, A. A., V. N. Kulyukin, and B. D. Stepin) or Rb and Cs salts (Stepin, B. D., A. V. Babkov, and T. M. Sas). Two of several papers were noted in the category of applications: vitreous lithium silicates (Dubrovo, S. K.) and the effect of Rb and Cs oxides on the properties of vitreous and crystallized silicates (Alekseyeva, Z. D.). The Third All-Union Conference will be held in 1968. [ATD PRESS: 4169-F]

SUB CODE: 11, 07 / SUBM DATE: none

Card 4/4

L 16850-66 EWT(m) RM
ACC NR: AP6002818 SOURCE CODE: UR/0078/66/011/001/0228/0230

AUTHOR: Lepeshkov, I.

ORG: none

TITLE: Ninth Mendeleyev Conference

SOURCE: Zhurnal neorganicheskoy khimii, v. 11, no. 1, 1966, 228-230

TOPIC TAGS: chemical conference, food technology, agriculture science, chemistry, fertilizer, organic synthetic process

ABSTRACT: The Ninth Mendeleyev Conference on General and Applied Chemistry was held in Kiev, 24-29 May 1965. More than 2200 delegates from Soviet organizations participated in the conference, including 200 academicians and 400 doctors of sciences and professors. Representatives from other Communist countries were also present. The conference was opened by Academician N. M. Zhavoronkov and P. Ye. Shelest, First Secretary of the Central Committee of the Ukrainian Communist Party.

Card 1/2 UDC: 54.006.3

L 16850-66
ACC NR: AP6002818

Further development of the chemical industry and agricultural chemistry was the main topic of the conference, with production of mineral fertilizers leading the list of topics. It was indicated that the percentage of useful components in mineral fertilizers will increase from the present 25.4% to 36% by 1970. In his discussion of synthetic food products, Zhavoronkov indicated the need for methods leading to the direct synthesis of edible compounds from CO_2, air, and water. Academician A. N. Nesmeyanov also spoke on the production of synthetic food. Several papers were devoted to the chemistry and technology of fertilizers, agricultural chemistry, economics and planning for the expansion of agricultural chemistry, etc. Resolutions of the conference outlined the main tasks for progress in chemistry, chemical technology, and large-scale expansion of agricultural chemistry. It was decided to hold the Tenth Mendeleyev Conference in 1967. [ATD PRESS: 4186-F]

SUB CODE: 07, 02, 06 / SUBM DATE: none

Card 2/2 7119 5

LEPESHKOV, Stepan Ivanovich; MEDVEDEV, Fedor Konstantinovich; LUSHCHEVSKIY, V., red.; AKIS, I., tekhn. red.

[From the bottom of the sea] So dna moria. Riga, Latviiskoe gos. izd-vo, 1962. 196 p. (MIRA 16:1)
(Baltic Sea--World War, 1939-1945--Naval operations--Submarine)

PLYUSHCHEV, V.Ye.; STEPINA, S.B.; LEPESHKOVA, L.I.

Iso(tri)polyhalides very similar in properties to alkaline metals, and their use in the removal of cesium from rubidium compounds. Dokl. AN SSSR 148 no.3:601-604 Ja '63. (MIRA 16:2)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii im. M.V. Lomonosova. Predstavleno akademikom I.V. Tananayevym.
(Halides) (Rubidium compounds) (Cesium)

37386

S/020/62/143/006/019/024
B106/B138

11 4100

AUTHORS: Plyushchev, V. Ye., Stepina, S. B., Stepin, B. D., and Lepeshkova, L. I.

TITLE: Heterotripolyhalides of alkali elements with similar properties and their importance for the production of pure rubidium and cesium compounds

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 143, no. 6, 1962, 1364-1367

TEXT: The possibility of producing pure Rb and Cs compounds via complex heterotripolyhalides is thoroughly discussed with the aid of 27 references. A method developed by the authors (V. Ye. Plyushchev, B. D. Stepin, Author's certificate USSR no. 132627 (1960); B. D. Stepin, V. Ye. Plyushchev, Author's certificate USSR no. 140051 (1961)) provides for the production of Rb preparations containing only 0.0002% potassium, from industrial RbCl containing 2 - 3% K. Rb preparations of such high purity had not been obtained by methods described before. In the present simple and economic procedure, RbCl is twice (first in aqueous solution, then in 0.5 M acetic acid) converted at 90°C into the complex Rb$[I(ClBr)]\cdot H_2O$,

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which is then decomposed by heating to 400°C. A further method developed by the authors for producing pure cesium bromide by precipitating the complex cesium di-iodo bromide, $CsBrI_2$, from aqueous-alcoholic solution (S. B. Stepina, B. D. Stepin, L. I. Lepeshkova, V. Ye. Plyushchev, Author's certificate USSR no. 138927 (1961)) is discussed in detail. Two applications of this process produce cesium bromide of 99.95% purity containing 0.02% Rb and <0.005% K, 0.002% Na, and 0.002% Li (the initial CsBr containing 5% Rb and up to 1.5% other alkali elements). CsBr losses in this process are lowest, so the cost of producing high-purity cesium salts from the industrial product is not more than 10% higher than that of the initial material. Advantages of the new method: (1) high purification factor (10 - 20), (2) high selectivity of CsBr isolation from mixtures with other alkali elements, hitherto not achieved by other methods, and (3) no additional operations are needed since no nonvolatile ions participate in the purification process. Therefore, the heterotripolyhalides of the alkali elements are very promising compounds for the removal of potassium microamounts from Rb salts and for the production of Cs salts which are practically free from impurities of other alkali elements. There is 1 table. The most important English-language references read as

follows: H. L. Wells, Am. Chem. J., 26, 268 (1901); M. Ischibaschi, T. Jamamoto, T. Hara, Bull. Inst. Chem. Res. Kyoto Univ., 37, no. 2, 145 (1959); M. Ischibaschi, T. Jamamoto, T. Hara, Bull. Inst. Chem. Res. Kyoto Univ., 37, no. 3, 153 (1959); H. W. Foote, M. Fleischer, J. Phys. Chem., 44, 640 (1940).

