

Mathematical Reviews
Vol. 14 No. 10
Nov. 1953
Mechanics

Satsvili, S. H. On steady elastic vibrations with given displacements on the surface of the medium. Soobščeniya Akad. Nauk Gruzin. SSR. 10, 263-266 (1949). (Russian)

The problem of steady elastic vibrations of a plane elastic medium, given the displacements on the boundary, was considered by D. I. Šerfman [Akad. Nauk SSSR. Prikl. Mat. Meh. 10, 617-622 (1946); these Rev. 8, 361] and I. N. Vekua [Doklady Akad. Nauk SSSR (N.S.) 60, 779-782 (1948); these Rev. 10, 87]. V. D. Kupradze [Soobščeniya Akad. Nauk Gruzin. SSR. 9, 99-106 (1948); these Rev. 14, 336; and the paper reviewed second above] gave the solution for bounded and unbounded three-dimensional bodies. In the present paper the author gives the solution for an elastic half space with given displacements on the surface

of the medium. Writing the displacement vector as

$$(u, v, w) = \text{grad } \Phi + \text{curl } \psi,$$

one has

$$\Delta \Phi + k_1^2 \Phi = 0, \quad \Delta \psi + k_2^2 \psi = 0, \quad z > 0,$$

$$\Delta = \frac{\partial^2}{\partial x^2} + \frac{\partial^2}{\partial y^2} + \frac{\partial^2}{\partial z^2}, \quad k_1^2 = \frac{\lambda^2}{a^2}, \quad k_2^2 = \frac{\lambda^2}{b^2},$$

where a and b are the longitudinal (transversal) speeds of wave propagation, and λ is the frequency of vibration. Φ and ψ are to satisfy the boundary conditions (on $z=0$); $(u, v, w)(x, y, 0) = (f_1, f_2, f_3)$, where the $f_i(x, y)$ are given functions. Following Šerfman, the solution is sought in the form of integrals of certain particular solutions, and a system of Fredholm integral equations for the "densities" is obtained.

J. B. Diaz (College Park, Md.)

SHATASHVILI, S. Kh.

PA 165T76

USSR/Physics - Elasticity
Oscillations, Steady

11 Mar 50

"Steady Oscillations for Given Displacements on the Surface of an Elastic Body," S. Kh. Shatashvili, Georgian Polytech Inst imeni S. M. Kirov

"Dok Ak Nauk SSSR" Vol LXXI, No 2, pp 249-252

Considers problem of steady oscillations of elastic body when components of displacement vector are assigned on the surface. Establishes several partial solutions by means of Fredholm integrals according to D. I. Sherman's method ("Prik Matemat i Mekh," 10, 1946). Submitted 17 Jan 50 by Acad L. S. Leybenzon.

165T76

Mathematical Reviews
Vol. 14 No. 10
Nov. 1953
Mechanics

Šatašvili, S. H. On steady vibrations of an elastic semi-space with given external forces. *Sobščeniya Akad. Nauk Gruzin. SSR.* 12, 265-268 (1951). (Russian)

The boundary-value problem here differs from the previous one in the paper reviewed above in that the boundary conditions are

$$aX_x + bX_y + cX_z = \mu f_1,$$

$$aY_x + bY_y + cY_z = \mu f_2,$$

$$aZ_x + bZ_y + cZ_z = \mu f_3,$$

where $a = \cos(x, n)$, $b = \cos(y, n)$, $c = \cos(z, n)$, n is the inner normal, X_x, \dots are the components of stress, μ is Lamé's constant, and the f_i are given functions. Following the procedure of D. I. Šerman [Akad. Nauk SSSR. Prikl. Mat. Meh. 10, 617-622 (1946); these Rev. 8, 361], by using integrals of certain particular solutions the boundary-value problem is reduced to an equivalent system of Fredholm integral equations. J. B. Diaz (College Park, Md.).

PA 193T54

USSR/Mathematics - Oscillations Sep/Oct 51

"Stabilized Oscillations for Given External Forces on the Surface of an Elastic Body," S. Kh. Shatashvili, Kutais Pedagogical Inst

"Pril Matemat i Mekh" Vol XV, No 5, pp 615-617

This problem was solved by V. D. Kupradze ("Boundary Problems of Oscillation Theory and Integral Equations," 1950) and later reduced by A. M. Kuskov ("Dok Ak Nauk SSSR" Vol LXX, No 2, 1950) to a system of singular eqs. Author presents some particular solns according to D. I. Sherman's

193T54

USSR/Mathematics - Oscillations Sep/Oct 51
(Contd)

method ("Trudy Seysmol Inst" No 118, 1946; "Pril Matemat i Mekh" Vol X, No 5/6, 1946). Submitted 8 May 51.

193T54

USSR/Physics - Oscillations, Elastic 21 Apr 52

"Spatial Problem in the Theory of Stationary Elastic Oscillations for Assigned Displacements on the Boundary of the Medium," S. Kh. Shatashvili, Georgian Polytech Inst imeni S. M. Kirov

"Dok Ak Nauk SSSR" Vol LXXXIII, No 6, pp 809-811

The solution of the plane problem in the theory of stationary oscillations for given boundary displacements was given by D. I. Sherman ("Prikl Matemat i Mekh", Vol X, No 5/6, 617, 1946). Using Sherman's method the author considers the more general case of steady-state oscillations of an elastic body; namely, he considers the

223T88

surface bounding the body on which the displacements are known consists of several simple close surfaces not possessing common points. Submitted by Acad A. I. Nekrasov 21 Feb 52.

223T88

SHATASHVILI, S. KH.

1954, No. 3.

By: Anders Fredholm, and J. L. D. ... (1954)

Scandinavian Journal of Physics, Vol. 18, No. 3, 1954, pp. 257-260

Contribution to the theory of steady elastic vibrations to Fredholm's
Integral equations

Boundary conditions for the theory of elastic vibrations for the case in which
the elastic medium fills up a finite volume. Special attention on those boundary conditions
where the tangential component of stress and the normal component of displacement.

SC: Referatnyy Zhurnal -- Literatura, No. 3, 1954 (V-30907)

SHATASHVILI, S.Kh.

Reduction of a mixed problem in the theory of continuous elastic vibrations to Fredholm's integral equations. Soob.AN Gruz.SSR 14 no.5:257-260 '53. (MLRA 7:4)

1. Gruzinskiy politekhnicheskiy institut imeni S.M.Kirova, Tbilisi. (Vibration) (Integral equations)

SOV/124-58-8-9078

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 8, p 110 (USSR)

AUTHOR: Shatashvili, S.Kh.

TITLE: Concerning One Mixed Problem of the Theory of Steady-state Elastic Vibrations (Ob odnoy smeshannoy zadache teorii ustanovivshikhsya uprugikh kolebaniy)

PERIODICAL: Tr. Gruz. politekhn. in-t, 1957, Nr 4 (52), pp 81-90

ABSTRACT: The author examines a mixed plane problem of steady-state elastic vibrations, using for this purpose potentials suitable not only for finite (i.e., singly connected) regions but for infinite regions as well. At the boundary the tangential stress-vector component and normal displacement-vector component are assumed to be given. The final results appear as Fredholm integral equations that are susceptible of solution.

K.I. Ogurtsov

Card 1/1

SOV/124-58-8-9079

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 8, p 110 (USSR)

AUTHOR:- Shatashvili, S. Kh.

TITLE: On a Mixed Problem of the Theory of Steady-state Elastic Vibrations for a Circle (Ob odnoy smeshannoy zadache teorii ustanovivshikhsya uprugikh kolebaniy dlya kruga)

PERIODICAL: Tr. Gruz. politekhn. in-t, 1957, Nr 4 (52), pp 91-96

ABSTRACT: The general formulae evolved by the author elsewhere for use in the study of singly connected regions (see RZhMekh, 1958, Nr 8, abstract 9078) are applied here to the case of a circle. Fourier series are used to construct the solution.

K. I. Ogurtsov

Card 1/1

26171

S/044/61/000/006/009/019

C111/C222

24.4200

AUTHOR: Shatashvili, S.Kh.

TITLE: On a mixed spatial problem of the theory of stationary elastic vibrations

PERIODICAL: Referativnyy zhurnal. Matematika, no.6, 1961, 51, abstract 6B 244 (Tr. Gruz.politekhn. in-t, 1958 (1959), no.1 (62), 33-44)

TEXT: The author investigates the following mixed problem of the theory of stationary elastic vibrations: In the elastic medium T bounded by a closed surface S a solution of the equation of the stationary vibrations shall be determined which in the closed region is continuous together with its partial derivatives up to the second order inclusively. The values of the normal component of the shift vector and the tangential component of the tension vector are prescribed on the boundary of the region. If the boundary is a surface of the type of Lyapunov then, with the aid of special potentials, the problem can be reduced to an equivalent system of Fredholm integral equations. The author proves that the obtained system is solvable for all values of the parameter ω with the exception of a discrete set of values.

[Abstracter's note: Complete translation.]

Card 1/1

SHATASHVILI, S.Kh.

External three-dimensional problem in the theory of steady-state vibrations at given displacements on the boundary of the medium.
Trudy GPI [Gruz.] no.6:81-87 '61. (MIRA 16:4)
(Boundary value problems) (Elasticity)

SHATASHVILI, S.Kh.

A mixed problem in the theory of elastic vibrations for a
region external to a circle. Trudy Vych.tsentra AN Gruz.SSR
2:143-151 '62. (MIRA 16:1)
(Boundary value problems) (Elasticity)

SHATASHVILI, S.Kh.

Three-dimensional fundamental mixed problem in the theory of steady-state elastic vibrations. Dokl. AN Azerb. SSR 20 no.4: 7-11 '64. (MIRA 17:7)

1. Kafedra vysshey matematiki Gruzinskogo politekhnicheskogo instituta imeni Lenina. Predstavleno akademikom AN AzSSR Z.I.Khalilovym.

L 8698-65 EWT(m) RAEM(t)/ASD(r) EM

ACCESSION NR: AP4042949

S/0249/64/020/004/0007/0011

AUTHOR: Shatashvili, S. Kh.; Khalilov, Zigler (Academician, dAN*); AzerbSSR) Academician: AN AzerbSSR; B

TITLE: Three-dimensional fundamental mixed problem of the theory of steady state elastic vibrations

SOURCE: AN AzerbSSR. Doklady²⁶, v. 20, no. 4, 1964, 7-11

TOPIC TAGS: fundamental mixed problem, steady state vibration, stress vector, displacement vector, boundary value problem, three dimensional elasticity problem, singular integral equation, Fredholm integral equation

ABSTRACT: The solution is sought for the steady-state elastic vibration equations

$$\Delta\Phi + \kappa_1^2\Phi = 0,$$

and

$$\Delta\bar{\Psi} + \kappa_2^2\bar{\Psi} = 0,$$

(1)

where $\Phi(x, y, z)$ and $\bar{\Psi}(x, y, z)$ are potentials of the longitudinal.

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ACCESSION NR: AP4042949

and transverse vibrations, Δ is a Laplace operator and k_1^2 and k_2^2 are constants expressed in terms of Lamé's constants, the density of an elastic medium, and the vibration frequency. Designating by S the simple, closed, and sufficiently smooth surface consisting of two arbitrary parts S_1 and S_2 separated by a sufficiently smooth curve α , the solution of equations (1) is sought under the assumption that the stress vector on the surface S_1 and the displacement vector on the surface S_2 are given. Boundary conditions are established and the elementary system of solutions (the system of potentials) of the boundary value problem is constructed on the basis of the method proposed by D. I. Sherman (Akademiya nauk Arm. SSR. Izvestiya, v. 16, no. 4, 1963) and the results obtained earlier by the author. By utilizing the system of solutions constructed, the solution of the boundary value problem for equations (1) is reduced to the solution of a system of singular integral equations. It is shown that for such a system of integral equations all Noether's theorems are valid and that a linear operator exists which reduces this system to Fredholm-type equations. Orig. art. has: 6 formulas.

ASSOCIATION: Kafedra vysshey matematiki Gruzinskogo Politeknicheskogo

Card 2/3

L. 8698-65

ACCESSION NR: AP4042949

Instituta im. V. I. Lenina (Department of Higher Mathematics, Georgian Polytechnical Institute)

SUBMITTED: 06Jan64

ATD PRESS: 3107

ENCL: 00

SUB CODE: MA, AS

NO REF SOV: 007

OTHER: 000

Card 3/3

SHATAVA, Vladimir [Satava, Vladimir]; SHKIDLIK, Yaroslav
[Shkidlik, Jaroslav]; MASLOBOYSHCHIKOV, V.M. [translator];
KONOROV, A.V., red.; NIKOLAYEVA, N.M., red. izd-va;
KASIMOV, D.Ya., tekhn. red.

["Silikark", a porous concrete] Poristyí beton silikork. Pod red.
A.V. Konorova. Moskva, Gosstroizdat, 1962. 230 p. Translated from
the Czech. (MIRA 15:10)

(Lightweight concrete)

L 23094-65 EWT(m)/EWP(t)/EWP(b) IJP(c) JD

ACCESSION NR: AP4047643

Z/0012/64/000/004/0293/0301

AUTHOR: Blaha, J. (Blaga, I.); Satava, V. (Shatava, V.)

10-
9
B

TITLE: Investigation of the hardening process of suspensions of lime and silica gel at 175°C. I. Structural changes in the hardening of materials

SOURCE: Silikaty, no. 4, 1964, 293-301

TOPIC TAGS: concrete, silica gel, lime, hardening process, water coefficient, autoclave, capillary porosity, capillary pore size distribution

ABSTRACT: The hardening process of suspensions of lime and silica gel²⁷ in the ratio of $\text{CaO}:\text{SiO}_2 = 0.8$ and with a water coefficient of 1.25 was investigated at 175°C in an autoclave. This study, which deals with the formation of structures during the hardening process, was undertaken because the vast production of concrete based on the hardening process of lime and silica still rests on purely empirical foundations, and a better understanding of the processes in question is necessary for the further development of production technique and the development of materials with better properties. The hydrothermal reaction in the

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L 23094-65

ACCESSION NR: AP4047643

samples of material in which the hardening process had proceeded to a certain stage was arrested by cooling. The samples taken from the autoclave were dried, and their strength, capillary porosity, size distribution of capillary pores, and the specific surface of the solid phase was determined. The time dependence of strength shows two characteristic points corresponding to reaction times of 1.5 and 5.5 hr which are accompanied by a sharp increase in capillary porosity and the mean size of capillary pores. The direct investigation of the processes proceeding in the autoclave, based on the measurement of changes in the consistency of the hardening material, shows that the time dependence of consistency exhibits maxima at 1, 2, 6, and 10 hr. Cooling of the materials is also accompanied by marked changes in consistency. Orig. art. has: 5 figures.

ASSOCIATION: Společna laborator pro chemii silikatu CSAV (Joint Laboratory for the Chemistry of Silicates); VSCHT, Prague

SUBMITTED: 18May64

ENCL: 00

SUB CODE: MT

NO REF SOV: 002

OTHER: 010

Card 2/2

SHATAYEV, M. G.

Bigoslavskiy, YU. K. Drill mechanics in coal mines; textbook. Moskva, Ugletekhnizdat, 1952
127 p. (54-15-46)

TN279.B89

SHATAEV, Mikhail Georgiyevich; NAZAROV, P.P., nauchnyy redaktor;
SHPAYER, A.L., redaktor; PANOVA, L.Ya., tekhnicheskiiy redaktor.

[Drilling blast holes; textbook for training master drillers]
Burenie skvazhin dlia vzryvnykh rabot; uchebnoe posobie po podgotovke burovykh masterov. Moskva, Gos. izd-vo lit-ry po stroitel'nym materialam, 1954. 175 p. (MLBA 7:11)
(Boring)

BURMISTROVICH, Ye.L.; VATOLIN, Ye.S.; DEMIDYUK, G.P.; MARCHENKO, L.N.;
ROSSI, B.D.; TATARNIKOV, A.A.; SHATAEV, M.G.; ASSONOV, V.A.,
otv.red.; OKHRIMENKO, V.A., red.izd-va; KONDRAT'YEVA, M.A.,
tekhn.red.

[Handbook on blasting operations] Spravochnik po burovzryvnym
rabotam. Pod red. V.A.Assonova. Moskva, Gos.nauchno-tekhn.izd-vo
lit-ry po gornomu delu, 1960. 450 p. (MIRA 13:3)
(Blasting) (Coal mines and mining)

SHATAYEV M.G.

ALATORTSEV, S.A., prof., doktor tekhn.nauk; ANDREYEV, A.V., kand.tekhn.nauk; ANCHAROV, I.L., inzh.; BALINSKIY, S.I., inzh.; BELOUSOV, V.G., inzh.; VINNITSKIY, K.Ye., kand.tekhn.nauk; VLASOV, V.M., inzh.; VORONTSOV, N.P., kand.tekhn.nauk; GIPSMAN, M.K., inzh.; GLUZMAN, I.S., kand.tekhn.nauk; GUR'YEV, S.V., kand.tekhn.nauk [deceased]; DEMIN, A.M., kand.tekhn.nauk; YEGURNOV, G.P., kand.tekhn.nauk; YEFIMOV, I.P., inzh.; ZHUKOV, L.I., kand.tekhn.nauk; ZEL'TSER, N.M., inzh.; KOSACHEV, M.N., kand.tekhn.nauk; KOTOV, A.F., inzh.; KUDINOV, G.P., inzh.; LAPOVENKO, N.A., kand.tekhn.nauk; MAZUROK, S.F., inzh.; MEL'NIKOV, N.V.; MUDRIK, N.G., inzh.; NIKONOV, G.P., kand.tekhn.nauk; ORLOV, Ye.I., inzh.; POTAPOV, M.G., kand.tekhn.nauk; PRISEDSKIY, G.V., inzh.; RZHEVSKIY, V.V., prof., doktor tekhn.nauk; RYAKHIN, V.A., kand.tekhn.nauk; SIMKIN, B.A., kand.tekhn.nauk; SITNIKOV, I.Ye., inzh.; SOROKIN, V.I., inzh.; STASYUK, V.N., kand.tekhn.nauk; STAKHEVICH, Ye.B., inzh.; SUSHCHENKO, A.A., inzh.; TYUPIN, I.F., inzh.; TYMOVSKIY, L.G., inzh.; FISENKO, G.L., kand.tekhn.nauk; FURMANOV, B.M., inzh.; SHATAYEV, M.G., inzh.; SHESHKO, Ye.F., prof., doktor tekhn.nauk; TERPIGOREV, A.M., glavnyy red. [deceased];

(Continued on next card)

ALATORTSEV, S.A.---(continued) Card 2.

KIT, I.K., zastititel' glavnogo red.; SHESHKO, Ye.F., zastititel' otv.red.; BUGOSLAVSKIY, Yu.K., red.; BYKHOVSKAYA, S.H., red.; DIONIS'YEV, A.I., kand.tekhn.nauk, red.; KOZIN, Yu.V., red.; SOKOLOVSKIY, M.M., red.; YASTREBOV, A.I., red.; DEMIDYUK, G.P., kand.tekhn.nauk, red.; KRIVSKIY, M.N., kand.tekhn.nauk, red.; LYUBIMOV, B.N., inzh., red.; MOLOKANOV, P.L., inzh., red.; REISH, A.K., inzh., red.; RODIONOV, L.Ye., kand.tekhn.nauk, red.; SLAVUTSKIY, S.O., inzh., red.; TRAKHMAN, A.I., inzh., red.; TRYMOV-SKIY, L.G., inzh., red.; FIDELEV, A.S., doktor tekhn.nauk, red.; SHUKHOV, A.N., kand.tekhn.nauk, red.; TER-IZRAEL'YAN, T.G., red. izd-va; PROZOROVSKAYA, V.L., tekhn.red.; KONDRAT'YEVA, M.A., tekhn.red.