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii im. M. V. Lomonosova (Moscow Institute of Fine Chemical Technology imeni M. V. Lomonosov)

PRESENTED: December 13, 1961, by I. V. Tananayev, Academician

SUBMITTED: December 6, 1961

Card 3/3

LEPESHKOVA, L.I.; STEPINA, S.B.; PLYUSHCHEV, V.Ye.

Preparation of pure cesium salts using cesium diiodobromide. Izv.vys.ucheb.zav.; khim.i khim.tekh. 7 no.6:875-880 '64. (MIRA 18:5)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni Lomonosova, kafedra khimii i tekhnologii redkikh i rasseyannykh elementov.

STEPINA, S.B.; PLYUSHCHEV, V.Ye.; LEPESHKOVA, L.I.

Removal of cesium microimpurities from rubidium salts. Zhur.-neorg.khim. 8 no.2:487-489 F '63. (MIRA 16:5)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni M.V.Lomonosova.

(Rubidium salts) (Cesium iodide)

BUDNIKOV, P.P.; SHUBIN, V.I.; LEPESHOVA, V.I.

Nature of adhesion between basic refractories and portland cement clinkers. Zhur.prikl.khim. 38 no.6:1193-1198 Je '65. (MIRA 18:10)

LEPESHOV, A.I., fel'dsher (Moskva)

Ambulance with special facilities for shock treatment. (MIRA 15:3)
Fel'd. i akush. 27 no.2:30-32 F '62.
(MOSCOW--AMBULANCE SERVICE)
(SHOCK)

VOSZTOKOV, A. J. (Soviet Union); LEPESKIN, I. P. (Soviet Union); KELLER, Tibor

Corrected calculation of evaporators. Cukor 18 no.3:7[illegible] M 165.

VOSZTOKOV, A.J.; LEPESKIN, I.P.

Evaporators. Cukor 18 no.2:49-54 F '65.

YATSENKO, N.P.; LEPESKINA, L.K.

Norms for the consumption of particle and wood fiberboards in the manufacture of furniture. Der.prom. 11 no.5:4 My '62. (MIRA 15:5)

1. TSentral'nyy nauchno-issledovatel'skiy institut fanery i mebeli.

(Furniture industry) (Hardboard)

YATSENKO, N.P.; LEPESKINA, L.K.; BRENER, M.I., red.

[Increasing the output of parts from particle board and fiberboard] Uvelichenie poleznogo vykhoda detalei iz struzhechnykh i drevesno-volokmistykh plit. Moskva, TSentr. nauchno-issl. in-t informatsii i tekhniko-ekon. issl. po lesnoi, tselliulozno-bumazhnoi, derevoobrabatyv. promyshl. i lesnomu khoz. 1963. 21 p. (MIRA 17:4)

1. TSentral'nyy nauchno-issledovatel'skiy institut fanery i mebeli (for Yatsenko, Lepeskina).

S/903/62/000/000/033/044
B102/B234

AUTHORS: Zatsepina, G. N., Igonin, V. V., Lazareva, L. Ye., Lepestkin, A. I.

TITLE: Direct photoeffect on heavy nuclei with low excitation energies

SOURCE: Yadernyye reaktsii pri malykh i srednikh energiyakh; trudy Vtoroy Vsesoyuznoy konferentsii, iyul' 1960 g. Ed. by A. S. Davydov and others. Moscow, Izd-vo AN SSSR, 1962, 479-485

TEXT: Disc-shaped targets of Bi (3.91 g/cm^2) and Au (3.77 g/cm^2) were exposed to bremsstrahlung of $E_{\gamma max}$ = 14 Mev of the FIAN synchrotron and the (γ,n) and (γ,2n) reactions (thresholds 7.4 and 14.2 Mev for Bi and 8.0 and 14.9 Mev for Au) taking place were investigated as to the neutron energy spectra and the levels excited in the target nuclei were calculated. The recoil protons were recorded with 400-μ NIKFI-R2 (NIKFI-Ya2) emulsion plates arranged at angles of 30, 90, 150 and 270° to the γ-ray direction, at a distance of 16 cm from the target center. In microscopic scanning only the recoil protons scattered through small angles with respect to the neutrons ($\pm$15° in the emulsion plane and $\pm$20° inside the emulsion) for neutrons with

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$E_n > 1$ Mev. For measuring the background the specimens were replaced by carbon discs. The neutron energy spectra were determined for $N_{90^\circ} + N_{270^\circ}$ and $N_{30^\circ} + N_{150^\circ}$ and were found to be of equal shape and similar in position. Numerical calculations were made on the basis of the evaporation model; both for Bi and Au the theoretical curves show qualitative agreement but they are somewhat steeper and their tail is shorter by 2-3 Mev. The characteristics of the neutron levels excited in Bi and Au are given as well as indicating the possible transitions and their relative intensities. Part of the data is taken from Ross et al. (Phys. Rev., 102, 1613, 1956). There are 5 figures and 3 tables.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva AN SSSR (Physics Institute imeni P. N. Lebedev AS USSR)

Card 2/2

LEPESTKIN A.I.

IGONIN, V.V., LAZAREV, L.YE., LEPESTKIN, A.I., ZATSEPINA, G.N.

"Angular and Energy Distribution of Photoneutrons,"

Lebedev Physics Inst. Acad. Sci. USSR and Saratov State University

Paper submitted at the All-U Conf. on Nuclear Reactions in Medium and Low Energy Physics, Moscow, 19-27 Nov 57.

L 13621-63 EWT(m)/BDS AFFTC/ASD

ACCESSION NR: AP3003099 S/0056/63/044/006/1787/1799 58 53

AUTHOR: Zatsepina, G. N.; Igonin, V. V.; Lazareva, L. Ye.; Lepestkin, A. I. 19

TITLE: Angular and energy distributions of photoneutrons from bismuth, gold, and tantalum

SOURCE: Zhurnal eksper. i teor. fiziki, v. 44, no. 6, 1963, 1787-1799

TOPIC TAGS: photoneutron, angular distribution, energy distribution, bismuth, gold, tantalum, giant resonance region

ABSTRACT: The angular and energy distributions of photoneutrons from bismuth, gold, and tantalum irradiated by X-rays of peak energy 14 and 19 MeV were measured in order to study the interaction between Gamma quanta and heavy nuclei in the region above the giant resonance. The work was done with the synchrotron (30 MeV) of the Physics Institute, Academy of Sciences SSSR. The photoneutron spectra were registered by their recoil protons, using nuclear emulsions, which were scanned under microscopes. Summary spectra were obtained for the neutrons emitted at right angles (90 and 270°) to the x-ray beam, and also for the angles 30 and 150°. Their experimental results were compared with calculation made by the evaporation model and by the independent-particle model. The neutron energy

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ACCESSION NR: AP3003099

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regions in which the various calculated and experimental distributions agree and disagree are discussed in light of the possible shells and possible transitions to which they can be due. "The work was done at the Physics Institute, Academy of Sciences SSSR, in collaboration with the staff members of the Saratovskiy gosudarstvenny*y universitet im. N. B. Chernishevskiy (Saratov State University.) N. Ya. Avdokushina, L. V. Baranova, and L. P. Bogatkina helped with the scanning of the emulsions, for which the authors express their deep gratitude." Orig. art. has: 2 formulas, 9 figures, and 3 tables.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva Akademii nauk SSSR (Physics Institute, Academy of Sciences SSSR)

SUBMITTED: 02Jan63 DATE ACQ: 23Jul63 ENCL: 00

SUB CODE: 00 NO REF SOV: 003 OTHER: 023

Card 2/2

LEPESTKIN, V.Ya. (Pugachov)

Relationship between courses in mathematics and physics. Mat. v shkole no. 6:41-45 N-D '60. (MIRA 14:2)
(Mathematics—Study and teaching)
(Physics--Study and teaching)

LESIC, V.

Yugoslavia (430)

Agriculture - Plant and Animal Industry

Fishing for sardines in the Montenegrin Littoral.
p. 10. MORSKI RIBARSTVO, Vol 4, No 1-2, 1952.

East European Accessions List, Library of Congress,
Vol 1, No 14, December 1952.

UNCLASSIFIED

LOPETIC, V.

Yugoslavia (B30)

Agriculture-Plant and Animal Industry.

Shark fishing. P. 71. MORSKO RIBARSTVO.
Vol 4, No 5, 1952.

East European Accessions List. Library of Congress. Vol 2, No 3, March 1953.

UNCLASSIFIED

LEPETIC, V. (BILJESKE,

"Findings Of Fish Species Unkown In The Adriatic." p.1
Vol. 40, NO. 3, Nov. 2, 1953, Split)

SO: Monthly List of East European Accessions, Vol. 3, No. 3, Library of Congress, March 1954, Uncl.

LEPETKOVA, M.K.

Dyeing natural silk with acid-mordant dyes. Izv.vys.ucheb.zav.; tekh.tekst.prom. no.4:163-170 '58. (MIRA 11:11)

1. Leningradskiy tekstil'nyy institut imeni Kirova.
(Dyes and dyeing--Silk) (Mordants)

AVERBUKH, Sh.Kh.; LEPETKOVA, M.K.

Dyeing of natural silk with acid-mordant dyes by the method of subsequent chroming. Izv. vys. ucheb. zav.; tekh. tekst. prom. no.3:126-134 '59. (MIRA 12:11)

1. Leningradskiy tekstil'nyy institut im. S.M. Kirova.
(Dyes and dyeing—Silk)

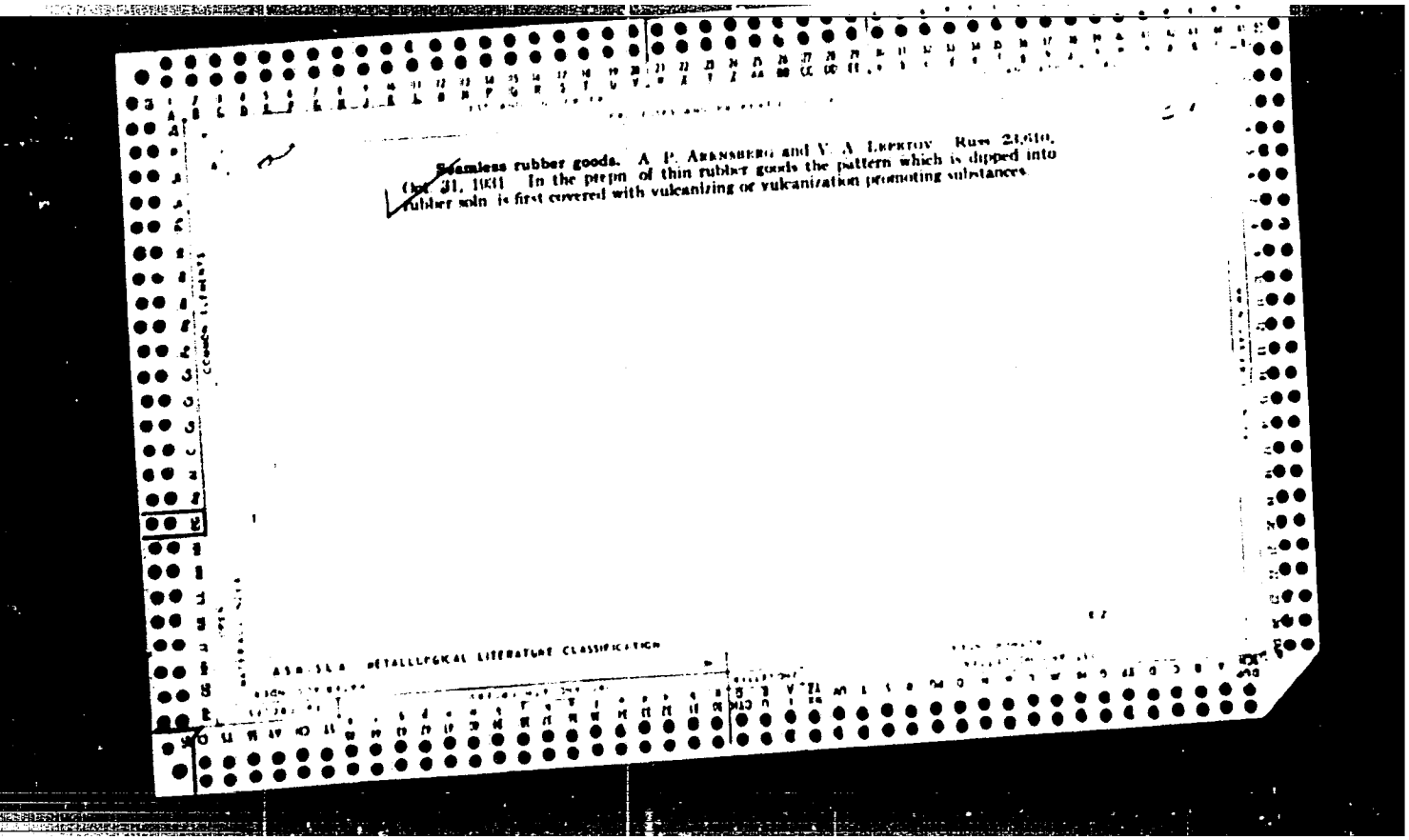
AVERBUKH, Sh.Kh.; LEPETKOVA, M.K.