(Continued on next card)

ALAFORTSEV, S.A.---(continued) Card 3.

[Mining; an encyclopedic dictionary] Gornoe delo; entsiklopedicheski spravochnik. Glav.red.A.M.Terpigorev. Chleny glav.red.A.I.Baranov i dr. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po gornomu delu. Vol.10. [Mining coal deposits by the open-cut method] Razrabotka ugol'nykh mestorozhdenii otkrytym sposobom. Redkollegiia tozha; N.V.Mel'nikov i dr. 1960. 625 p. (MIRA 13:2)

1. Chlen-korrespondent AN SSSR (for Mel'nikov).
(Coal mines and mining) (Strip mining)

SHATAYEV, V.G.

Considering local stiffenings of longitudinal ribs in cylindrical thin-walled beams. Izv. vys. ucheb. zav.; av. tekhn. no. 2:64-73 (MIRA 11:6) '58.

1. Kazanskiy aviatsionnyy institut, Kafedra stroitel'noy mekhaniki samoleta.

(Elastic plates and shells)

SHAIYEV, V. G., Cand Tech Sci -- (diss) "Calculation of cylindrical fine-walled beams with local reinforcements of length-wise ribbing." Kazan', 1960. 11 pp; (Ministry of Higher and Secondary Specialist Education RSFSR, Kazan' Aviation Inst); 150 copies; price not given; (KL, 26-60, 139)

ACCESSION NR: AR4041552

S/0124/64/000/005/V052/V052

SOURCE: Ref. zh. Mekhanika, Abs. 5V390

AUTHOR: Shatayev, V. G.

TITLE: Design of cylindrical thin beams with local reinforcement of longitudinal webs

CITED SOURCE: Tr. Kazansk. aviats. in-ta, vy*p. 77, 1963, 49-60

TOPIC TAGS: cylindrical thin beam, thin beam, web reinforcement

TRANSLATION: Further development of theoretical investigation of author on thin beams [News of Higher Educational Institutions. Aviation Technology, 1958, No. 2, 64-73 (Journal of Abstracts. Mechanics. 1959, No. 10, 12241)]. Action of system of longitudinal efforts is replaced by the effect of a self-balanced group of forces, and solution is obtained in polynomial form, without determination of boundary conditions. The beam is assumed sufficiently long; therefore

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ACCESSION NR: AR4041552

magnitude of axial normal stresses and warpings do not depend on beam length. There is given an example of numerical calculation of a long cylindrical circular shell of duralumin, illustrating the influence of the system of added longitudinal reinforcements. Bibliography: 5 references.

SUB CODE: AS

ENCL: 00

Card 2/2

L 26462-65 EWT(d)/EWT(l)/EWP(w)/EWT(m)/EWP(v)/EWA(d)/EWP(t)/EWP(k)/EWP(b)

PF-4 JD/EM/RM
ACCESSION NR: AT5003074

S/2529/63/000/077/0049/0060

34
22
B+1
26

AUTHOR: Shatayev, V. G.

TITLE: Calculation of thin-walled structures of the type of an aircraft fuselage with a groove

SOURCE: Kazan. Aviatsionnyy institut. Trudy, no. 77, 1963. Stroitel'naya mekhanika, 49-60

TOPIC TAGS: aircraft fuselage, metal deformation, metal elasticity, stress concentration, thin walled cylinder, aircraft girder

ABSTRACT: This article presents a method of calculating a thin-walled, cylindrical structure (fuselage with a rectangular groove) based on a hypothesis concerning the stability of the form of the cross sections during deformation. The diagram calculated in this article is the most natural, and therefore the most wide-spread in practice, for the model of a monoblock aviation structure. This gives a basis for disregarding the effect of the change in form of the cross section on the stress of the structure. The solution found in this article for the problem of the stress

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L 26162-65

ACCESSION NR: AT5003074

on a circular, thin-walled, cylindrical beam with a groove is accurate. The author commences by giving a system of coordinates and the designations of the cross section of an aircraft girder. He then formulates the boundary value problems for a two-compartment system. Avoiding the superfluous repetitions of previous articles, he finds the general integral of the system of differential equilibrium equations in normal coordinates. After this, he determines the boundary conditions of the consistency of deformations of the compartments for symmetric and antisymmetric loading. The author concludes the article with a discussion of the results of the calculations for the concentration of stresses in the groove section. A cross section of this groove is shown in Fig. 1 of the Enclosure. It is pointed out that the proposed method of calculation opens new possibilities for the study of the concentration and redistribution of stresses in the groove region. It is also shown that the elasticity of these compartments considerably affects the concentration of stresses in the groove zone. A refusal to take this factor into account when determining the degree of concentration of stresses in the groove section can lead to considerable error. Orig. art. has: 8 figures and 17 formulas.

ASSOCIATION: Kazanskiy aviatsionnyy institut (Kazan' aviation institute)

SUBMITTED: 15Jun61

ENCL: 01

SUB CODE: AC, AS

NO REF SOV: 005

OTHER: 000

Card 2/3

L 26462-65

ACCESSION NR: AT5003074

ENCLOSURE: 01

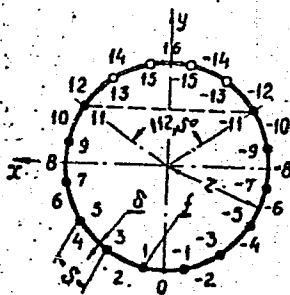


Figure 1. Cross sectional view indicating stress concentration in groove zone.

Card 3/3

BAUMAN, V.M.; SHATAYEV, V.Sh.

Case of poisoning with "intoxicating" honey. Gig. i san. 25 no.3:
96-98 Mr '60. (MIRA 14:5)

(HONEY--TOXICOLOGY)

SHATAYEVA, N.

Work on the meteorological study grounds. Geog. v shkole no.3:51-53 My-
Je '53. (MLBA 6:6)

(Meteorology--Study and teaching)

SHATAYKIN, S.P.; IL'CHENKO, V.S.

Pumping machinery for tanning shops. Kozh.-obuv.prom.2:32-33
Mr '60. (MIRA 14:5)
(Tanning)
(Pumping machinery)

LUKHTAN, I.V.; SMOLYANSKAYA, L.M. [Smolianska, L.M.]; IL'CHENKO, F.F.;
SHUSTER, S.I.; SHATAYKIN, S.P.; BOKSERMAN, Ye.I. [Bokserman, IE.I.];
CHIZHMAKOVA, V.P. [Chyzimakova, V.P.]

Use of ammonia soap for the ret-liquoring of stiff leather. Leh.
prom. no.2359 Ap-Je'61 (MIRA 1961)

STEPANOVSKIY, O.A., inzh.; SHATAYKIN, V.A., inzh.

Internal centering devices and the TSB pipe welding base. Stroi. i
dor. mash. 9 no.4:25-27 Ap '64. (MIRA 18:1)

ACC NR: AP6021446

SOURCE CODE: UR/0413/66/000/011/0051/0051

INVENTORS: Shataykin, V. A.; Stepanovskiy, O. A.; Lifshits, V. S.

ORG: none

TITLE: A device for contact butt welding of large-diameter pipes. Class 21, No. 182266 [announced by Special Construction Bureau "Gazstroy Mashina" (Spetsial'noye konstruktorskoye byuro "Gazstroy Mashina")]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 11, 1966, 51

TOPIC TAGS: welding, butt welder, metal welding, welding equipment, welding technology

ABSTRACT: This Author Certificate presents a device for contact butt welding of large-diameter pipes with an annular welding transformer and with equipment for centering and positioning the pipes. To increase the productivity of pipe welding, the device is made up of two independent assemblies (see Fig. 1). One assembly comprises the annular welding transformer placed on the outside of the welded pipe; the other serves to center and position the pipes and is located inside the welded pipe.

Card 1/2

UDC: 621.791.762.1.03-462

ACC NR: AP6021446

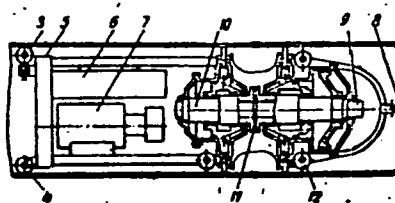
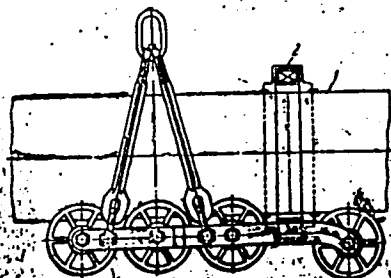


Fig. 1. 1 - welded pipe; 2 - annular welding transformer; 3 - holding roller; 4 - supporting roller; 5 - frame; 6 - hydraulic storage cell; 7 - hydroelectric drive mechanism; 8 - rod; 9 and 10 - trunnions; 11 - insulator; 12 - forward rollers

Orig. art. has: 1 figure.

SUB CODE: 13/ SUBM DATE: 07Dec62

Card 2/2

SHATAYLO, D. V.