Dyeing natural silk with acid mordants with the single bath method. Report No.3. Izv.vys.ucheb.zav.; tekh.tekst. prom. no.1:121-128 '60. (MIRA 13:6)

1. Leningradskiy tekstil'nyy institut im. S.M.Kirova.
(Dyes and dyeing--Silk)

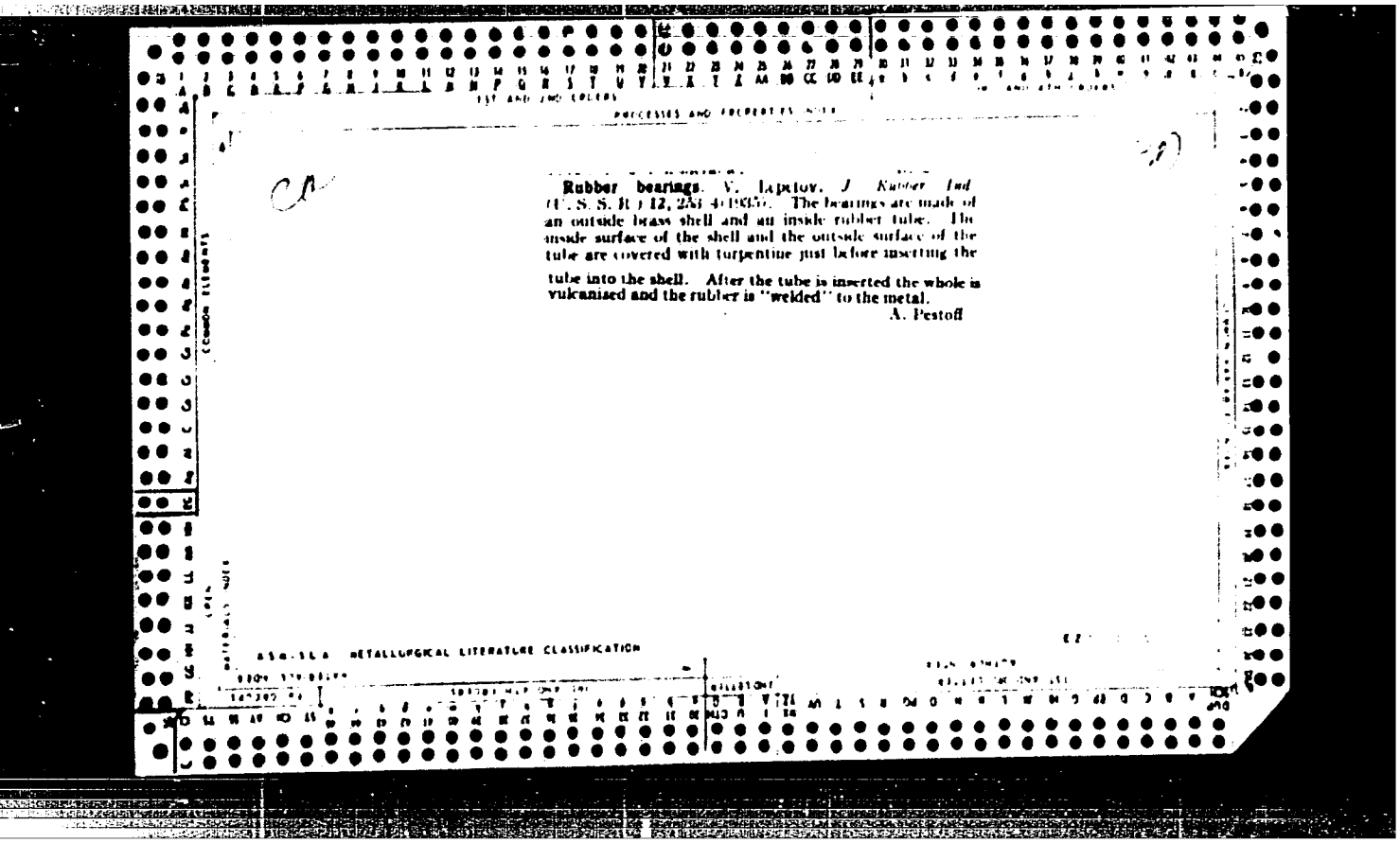
LEBEDEVA, L.V., inzh.; LEPETOV, V.A., kand.tekhn.nauk

Reinforced rubber diaphragm with end tips and a rigid center.
Vest.mash. 42 no.4:54-55 Ap '62. (MIRA 15:4)
(Diaphragms (Mechanical devices))