USSR/Engineering - Welding Arc - Electrodes

Nov 48

"Speed Welding With Deep Penetration at the Dnepropetrovsk Plant Ineni Molotov," D. P. Lebed', D. V. Shataylo, Engineers, 2 pp

"Avtogen Delo" No 11

Method of rapid arc-welding with deep penetration was introduced at the plant in 1946. In this method, electrode is not held at a slight distance away from the welded parts, as is customary, but rests against the flux on both sheets to be welded. Welder pushes on the electrode throughout the weld. Some welders have welded 100-120 meters of a 6-mm seams by this method.

PA 56/49T44

S/125/61/000/002/007/013
A161/A133

AUTHORS: Lebed', D. P., Shataylo, D. V., Tsal'man, L. B.

TITLE: The practice of manufacturing a welded blast-furnace jacket

PERIODICAL: Avtomaticheskaya svarka, no. 2, 1961, 69-76

TEXT: Detailed information is given on techniques employed at the Dnepropetrovskiy zavod metallokonstruktsiy im. Babushkina (Dnepropetrovsk Metal Structure Plant im. Babushkin) in the prefabrication of large welded sections of the jacket for a large new blast furnace of the "Krivorozhstal'" metallurgical plant. The jacket consisted of 25 belts, each of 8 sheets; 18 belts have been welded into hulls at the Dnepropetrovsk Plant on a special manipulator by the submerged-arc process, using a TC-17M (TS-17m) welder. Both the vertical assembly welds and the annular ones on the hearth portion were welded on site by the electro-slag process, while the remaining annular assembly welds were produced manually. The jacket material was 14Г2 (14G2) steel, except for the bottom belts of 09Г2ДТ (M) [09G2DT (M)] steel with a 30 kg/mm² yield limit. The 14G2 grade belongs to a series of new inexpensive low-alloy steel types that have to come into wide use for steel structures under the Seven-Year-Plan. The jacket belt

Card 1/2

The practice of manufacturing ...

S/125/61/000/002/007/013
A161/A133

Thickness ranged from 43 mm at the bottom to 18 mm at the top. The total weight was 334.2 t. Steel other than 14G2 was used for the bottom jacket belts because the 14G2 grade was not available in gages above 32 mm. The article includes a photograph of the welding manipulator during welding, details of preparing the edges and welding process. [Abstracter's note: Details of the electro-slag assembly welding at "Krivirozhstal" and the chemical composition of the jacket steel, electrodes and flux are not included.] The prefabrication job was the first of its kind in the USSR and is considered a success, though the deformation of the 25 and 18 mm thick sheets by welding caused some difficulties in the assembly on site. The work time expenditure is compared with two previous jobs - a jacket for a blast furnace of the Plant im. Petrovskiy built in 1958, and for a furnace of "Krivirozhstal" built in 1959, with the conclusion that 14% more time has been spent than in 1959, and 8% more comparing with the job in 1958. The 14G2 steel grade had only a slight tendency to hardening and hot cracking. There are 5 figures and 4 tables.

ASSOCIATIONS: Dnepropetrovskiy zavod metallokonstruktsiy im. Babushkina (Dnepropetrovsk Metal Structure Plant im. Babushkin) (Lebed', D. P. and Shataylo, D. V.); Dnepropetrovskiy filial GPI "Proyektstal'-konstruktsiya" (The Dnepropetrovsk GPI "Proyektstal'-konstruktsiya" Branch Office)

Page 2/2

VASILEVSKIY, L.V., inzh.; SIDORUK, V.S., inzh.; SHATAYLO, D.V., inzh.

Electric slag welding of flanges. Svar. proizv. no.5:31-32 My
'61. (MIRA 14:4)

1. Dnepropetrovskiy zavod metallokonstruktsiy imeni Babushkina.
(Flanges--Welding)

26488

S/125/61/000/009/013/014
D040/D113

18000

AUTHORS: Okara, V.G.; Fedoruk, V.M.; Shataylo, D.V.

TITLE: Experience in using an Eu-152/154 radioactive isotope for controlling the quality of the welds

PERIODICAL: Avtomaticheskaya svarka, no. 9, 1961, 85-88

TEXT: Information is presented on weld inspection techniques employed at the Zavod metallokonstruktsiy im. Babushkina (Metal Structures Plant im. Babushkin) in Dnepropetrovsk. The plant is producing steelwork structures as well as machinery structures, steel ladles, and blast furnace casings. Formerly used Co^{60} in РУП-1 (RUP-1) X-ray apparatus has been replaced by Eu-152/154 which produces better pictures and has soft radiation. A new work container for Eu-152/154 has been developed lately, designed for work with europium of 1 g-equiv activity of radium. The apparatus consists of a spherical lead container, a support, and a folding tripod. The protection container of the apparatus permits work with radioactive europium of up to 1 g-equiv as well as with cobalt of 0.5 g-equiv. The container is shown in X

Card 1/4

26488

S/125/61/000/009/013/014
D040/D113

Experience in using

ASSOCIATION: Dnepropetrovskiy zavod metallokonstruktsiy im. Babushkina
(Dnepropetrovsk Metal Structures Plant im. Babushkin)

SUBMITTED: April 20, 1961

Card 3/4

OKARA, V.G.; FEDORUK, V.M.; SHATAYLO, D.V.

Use of Eu-152/154 radioisotopes for the quality control of welded joints. Avtom.svar. 14 no.9:85-88 S '61. (MIRA 14:8)

1. Dnepropetrovskiy zavod metallokonstruktsiy imeni Babushkina.
(Welding--Quality control)
(Radioisotopes--Industrial applications)

LEBED', D.P., kand.tekhn.nauk; TSAL'MAN, L.B., inzh.; SHATAYLO, D.V., inzh.

Making steel construction elements of 14G2 low-alloy steel.
Prom. stroi. 39 no. 1:41-45 '61. (MIRA 14:1)
(Steel alloys--Welding)

LEBED', D.F., kand.tekhn.nauk; VOROB'YEV, V.M., inzh.; GUTNIKOVA, B.P.,
inzh.; SHATAYLO, D.V., inzh.

Use of rimming steel for steel elements. Prom. stroi. 39 no.11:50-
52 '61. (MIRA 14:12)

1. Dnepropetrovskiy zavod metallokonstruktsiy im. I.V.
Babushkina.

(Steel, Structural)

LEBED', D.P., kand.tekhn.nauk; TSAL'MAN, L.B., inzh.; SHATAYLO, D.V., inzh.

Manufacture of steel elements of 10G2SD (MK) low-alloy steel.
Prom. stroi. 40 no.12:48-52 '62. (MIRA 15:12)
(Steel, Structural)

SHATBERASHVILI, A., polkovnik

Who can be rated "outstanding"? Voen.vest. 39 no.4:44-47 Ap '60.
(MERB 14:2)

(Russia--Army)

L 44793-66 ENT(1)/EWP(e)/ENT(m)/SEC(k)-2/T/EWP(k) IJP(c) WG/WH

ACC NR: AP6031433

SOURCE CODE: UR/0056/66/051/002/0406/0411

55
8

AUTHOR: Ambartsumyan, R. V.; Babov, N. G.; Zuyev, V. S.; Kryukov, P. G.;
Letokhov, V. S.; Shatberashvili, O. B.

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

TITLE: The structure of a giant pulse of a Q-switched laser 75

SOURCE: Zh eksper i teor fiz, v. 51, no. 2, 1966, 406-411

TOPIC TAGS: solid state laser, ruby laser, giant pulse laser, Q switched laser,
laser output

ABSTRACT: The spatial and temporal development of a giant pulse of a Q-switched ruby laser in a transverse direction and the effects of the cavity on it were investigated experimentally by means of the setup shown in Fig. 1. A ruby rod 9 mm in diameter and 120 mm long with dull lateral surfaces was placed in a reflector with a helical IFK-15000 flashlamp. For an 8-kj pump the gain per pass was approximately 12. A 1.5-j single laser pulse was generated with a duration of 10-15 nanosec. Q-switching was done by means of a Kerr cell or a vanadium phthalocyanin solution. The exponential results indicate that generation commences in the center of the crystal and spreads transversely over the entire crystal in 3-10 nanosec, i.e., in a time comparable to the duration of the integral pulse. The spatial development of generation

Card 1/2

L 44793-66

ACC NR: AP6031433

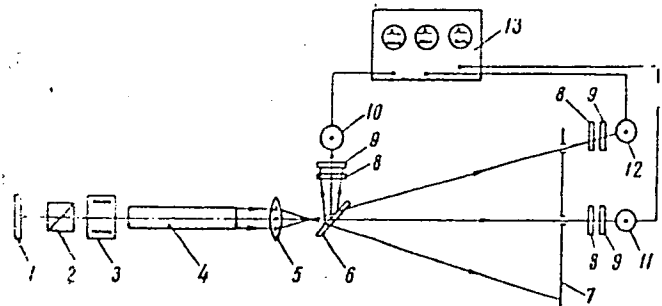


Fig. 1. The experimental setup

- 1 - Mirror 99% reflective;
- 2 - polarizer;
- 3 - Kerr cell;
- 4 - ruby crystal;
- 5 - lens;
- 6 - semitransparent plate;
- 7 - screen with diaphragms;
- 8 - interference filter;
- 9 - dull glass;
- 10-12 - coaxial photocells;
- 13 - multibeam oscillograph.

depends essentially on the density distribution of population inversion in the crystal and on its refractive index. The experimental data agree fully with theoretical data presented elsewhere (V. S. Letokhov and A. F. Suchkov, ZhETF, 50, 1966, 1148). The authors propose further experiments on the measurement of nonuniformity of the complex permittivity at the instant of Q-switching and generalization of the theory for the case of a nonuniform refractive index. Orig. art. has: 7 figures. [YK]

SUB CODE: 20/ SUBM DATE: 06Mar66/ ORIG REF: 007/ OTH REF: 006/ ATD PRESS: 5080

Card 2/2 blg

SHATBERASHVILI, P.A.

Hydrograph of a flash flood taking storm sewers into consideration.
Meterol i gidrol. no.11:40-41 N '56. (MLRA 10:1)
(Drainage)

SOV/50-58-9-7/19

AUTHOR: Shatterashvili, P. A.

TITLE: The Influence of Velocity on the Turbidity of River Water
(Vliyaniye skorosti na mutnost' vody v rekakh)

PERIODICAL: Meteorologiya i gidrologiya, 1958, Nr 9, pp. 32 - 32 (USSR)

ABSTRACT: By means of the informations which have hitherto been collected on headward erosion a regular connection between the hydraulic characteristics of natural flow and the extension of drift transportation is proved. A number of empiric formulae were worked out which show the relation between the hydraulic flow elements and headward erosion. In spite of the great variety of the formulae everywhere the velocity of flow occurs explicitly. The author determined the relation between turbidity and output of the headward erosion on the one hand and the velocity of flow on the other hand. The mentioned determinations were carried out by means of observing the river gauges on the river Rioni (in Western Georgia). Figure 1 shows diagrams concerning the connection between turbidity and the output of the suspended deposits (R) with the average

Card 1/2

The Influence of Velocity on the Turbidity of River
Water

SOV/50-50-9-7/19

velocity of flow (v). The parameter of the equations specifying this relation yield: a) for turbidity $Q = 1220v^{3.0}$, b) for the output of the suspended deposits $R = 760v^{5.6}$. Thus by means of experimental material concerning the headward erosion at the Rioni river a generally valid law is determined: The average concentration of the transported deposits is proportional to the third power of the average velocity of flow; e.g. the turbidity of the river water is about proportional to the kinetic energy of the flow. As far as the output of the suspended deposit is concerned it is about proportional to the sixth power of the average velocity of flow. There is 1 figure.

Card 2/2

SHATBERASHVILI, P.A.

Morphometric characteristics of the bed of lowland rivers.
Trudy GruzNIIGIM no.20:139-144 '58. (MIRA 15:5)
(Colchis--Rivers)

SHATBERASHVILI, P.A.

Formation of beds in Kolkhida rivers where levees have been
constructed. Trudy Gruz NIIGiM no.21:109-112 '60. (MIRA 16:1)
(Kolkhida Lowland--Levees)

RUBIA, G.B., kand. ekon. nauk; SHATEIN, M.I., kand. ekon. nauk

Bank-protektirovaniye ot-schetchikov i kontrol. Transp.
stroitel. 13 no.1:47-48 Ja '63 (MIRA 18:2)

SHATEK, I.

Complete system of machinery, task of mechanization of Czechoslovak agriculture. p. 18.
(Mashinizirano Zemedelie, Vol. 8, no. 1, Jan. 1957, Bulgaria)

SO: Monthly List of East European Accessions (EEAL) LC, Vol. 6, no. 6, June 1957, Uncl.

SOV/124-57-7-7456

Translation from: Referativnyy zhurnal. Mekhanika, 1957, Nr 7, p 2 (USSR)

AUTHOR: Shatelen, M. N.

TITLE: From Recollections of Meetings With Aleksey Nikolayevich Krylov
(Iz vospominaniy o vstrechakh s Alekseyem Nikolayevichem Krylovym)

PERIODICAL: Tr. In-ta istorii yestestvozn. i tekhn. AN SSSR, 1956, Vol 15,
pp 40-45

ABSTRACT: Bibliographic entry

Card 1/1

SHATEMIROV, K.; LUK'YANETS, A.

Formation of salt efflorescence during the laying of bricks in
house building. Izv.AN Kir.SSR.Ser.est.1 tekhn.nauk 2 no.3:
67-73 '60. (MIRA 13:9)
(Bricks)

SHATEMIROV, K.; LOZITSKAYA, S.F.

Deactivation of sulfate efflorescence on loess crocks. Izv.AN
Kir.SSR.Ser.est.i tekhn.nauk 4 no.9:85-92 '62. (MIRA 16:4)
(Kirghizistan--Loess)

1. SHADLETSOV, K. Sh.
2. USSR (600)
4. Soils - Analysis
7. A rapid method for determining of the degree of salinity of carbonate soils.
Trudy Khim. inst. Kir FAN SSSR No. 3, 1950.

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

SHATEMIROV, K.Sh.

Effect of neutral sodium salts on the change of reaction of
carbonaceous soils. Izv.KirFAN SSSR no.1/10:95-98 '51.
(Soils) (Agricultural chemistry) (MLRA 8:1)

SHATEMIROV, K. Sh

USSR.

/ Determination of the quantity of absorbed sodium and potassium in carbonated soil. K. Sh. Shatemirov. *Trudy Khim. Inst., Kirgis. Filial Akad. Nauk SSSR*, No. 4, 67-72(1951).—A new method of detg. K and Na in carbonated soil is reported. It consists of treating a baked soil residue with a satd. MgO soln. This is then titrated with H₂SO₄. The amt. of acid necessary to neutralize an equiv. amt. of satd. MgO soln. is subtracted from the titration value to give the alky. due to the presence of Na and K. This method is said to be more accurate than 2 other known methods. Lucy G. Merritt

SHATE MILOV K. Sh.

USSR .

Coating of mineral and soil particles with calcium carbonate and sesquioxides. K. Sh. Shatemiroy and S. P. Lozitskaya. *Trety Inst. Khim., Kiyev. Fizika Akad. Nauk S.S.S.R.* 1953, No. 5, 89-99; *Referat. Zhur., Khim.* 1954, No. 41850.—This study was undertaken for the purpose of elucidating the role of CaCO_3 and $\text{Fe}(\text{OH})_3$ in the formation of carbonate soil particles. Fe_2O_3 was deposited on quartz particles from a $\text{Fe}(\text{OH})_3$ sol more than did Al_2O_3 . From a $\text{Al}(\text{OH})_3$ sol Al_2O_3 was not adsorbed on quartz particles larger than 0.01 μm . The interaction of quartz particles 0.01-0.005 μm . with $\text{Al}(\text{OH})_3$ sols resulted in a stable compd. which dissolved with difficulty in mineral acids; apparently it formed an Al silicate. Interaction of quartz particles smaller than 0.001 μm . with $\text{Al}(\text{OH})_3$ and $\text{Fe}(\text{OH})_3$ sols of various concns. caused the coagulation of Al and Fe hydrosols. This is attributed to the mutual neutralization of charges on particles of the sols and the quartz. Similar effects were observed in treating of soil fractions, feldspar, and kaolin with Fe and Al hydrosols. In this case, the coagulation of the sols is attributed to the presence of electrolytes, such as $\text{Ca}(\text{HCO}_3)_2$, $\text{Mg}(\text{HCO}_3)_2$, CaSO_4 , and others. The transition of $\text{Ca}(\text{HCO}_3)_2$ into CaCO_3 is accomplished regardless of the nature of the surface and the degree of dispersion of the minerals and soil particles, and is apparently detd. solely by the partial pressure of CO_2 in the air.

M. Hovsh

SHATEMIROV, K. SH.

USSR/Cosmochemistry - Geochemistry. Hydrochemistry, D

Abst Journal: Referat Zhur - Khimiya, No 19, 1956, 61319

Author: Shatemirov, K. Sh.

Institution: None

Title: Physicochemical Characteristics of Loesses and Clays of Some Deposits of Kirgiziya

Original

Periodical: Iz-ya nauch. sessiya AN Kirg SSR, Frunze, 1955, 127-141

Abstract: Chemical composition has been determined of the loesses and clays of different deposits in Kirgiziya. Amount of SiO₂ (in %) varies within 47.29-57.76; Al₂O₃ 11.10-34.48; Fe₂O₃ 0.84-8.54; MnO 0.23-0.67; CaO 2.37-13.32. In the water-soluble complex have been found the following principal components: Na₂SO₄, CaSO₄, MgSO₄, (NaCl), and in non-saline or slightly saline rocks also Co(HCO₃)₂ in addition to the above-listed.

Card 1/1

SHATEMIROV, K.

Efflorescence of salt on bricks and plaster of buildings. Izv. AN Kir.
SSR no.1:3-11 '55. (MIRA 9:9)
(Bricks--Analysis) (Plaster--Analysis)

Country : USSR
Category: Soil Science. Physical and Chemical Properties of Soil. J

Abs Jour: PZhBiol , No 18, 1958, No 82051

Author : ~~Shatemirov, K. Sh.~~
Inst : Institute of Chemistry, Academy of Sciences Kirgiz SSR.
Title : Colloid and Salt Contents of Loess and Their Significance
in Soil Science and Ceramics.

Orig Pub: Tr. In-ta khamid AN KirgSSR, 1957, vyp. 8, 73-80

Abstract: Sags in loess-like loams occurred due to the coagulation of colloid particles following an increase in the concentration of filtering salt solutions. Buckling was the result of the swelling of the colloid ground particles under the deflocculating influence of Na_2CO_3 . An increase in the concentration of the

Card : 1/2

Country : USSR
Category: Soil Science. Physical and Chemical Properties of Soil. J

Abs Jour: PZhBiol., No 18, 1958, No 82051

salt solution took place as a result of the rising of the level of the mineralized ground waters with irrigation. The nature of the loess grounds can be evaluated according to the number of particles smaller than 0.005 mm. Coagulation assumed dangerous proportions when there was more than 0.3% water-soluble salts in the ground. -- G.V. Larin

Card : 2/2

SHATEMIROV, K.Sh.; LOZITSKAYA, S.F.

Chemisorption of sulfur dioxide by oxides in heating. Report
No. 1. Izv. AN Kir. SSR. Ser. est. i tekhn. nauk 2 no.11:79-89
'60. (MIRA 14:10)
(Sulfur dioxide) (Oxides) (Sorptions)

SHATEMIROV, K.Sh.; ROYCHENKO, G.F.; LUKONIN, A.Ya.