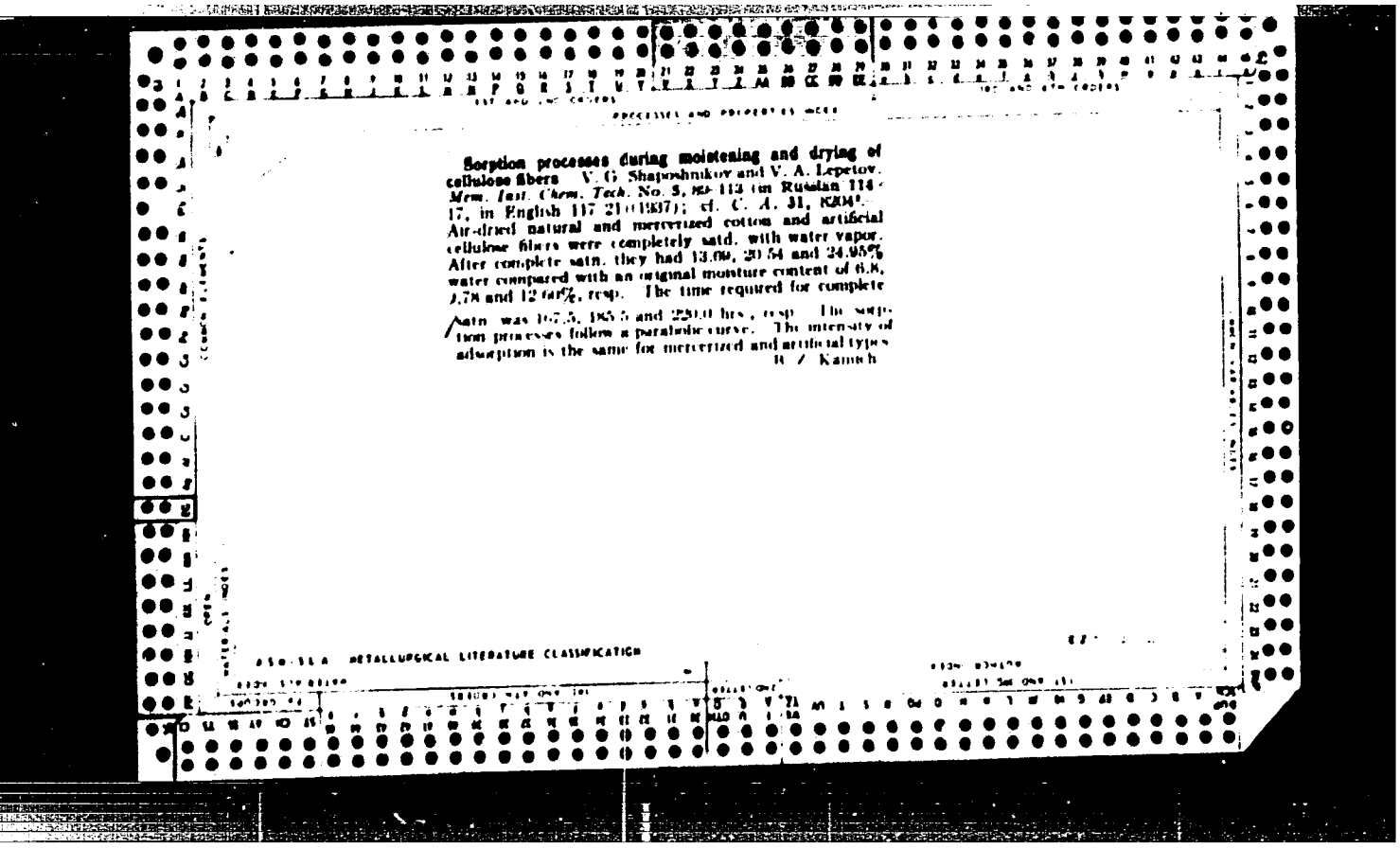
Seamless rubber goods. A. P. Arabadzhi and V. A. Lebedev. Russ. 23,610, Oct. 31, 1931. In the prepn. of thin rubber goods the pattern which is dipped into rubber soln. is first covered with vulcanizing or vulcanization promoting substances.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



Rubber bearings. V. Iapelov. *J. Rubber Ind. (U.S.S.R.)* 12, 251-4 (1935). The bearings are made of an outside brass shell and an inside rubber tube. The inside surface of the shell and the outside surface of the tube are covered with turpentine just before inserting the tube into the shell. After the tube is inserted the whole is vulcanized and the rubber is "welded" to the metal.

A. Pestoff



Sorption processes during moistening and drying of cellulose fibers. V. G. Shaposhnikov and V. A. Lepetov. *Mem. Inst. Chem. Tech.* No. 5, 103-113 (in Russian 114-17, in English 117-21 (1937); cf. C. A. 31, 8304[9]. Air-dried natural and mercerized cotton and artificial cellulose fibers were completely satd. with water vapor. After complete satn. they had 13.09, 20.54 and 24.95% water compared with an original moisture content of 6.8, 7.78 and 12.60%, resp. The time required for complete satn. was 107.5, 185.5 and 258.0 hrs., resp. The sorption processes follow a parabolic curve. The intensity of adsorption is the same for mercerized and artificial types.
H. J. Kanich

LEPETOV, V.A.; OKONOMESHNIKOVA, S.M., redaktor.

[Production of rubber technological articles] Proizvodstvo rezinovykh tekhnicheskikh izdelii. Moskva, Gos. nauchno-tekhn. izd-vo khim. lit-ry, 1946. 173 (i.e. 373) p. (MLRA 7:5)
(Rubber industry)

USSR/Physics - Compression 1 Nov 53

"Static Compression of Ring-Shaped Flat Rubber Washers," G. M. Bartenev, V A Lepetov and V. I. Novikov