Investigation of loess deposits and clays of Kirghizia
Report No.2. Izv. AN Kir. SSR. Ser. est. i tekhn. nauk 2
no.11:91-110 '60. (MIRA 14:10)

(Kirghizistan--Loess--Analysis)
(Kirghizistan--Clay--Analysis)

SHATEMIROV, K.Sh.; LUKONIN, A.Ya.

Some physical properties of loess soils and clays of Kirghizia.
Report No.3. Izv. AN Kir. SSR. Ser. est. i tekhn. nauk 2 no.11:
111-129 '60. (MIRA 14:10)
(Kirghizistan--Loess--Analysis)
(Kirghizistan--Clay--Analysis)

SHATEMIROV, K.

Composition of the colloidal and silt fraction of loess soils
and clays of some deposits in Kirghizia. Izv. AN Kir. SSR. Ser.
est. i tekhn. nauk 2 no.11:131-141 '60. (MIRA 14:10)
(Kirghizistan--Loess--Analysis)
(Kirghizistan--Clay--Analysis)

SHATEMIROV, K.Sh.; MOLDOBAYEV, S.

Composition and properties of colored clays of northern Kirghizia
and possibilities for their industrial utilization. Izv. AN Kir.
SSR. Ser. est. i tekhn. nauk 2 no.11:143-152 '60. (MJRA 14:10)
(Kirghizistan--Clay--Analysis)

SHATEMIROV, K.Sh.

Accelerated method of determining the absorbed sodium
and potassium in carbonaceous soils. Pochvovedenie no.2:107-109
F '60. (MIRA 15:7)

1. Institut khimii AN Kirgizskoy SSR.
(Soils--Sodium content)
(Soils--Potassium content)

SHATEMIROV, K.Sh.

Formation of sulfate efflorescence on loess products under the
effect of dampness. Izv. AN Kir. SSR. Ser. est. 1 tekhn. nauk
5 no.4:79-84 '63. (MIRA 16:10)

SHATENSHTEYN, A. I.

PROCESSES AND PROPERTIES INDEX

Physicochemical properties of solutions in condensed gases. V. Determination of the molecular weight of substances dissolved in liquid ammonia at room temperature. A. I. Shatenshteyn and A. M. Monoszon. *Phys. Chem. (U.S.S.R.)* 4, 691-5, 1943. App. using a differential manometer is described. The mol. wts. of urea, *D*-glucose, quinhydrone, NH_4Cl and NH_4NO_3 in dissolved form were detd. The results showed that the degree of assocn. of urea does not depend upon temp. *D*-Glucose is not assocd., quinhydrone dissocs. into quinone and hydroquinone. NH_4Cl is strongly assocd. L. Ho. Hammen

ASH 51.A METALLURGICAL LITERATURE CLASSIFICATION

2

CP

PROCESSES AND PROPERTIES INDEX

Vapor pressures of solutions of acids and salts in liquid ammonia at 15°. A. I. Shatenshtein and L. S. Uskova. *Acta Physicochim. U. R. S. S. R.* 2: 337-44(1935) (in German).—The osmotic coeffs. of salts in liquid NH₃ soln. increase in the order NH₄OAc, NH₄Cl, NaCl, NH₄Br, NaNO₃, NH₄NO₃, NH₄I. The value of d_{10}^{20} for liquid NH₃ is 0.6182. For solns. of salts contg. the stated amts. of salt per 100 g. of NH₃ values of d_{10}^{20} were: NH₄Cl, 0.60 g., 0.641; 20.80 g., 0.719; NH₄Br 3.89 g., 0.641; 31.56 g., 0.817; NH₄NO₃ 6.76 g., 0.654; 27.46 g., 0.744; NaNO₃ 4.16 g., 0.643; 31.00 g., 0.781; NaCl 1.99 g., 0.632; 6.50 g., 0.662; NaCl 1.98 g., 0.638; 8.31 g., 0.680. The vapor pressure of NH₃ at 15° is 5462.5 mm. The vapor-tension lowerings in mm. due to γ moles of salt dissolved in 1000 g. of NH₃ at 15° were: NH₄Cl 21 at 0.304 mm., 57 at 0.761, 127 at 2.721; NH₄Br 17 at 0.198, 58 at 0.708, 240 at 2.956, 381 at 4.317; NH₄NO₃ 26 at 0.253, 64 at 0.745, 208 at 2.233; NaNO₃ 22 at 0.229, 84 at 0.981, 233 at 2.825; NaCl 32 at 0.375, 62 at 0.797, 85 at 1.098; NH₄I 46 at 0.290, 192 at 1.064; NH₄OAc 72 at 1.010; NaCl, at 10°, 97 at 1.365. The low osmotic coeffs. are due to the low dielec. const. of liquid NH₃ and rise with the latter and the cond. coeff. as the temp. is lowered.
P. H. Rathmann

CLASSIFICATION

METALLURGICAL LITERATURE

CO

Physicochemical investigations of solutions in liquefied gases. XII. The method of polarimetric measurements in liquefied gases. A. I. Slatenshtein. *Acta Physicochim. U. R. S. S.* 3, 52770(1935); *J. Phys. Chem. (U. S. S. R.)* 7, 26 32(1936). -- A stainless-steel liquefaction and polarimeter app. with polarization tubes usable up to 10 atm internal pressure is described. Rotations measured in liquid NH₃ at 20° gave $[\alpha]_D^{20}$ for sucrose $76.5 \pm 0.5^\circ$, santonin -10.5° to -11.4° in 0.03 to 0.10 N soln., N-santonin with NaNO₂ -22.7° , NaBr 23.9, NaI 30.9. XIII. Acid catalysis in liquid ammonia. Reaction kinetics of the ammonolysis of santonin in liquid ammonia in the presence of ammonium salts. *Acta Physicochim. U. R. S. S.* 3, 37 52(1935); *J. Phys. Chem. (U. S. S. R.)* 7, 33 42(1936). -- The rate of ammonolysis of santonin from the lactone form (I) to the amide form (II) was detd. from the equation $K = (1/t) \log (a_0 - a_\infty)/(a_t - a_\infty)$, where a_0 is the rotation of I = $[\alpha]_D^{20} = -207^\circ$ and a_∞ for II is -10.5° . The ammonolytic reaction is quant. The K values increase with time from 29, 50 and 68×10^{-3} at 10°, 20° and 25° after 19% reaction to 43, 77 and 100 $\times 10^{-3}$ after 50% reaction (time in hrs.). The increase of K with time is due to auto-catalysis by the santoninamide

formed. The energy of activation is about 9500 Cal. The catalytic effect is almost in reverse order to the order expected from the activity (electrode), the cond. and the osmotic coeffs. Addn. of neutral salts gives the effect due to the neg. ion added. The catalytic thermodynamic effect is due to the nature of the mol. and not of its ionization products.

F. H. Rathmann

2

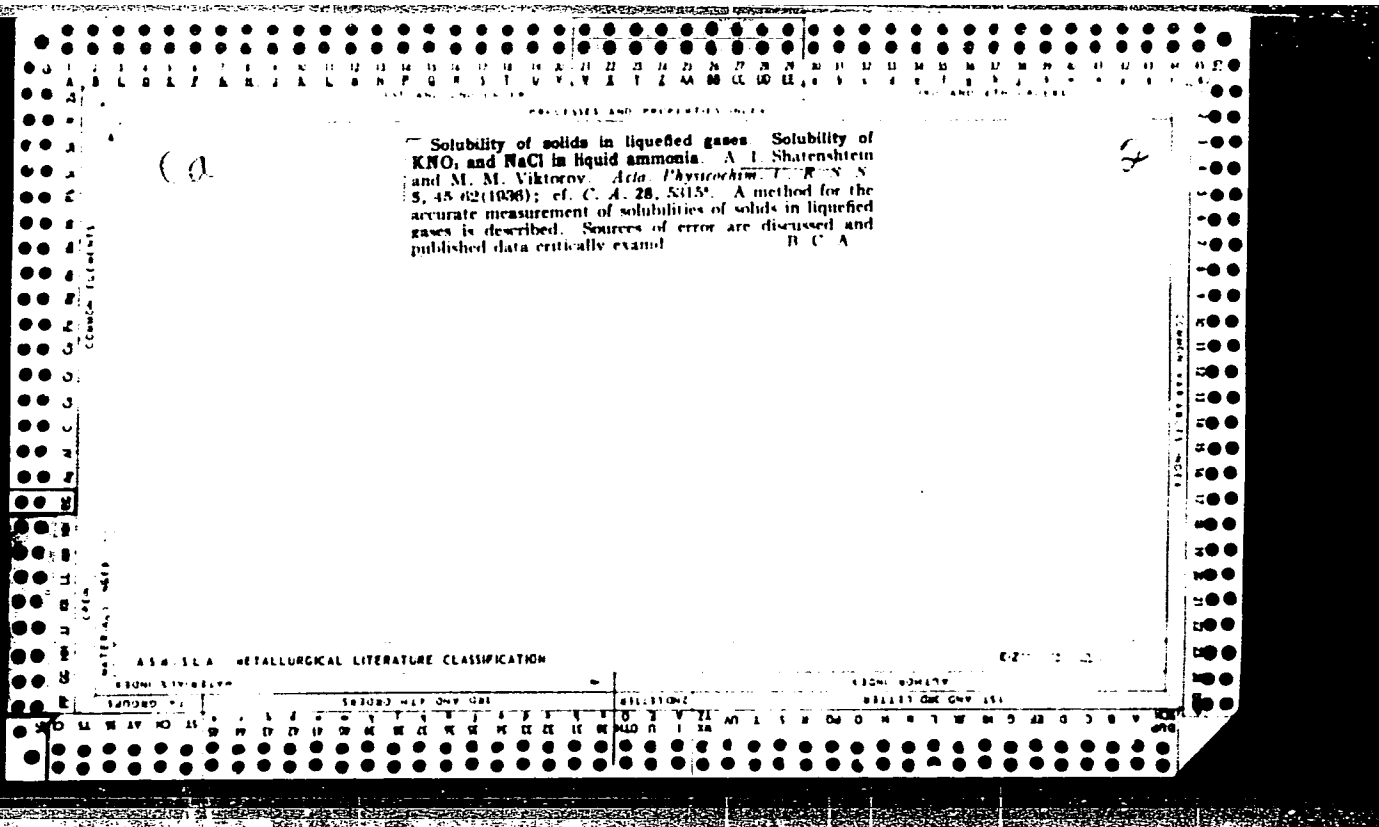
AS A - 51 A METALLURGICAL LITERATURE CLASSIFICATION

SHATEVSHTEIN, A.I.