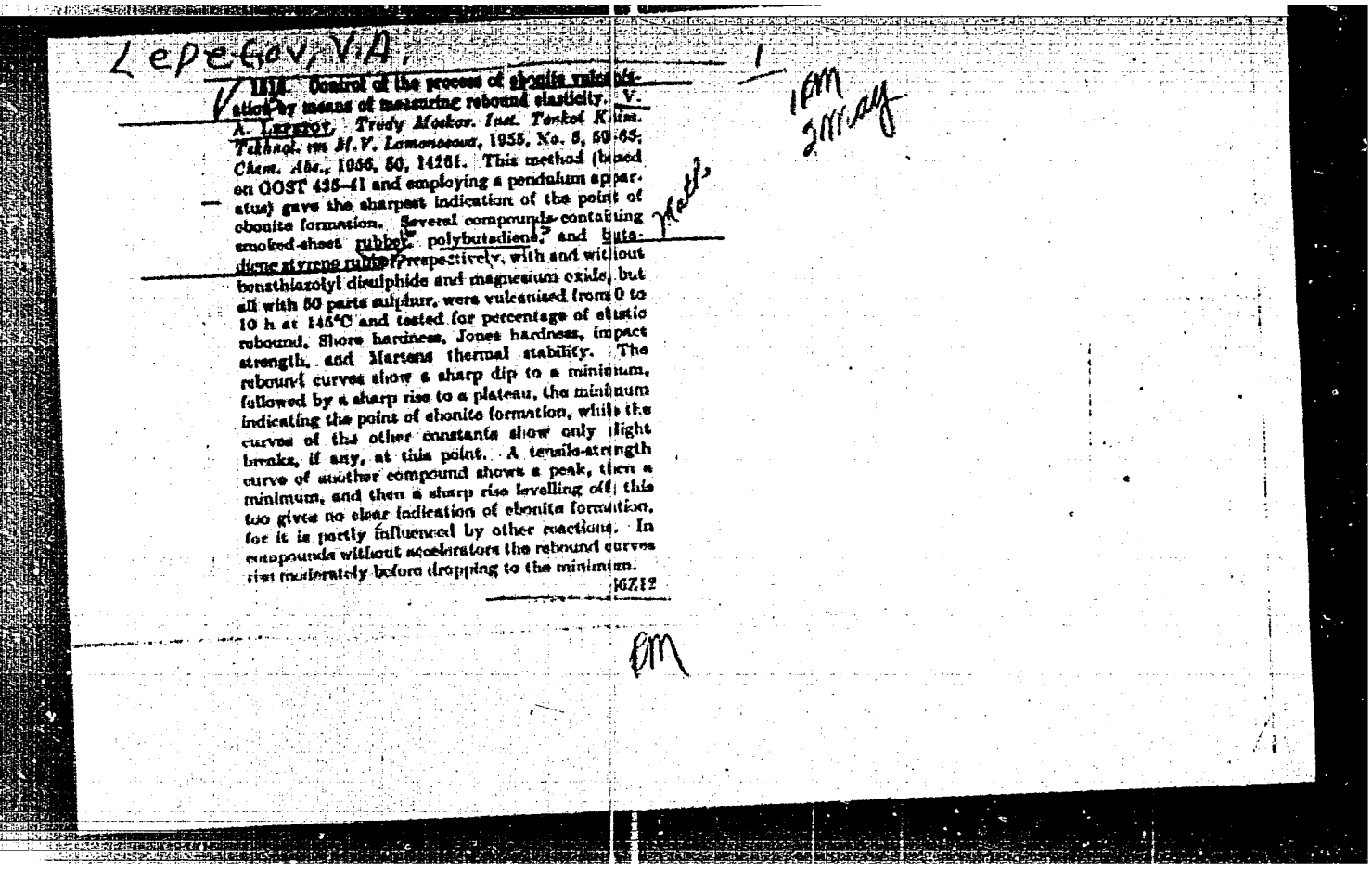
DAN SSSR, Vol 93, No 1, pp 15-18

Discuss relaxation curves (kg/cm^2 vs hours) of washers made of 3 types of SKS-30 rubber. Refer to the related work of V. A. Lepetov, Trudy MITKhT im Lomonosova (Works of the Moscow Inst of Fine Chemical Technology im Lomonosov), Vol 4 (1953). Presented by Acad P. A. Rebinder 4 Sep 53

275T87

LEPETOV, V. A.

879. Hydraulic characteristics of suction hose. A. A. [illegible] and V. A. Lepetov. Trudy Vsesoyuz. Nauchno-Issled. Inst. Resin. Prom., 1955, No. 2, 76-102. Losses of various structures and dimensions with open and enclosed wire windings are investigated for loss of pressure and coefficient of resistance to flow over a wide range of Reynolds numbers. 661[21.54



Lepetov, V.A.

1 1AM 2 MAY

USSR. Control of the process of ebonite vulcanization by means of measuring rebound elasticity. V. A. Lepetov. *Trudy Moskov. Inst. Tonkoi Khim. Tekhnol. im M.V. Lomonosova*, 1955, No. 5, 59-65; *Chem. Abs.*, 1956, 50, 14261. This method (based on GOST 435-41 and employing a pendulum apparatus) gave the sharpest indication of the point of ebonite formation. Several compounds containing smoked-sheet rubber, polybutadiene, and butadiene-styrene rubber respectively, with and without benzthiazolyl disulphide and magnesium oxide, but all with 50 parts sulphur, were vulcanised from 0 to 10 h at 145°C and tested for percentage of elastic rebound, Shore hardness, Jones hardness, impact strength, and Martens thermal stability. The rebound curves show a sharp dip to a minimum, followed by a sharp rise to a plateau, the minimum indicating the point of ebonite formation, while the curves of the other constants show only slight breaks, if any, at this point. A tensile-strength curve of another compound shows a peak, then a minimum, and then a sharp rise levelling off; this too gives no clear indication of ebonite formation, for it is partly influenced by other reactions. In compounds without accelerators the rebound curves rise moderately before dropping to the minimum.

IGZ12

EM

AVRASIN, Ya.D., kandidat tekhnicheskikh nauk; BERO, P.P., professor, doktor tekhnicheskikh nauk, BERNSHTEYN, M.L., kandidat tekhnicheskikh nauk; GENEROZOV, P.A., starshiy nauchnyy sotrudnik; GLIKER, B.M., inzhener; DAVIDOVSKAYA, Ye.A., kandidat tekhnicheskikh nauk; YELCHIN, P.M., inzhener; YEREMIN, N.I., kandidat fiziko-matematicheskikh nauk; IVANOV, D.P., kandidat tekhnicheskikh nauk; KNOROZ, L.I., inzhener; KOBRIN, M.M., kandidat tekhnicheskikh nauk; KORITSKIY, V.G., dotsent; KROTKOV, D.V., inzhener; KUDRYAVTSEV, I.V., professor, doktor tekhnicheskikh nauk; KULIKOV, I.V., kandidat tekhnicheskikh nauk; LEPETOV, V.A., kandidat tekhnicheskikh nauk; LIKINA, A.F., inzhener; MATVEYEV, A.S., kandidat tekhnicheskikh nauk; MIL'MAN, B.S., kandidat tekhnicheskikh nauk; PAVLUSHKIN, N.M., kandidat tekhnicheskikh nauk; PTITSYN, V.I., inzhener [deceased]; RAKOVSKIY, V.S., kandidat tekhnicheskikh nauk, RAKHSHTADT, A.G., kandidat tekhnicheskikh nauk; RYABCHENKOV, A.V., professor, doktor khimicheskikh nauk; SIGOLAYEV, S.Ya., kandidat tekhnicheskikh nauk; SMIRYAGIN, A.P., kandidat tekhnicheskikh nauk, SUL'KIN, A.G., inzhener; TUTOV, I.Ye., kandidat tekhnicheskikh nauk, KHRUSHCHOV, M.M., professor, doktor tekhnicheskikh nauk; TSYPIN, I.O., kandidat tekhnicheskikh nauk; SHAROV, M.Ya., inzhener; SHERMAN, Ya.I., dotsent; SHMELEV, B.A., kandidat tekhnicheskikh nauk; YUGANOVA, S.A., kandidat fiziko-matematicheskikh nauk; SATEL', E.A., doktor tekhnicheskikh nauk, redaktor; SOKOLOVA, T.F., tekhnicheskiy redaktor

[Machine builder's reference book] Spravochnik mashinostroitelia; v shesti tomakh. izd-vo mashinostroit. lit-ry. Vol.6. (Glav. red.toma E.A.Satel'. Izd. 2-oe, ispr. i dop.) 1956. 500 p. (MLRA 9:8)
(Machinery--Construction)

LEPETOV, V. A.

124-1957-10-12184

Translation from: Referativnyy zhurnal, Mekhanika, 1957, Nr 10, p 136 (USSR)

AUTHOR: Lepetov, V. A.

TITLE: To the Calculation Involved in Design Projects on Technical Rubber Products. Memorandum V. Particular Applications of General Equation for the Design of Pressure Sleeves (K raschetu proyektnykh konstruktsiy rezinovykh tekhnicheskikh izdeliy. Soobshchenie V. Chastnyye prilozheniya obshchego uravneniya rascheta napornykh rukavov.

PERIODICAL: Tr. Mosk. in-ta tonkoy khim. tekhnol., 1956, Nr 6, pp 141-158

ABSTRACT: The strength of rubber--cord pressure-retaining sleeves subjected to internal pressure is examined; the construction of the casing is assumed to be performed by braiding or seaming the fabrics under a 45° angle; the results of numerous experiments on tests of the strength of the sleeves are presented. An approximate calculation is described for hollow annular packings, consisting of a closed tubular collar and used for hermetic seals wherever a rigid packing cannot be used; the determination of stresses is conducted according to the usual formulas of momentless theory for a toroid container. V. I. Feodos'yev

Card 1/1

LEPETOV, V.A.

Behavior of industrial rubber materials under conditions of shear and torsion. Kauch. i rez. 16 no.6:18-22 Je '57.
(MIRA 10:10)

1.Moskovskiy institut tonkoy khimicheskoy tekhnologii im. M.V. Lomonosova.
(Rubber--Testing) (Strains and stresses)

LEPETOV, V.A.

LEPETOV V. A

VLADISLAVEV, V.S.

25(1) PHASE I BOOK EXPLOITATION SOV/1439

Spravochnik metallista v pyati tomakh, t. 3, kn. 1 (Metals Engineering Handbook in Five Volumes, Vol. 3, Bk. 1) Moscow, Mashgiz, 1958. 560 p. 50,000 copies printed.

Ed. (Title page): V.S. Vladislavlev, Professor (Deceased); Ed. (Inside book): V.I. Krylov, Engineer; Tech. Ed.: T.F. Sokolova; Editorial Board: N.S. Acherkan (Chairman and Chief Ed.), Doctor of Technical Sciences, Professor, V.S. Vladislavlev, Professor (Deceased), A.N. Malov, Candidate of Technical Sciences, S.N. Pozdnyakov, A.Ya. Rostovykh, O.B. Stalbin, and S.A. Chernavskiy; Managing Ed. for Reference Literature: V.I. Krylov, Engineer.

PURPOSE: The book is a reference book for technicians and engineers working in the field of machinery design and in production.

COVERAGE: The book covers the following: engineering specifications, treatment and use of cast iron, steel and carbides, heat treatment of steel and cast iron, specifications, treatment and use of nonferrous metals and nonmetallic materials. I.Z. Zhesnogorskiy, V.P. Valegzhin, N.V. Gevaling are mentioned as being concerned in the field.

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Plastics (V.A. Popov, Candidate of Technical Sciences)	465
Basic engineering characteristics of plastics	509
Rubber and Hard Rubber Materials and Products (V.A. Lepetov, Candidate of Technical Sciences)	526
Hard rubber	527
Rubber products	528
Graphite (V.S. Veselovskiy, Doctor of Technical Sciences)	535
Index (S.L. Kuss'minskiy)	539

AVAILABLE: Library of Congress

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Card 11/11

SOV/138 -58-6-6/25

AUTHORS: Sukharev, A.T. and Lepetov, V.A.