64

THE DEHYDRATION OF MAGNESIUM CHLORIDE WITH LIQUID AMMONIA. A. M. Monogzon, E. N. Guryanov, and A. I. Shatevshtein. Translated from Zhur. Khim. Prom. ~~12-13-1966~~ 7p. (AEC-tr-1966)

The dehydration of $MgCl_2$ with liquid NH_3 by the Blitz method (British patents 327,481 and 327,482) is discussed. Laboratory-scale tests showed complete dehydration with negligible hydrolysis of the salt, lack of apparatus corrosion, and freedom from wastage, since the NH_3 used for the dehydration was regenerated or used as a raw material for conversion to other materials. (J.A.G.)



Acid catalysis in liquid ammonia. II. Kinetics of ammonolysis of deamotroposantonin and diethyl tartrate in liquid ammonia in presence of ammonium salts. A. I. Shatenshtel. *Acta Physicochim. U. R. S. S.* 5, 841-82 (1955); cf. C. A. 31, 418P. Data were obtained at 20° in presence of NH_4Cl , NH_4Br and NH_4ClO_4 . The salt tartrate, in presence of NH_4NO_3 and NH_4ClO_4 . The salt effect increases in the same order as was observed in the ammonolysis of santonin (cf. C. A. 30, 4779), i. e., in the reverse order of increase of activity, cond., and osmotic coeffs. U. S. A.

ASA 33A METALLURGICAL LITERATURE CLASSIFICATION

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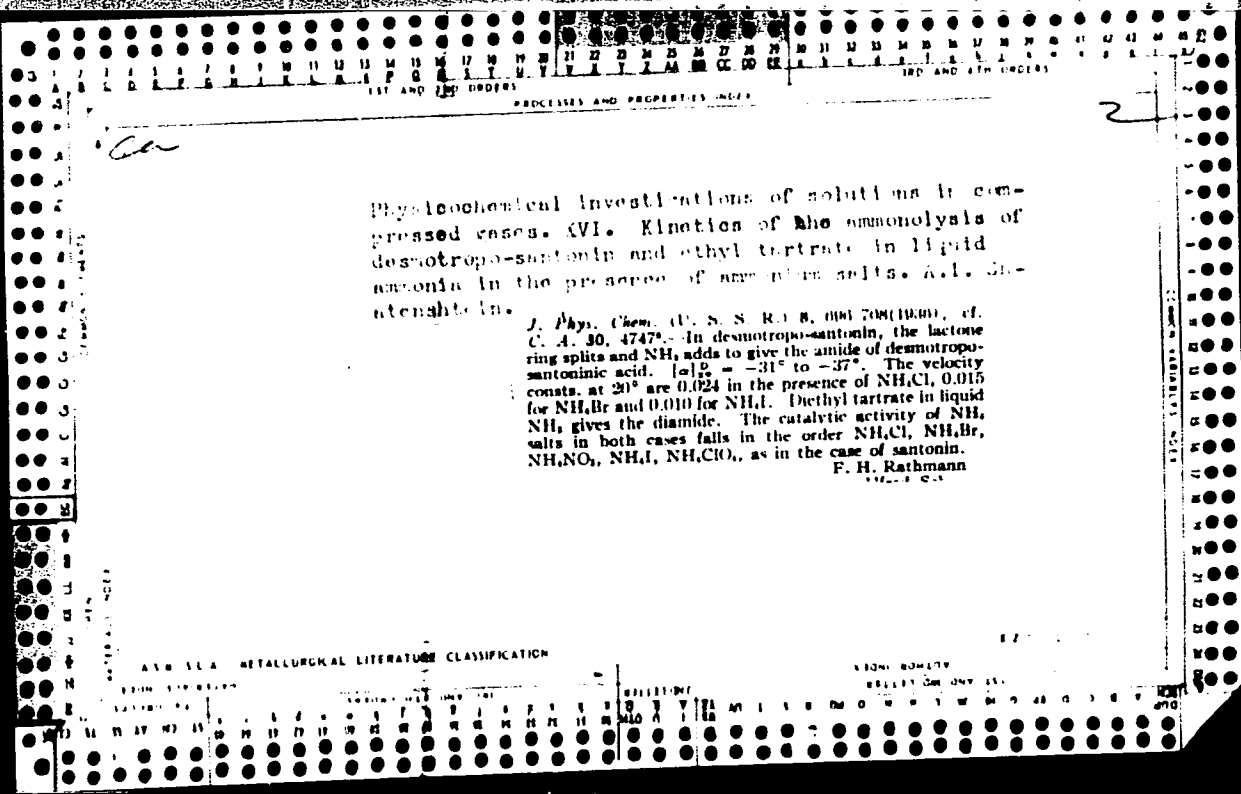
Method for the precision measurement of the solubility of solid substances in condensed gases. The solubility of potassium nitrate and sodium chloride in liquid ammonia. M. M. Viktorov and A. I. Shatenshtein. *J. Phys. Chem. (U. S. S. R.)* 8, 260-71 (1938).—The soly. of KNO₃ in liq. NH₃ is 9.50 ± 0.03 g. per 100 g. soln. at 0° and 10.56 at 25°. For NaCl the value is 11.4 at 0°. The corr. ds. of satd. solns. are, resp., 0.695, 0.672 and 0.717. Descriptions and drawings of the app. are given.
F. H. Rathmann

ASB 31.4 METALLURGICAL LITERATURE CLASSIFICATION

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Liquid ammonia as a protophyllis solvent. A. I. Shalepshela. *J. Phys. Chem. (U. S. S. R.)* 8, 613-18 (1976). —The reaction-velocity consta. for the ammonolysis of santonin at 20° in liquid NH₃ with various catalysts are: NH₃ alone, 48; glucose, 63; acetamide, 210; urea, 670; carbazole, 240; benzamide, 630; cyanacetamide, 510; phenol, 800; formamide, 10,000; NH₃ acetate, 5000; NH₃ benzoate, 4040; NH₃ cyanacetate, 4500; NH₃ formate, 4100, all times 10⁻³. Data are given on the colors of many nitro, azo, diazo, azine, quinoline, triphenylmethane and phthalein dyes as indicators in liquid NH₃.
 F. H. Rathmann

ASB:SLA METALLURGICAL LITERATURE CLASSIFICATION



Acid amides and glycerol. A. I. Shatenshtein. Russ.
1964, April 30, 1937. Fats are treated with liquid NH_3
at 20-40° and under a pressure of 8-15 atm. in the presence
of NH_3 salts of inorg. acids or metal amides as catalysts.

AS 514 METALLOGICAL LITERATURE CLASSIFICATION

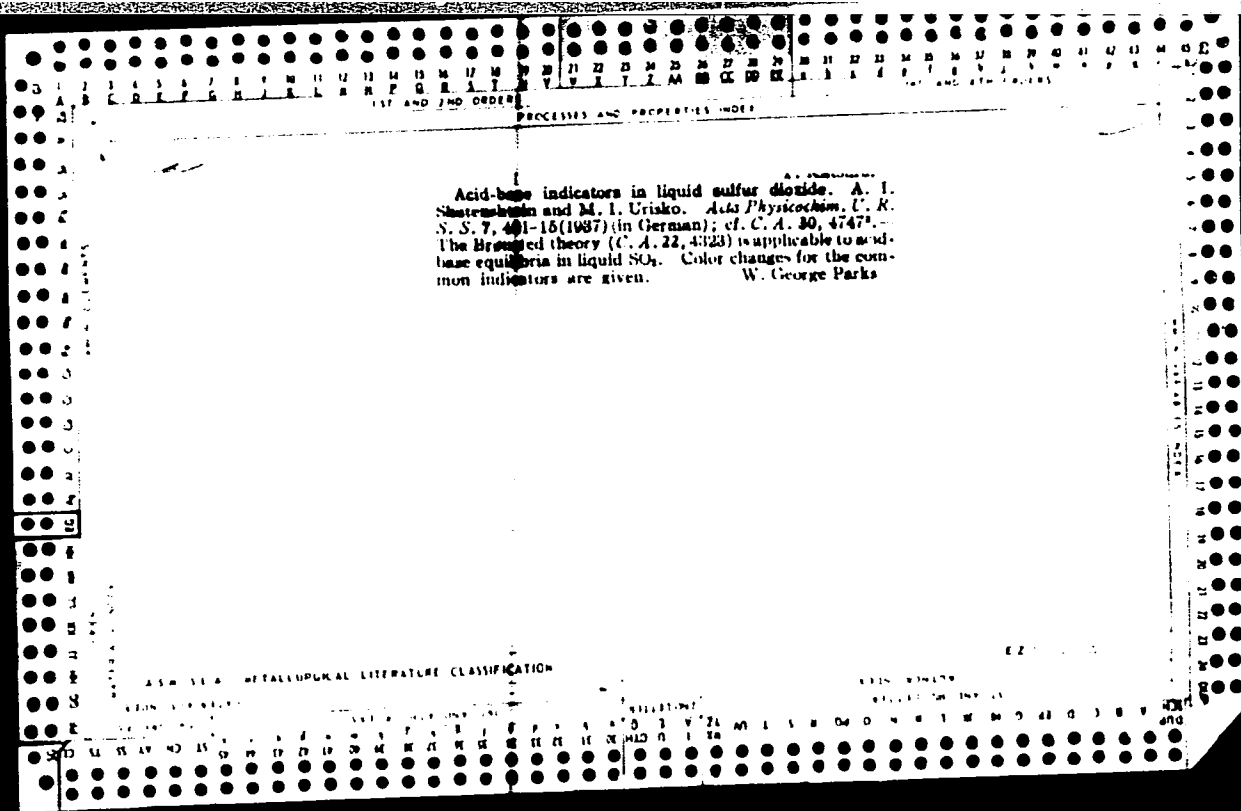
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Purification of iodides and thiocyanates. A. I. Shaten-
shtein and M. M. Viktorov. Russ. No. 972, April 30,
1937. The salts are dissolved in liquid SO₂, undissolved
residue is sepd., and the soln. is worked up in the usual
manner.