TITLE: Resistance to Hydraulic Pressure of Flexible Pressure Pipes with Braided Metal Reinforcement (O soprotivlenii gidravlicheskomu davleniyu napornykh rukavov s karkasom iz metallicheskikh opletok)

PERIODICAL: Kauchuk i Rezina, 1958, Nr 6, pp 20 - 24 (USSR)

ABSTRACT: Flexible pressure pipes with braided metal reinforcement are manufactured in Russia with internal diameters up to 50 mm. Flexible pressure pipes are constructed, basically, with: an internal rubber liner, a cotton and paper layer, an intermediate rubber layer, one or more layers of metallic braiding with rubber layers between them, a further cotton and paper layer, and a final outer protective cover of rubber. Conventional methods of calculating resistance to hydraulic pressure of textile covered pipes are given in references 1 - 7. With braided metal covered pipes, the loads from hydraulic pressure are assumed to be retained entirely by the braids. Starting from equations (1) and (2) for thin shells which are not subjected to bending moment, equations (3) and (4)

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are found for the tangential and axial stresses in the braid. K is the (tensile) load on the individual wires in the strand, n is the number of wires in a strand, m is the density of the strand packing (i.e. the reciprocal of strand spacing). The angle α is the angle at which the strands lie to the axis. (This is drawn incorrectly in Fig 1). Equation (5) defines m in terms of N, the number of strands (or spools) which cross the circumference of the braid, the braid diameter being d_1. To meet the condition of equal strength in tangential and axial directions, the angle is usually made 55° 44'. In this case the relation between the internal pressure, P, and the tensile forces in the individual wires, K, is given by equation (6). Here, the term, i, is for the number of layers of braid, and C a constant which takes into account manufacturing variables. Equation (6) is satisfactory for textile braids, or for the case of one layer of metallic braid ($i = 1$), but not for two or more metallic braids. The

Resistance to Hydraulic Pressure of Flexible Pressure Pipes with Braided Metal Reinforcement

equations which follow, lead to equation (18) which states that the pressure between the two braids (in a pipe with two braids laid up at the 'equilibrium' angle above) amounts to one third of the internal pressure. That is, the inner braid carries two-thirds of the load, and the outer braid one third. Equation (19) is developed for the case where the two braids are separated by an intermediate non-metallic layer, and have substantially different diameters. Equations (22) and (23) are developed for the case where three braids are involved (assumed to be of substantially equal diameter). Here the inner braid takes .570 of the pressure, the middle braid takes .285, and the outer braid takes .145 of the internal pressure. Finally, a general equation (26) is given, which can be applied to pressure pipes with any number of braids, and which takes into account differences in diameter of the successive braids. The constant, C_1, which enters into this equation takes into account inequalities in stress in individual wires. Empirical

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data shows that this constant is very nearly equal to 1 in the case of a single braided pipe. Variations in tensioning are greater in pipes with two or more braids, and a value C = 0.9 is fairly satisfactory for double braided pipes. The data given in Table 1 compares actual bursting pressure with calculated bursting pressure. Calculated pressure is based on individual wires with a tensile strength of 15.4 kg. The figures in brackets are calculated bursting pressure, with constants, C, applied as above. The agreement is reasonably good. Further investigation was made in order to determine the actual stress in the braids. Strain gauges of 0.03 mm diameter wire were bonded to the braids. The gauges were first calibrated by applying them to strands composed of 10 individual wires, each wire being 0.3 mm diameter. The calibration curve is shown in Fig 2. Figs 3 and 4 show the results of tensiometric tests on actual braids in

Card 4/6 38 mm and 50 mm diameter pipes respectively. The points on these graphs are the actual tensions as determined by

the calibrated strain gauges, and the solid lines represent the values calculated from equation (26). Where there are more than one set of points on a graph, the different sets are for the different layers in a multi-braided pipe. Table 2 compares the actual bursting pressure of 30 mm and 50 mm pipes, with the values calculated according to equation (6) and to equation (26). Pipes with one, two, three and four layers of braid were tested. Coefficients, C, of 0.9 were applied for two braids, of 0.8 for three braids, and of 0.75 for four braids. Differences in agreement may be attributed to the fact that the braids were not laid up exactly at the 'equilibrium' angle of 54° 44', and were not packed or spaced identically. The authors conclude that the

SOV/138-58-6-6/25

Resistance to Hydraulic Pressure of Flexible Pressure Pipes with Braided Metal Reinforcement

results of experiments with standard production pressure flexible pipes, and also with special test pipes of 38 mm and 50 mm diameter, confirm the validity of the calculations and equations given.

There are 4 figures and 2 tables, 8 references (1 English, 7 Soviet)

ASSOCIATION: Nauchnoissledovatel'skiy institut rezinovoy promyshlennosti (Research Institute of the Rubber Industry)

1. Pipes--Pressure 2. Pipes--Properties 3. Pipes--Construction
4. Pipes--Test results

Card 6/6

AUTHOR: Lepetov, V.A. SOV/138-58-11-6/14

TITLE: Calculations on Pressure Hoses of Fabric Construction (O raschetakh napornykh rukavov s tkanevymi prokladkami)

PERIODICAL: Kauchuk i Rezina, 1958, Nr 11, pp 21 -25 (USSR)

ABSTRACT: The theoretical section of the article gives formulae relating the burst pressure, P_B, of a hose of fabric construction to its internal diameter d_k, to the strength of the fabric material K_B, to the number of layers of fabric i and to the "packing density" and angle of lay of the fabric as made and under pressure α_K and α_B. Coefficients are introduced to deal with stretch and change of diameter, change in angle of lay and unequal distribution of stress between the layers in multi-layer hoses as pressure increases to burst pressure. Eq (3) contains these coefficients. The functions of α_K and α_B take care of change in angle of lay and "packing density" as pressure increases. C_2' deals with wall thickness-diameter ratio under pressure, C_2'' deals with unequal distribution of stress

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Calculations on Pressure Hoses of Fabric Construction

between layers and C_3 deals with stretch in the fabric. If the initial angle of lay α_K is 45° and the angle of lay under pressure is assumed to reach the equilibrium angle α_o ($54^\circ 44'$), then Eq (4) applies. This is corrected by coefficient C_5 in Eq (6) where the angle of lay at burst α_B is not the same as the equilibrium of angle α_o. These coefficients, with the exception of C_2'' for strength distribution between layers, can be found by direct measurement on pipes under pressure (with extrapolation to burst pressure), and so coefficient C_2'' can be determined by comparison of actual burst pressure with calculated burst pressure.

Tests were made on hoses 25 mm, 35 mm and 51 mm diameter, with different numbers of layers of reinforcement. The coefficients C_2', C_3 and C_5 were determined by measurement of fabric material under tension and of pipes under pressure. An assessment of probable values of C_2''