ASB 31A METALLURGICAL LITERATURE CLASSIFICATION

INDEX

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

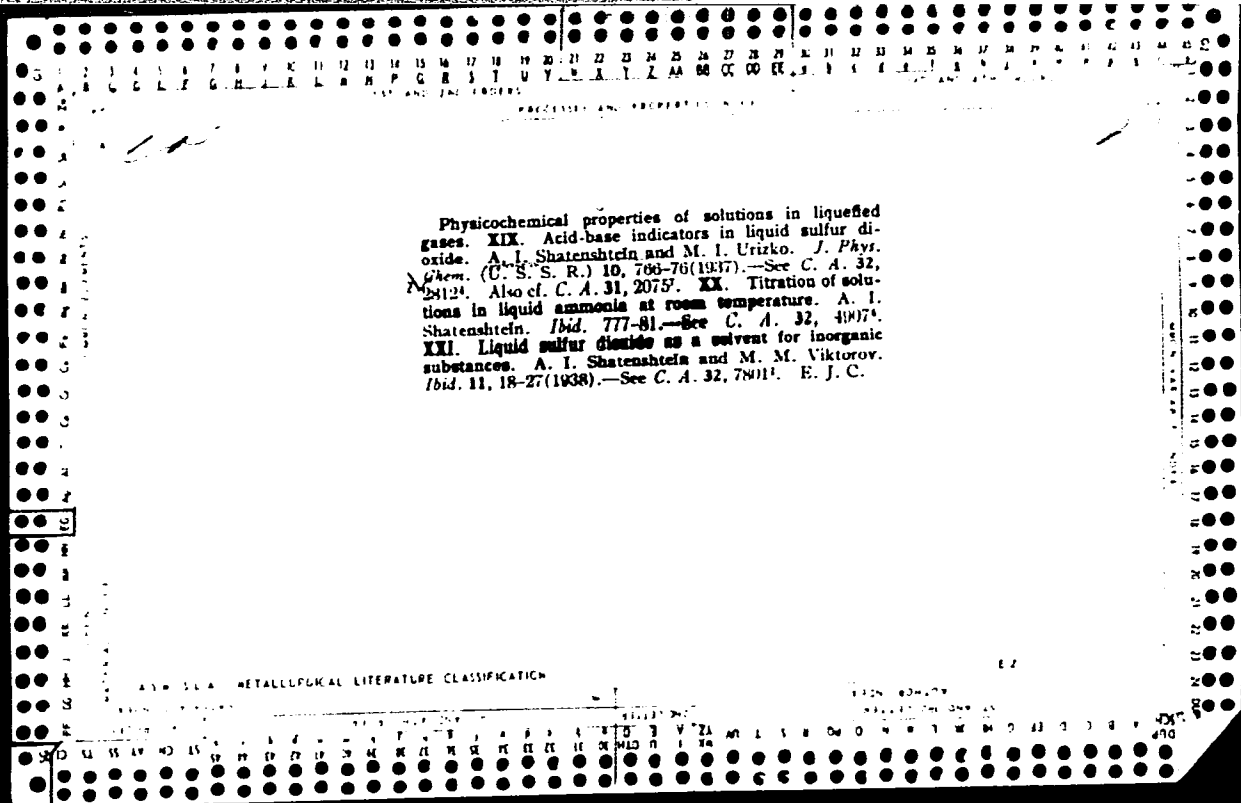


Liquid sulfur dioxide as a solvent for inorganic substances. V. I. Shatenstein and M. M. Viktorov. *Zh. Fizichesk. Khim.* 41, 1037 (1967) in German. AgI, As₂O₃, As₂S₃, Ba(NO₃)₂, BiI₃, FeS, HIO₄, H₂SO₄, HgI₂, K₂SO₄, KNO₃, K₂AsO₄, K₂AsO₆, K₂HPO₄, K₂CO₃, KHCO₃, K₂Fe(CN)₆, LiNO₃, MgBr₂·6H₂O, NaNO₂, Na₂SO₄, P, Sb, Sb₂S₃, Sb₂S₅, Se and Te-Cl₄ are slightly sol. less than 0.01%. AgNO₃, Ba(CNS)₂, CaF₂, KCl, SeBr₂, KIO₃, KNO₃, NaF, NaBr, NaBrO₃, NH₄F and NH₄Br are somewhat sol. (0.01-0.1%). Some substances are more sol.: I, 0.6; ICl, 0.5; NaI 3-4%; all at 50°; IBr 0.0, KCNS 35, NH₄I 1, PBr₂ 20, PI 0.1, RbBr 20, KI 38%; all at 25°; KBr 1.2, NH₄I 12, NH₄CN 30, PBr₃ 12%; all at 0°. AsCl₃, Br₂, BCl₃, CCl₄, CS₂, ICl, PCl₃, POCl₃ and SO₂Cl₂ are miscible in

all proportions. The following solubilities were accurately detd. for g. of salt per 100 g. of soln. at 25° ± 0.02°: LiCl 0.00062, NaCl 0.00340, KCl 0.0126, RbCl 0.402, CsCl 0.291, I₂Br 0.067, NaBr 0.0038, KBr 0.50, NaI 1.50, NH₄Cl 0.00311, NH₄Br 0.052, KI 0.75 and SeI₂ 0.11. Conclusion: Substances with ionic lattices are only slightly sol. in SO₂, while covalent compds. with mol. lattices are quite sol. Because of the inverse order of the solubilities of the halides of Rb and Cs and of the other alkali halides in SO₂ and in liquid NH₃, successive recrystn. from these solvents can be used to sep. Rb and Cs from the other alkali metals. F. H. Rathmann. **Solvolytic and neutralization in liquid sulfur dioxide.** Kurt Wickert. *Z. Elektrochem.* 44, 410 (1938). Expts. were performed to show that liquid SO₂ resembles H₂O as solvent by dissov. either into SO₄²⁻ and SO₂⁺ or into O²⁻ and SO₂⁺. Solvolysis occurs, for instance, when Zn(C₂H₃)₂ reacts with liquid SO₂ placed in an ether-CO₂ mixt. Neutralization results in the reaction of basic oxides with OSO₂ (in closed containers at 80° and 20 atm. pressure). The potential of the O₂ electrode in liquid SO₂ against the HgBr-Hg electrode was found to be of the order of 0.2 v. H. S. v. Klooster

ANAL. METALLURGICAL LITERATURE CLASSIFICATION

CLASSIFICATION	INDEX	INDEX
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PROCESSES AND PROPERTIES

10

Preparation of glycerol and of amides of high molecular fat acids by ammonolysis of oils and fats. A. I. Shaten-shtein and E. A. Israilevich. *J. Applied Chem.* (U. S. S. R.) 11, 967-74 (in French 974) (1938). Amides of fatty acids and glycerol were prepd. from linseed, sunflower, cottonseed, olive, castor and "salomas" oils and from pig, lamb, beef and fish fats, by treatment with liquid NH₃ in the presence of NH₄Cl (catalyst), at 50° for 8 hrs. or at 100° 2 and 4 hrs. The reaction proceeded quantitatively, yielding glycerol and a mixt. of amides of fatty acids. The velocity of the reaction depended on the chem. compn. of the oils and fats (fastest to react is a castor oil and slowest is sunflower and cottonseed oil). Increase of temp., addn. of the NH₄Cl catalyst and emulsifiers increased the velocity. The reaction proceeded faster with gaseous NH₃ (at a pressure of 80 atm.) at 100° than with a liquid NH₃. The phys. and chem. properties of the amide mixts. are tabulated. Eighteen patent and 8 literature references.

A. A. Podzorny

ASD SIA METALLURGICAL LITERATURE CLASSIFICATION

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SHATENSHTEYN AAST

600

1. SHATENSHTEYN, A. I.; MAROVA, G. S.
2. USSR (600)

"The Physico-Chemical Properties of Solutions in Compressed Gasses" Part XXIV. "The Kinetics of the Reaction of Armonolis of Filocarpidine in Liquid Ammonia in the presence of Physico-Chemical Institute imeni L. Ya. Karpov, Laboratory of Compressed Gases. Received 31 March 1939.

Report U-1615, 3 Jan. 1952.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50

1ST AND 2ND ORDERS PROCESSES AND PROPERTIES INDEX 3RD AND 4TH ORDERS

Common Elements

Common Valence Numbers

OPEN MATERIAL INDEX

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS 3RD AND 4TH ORDERS

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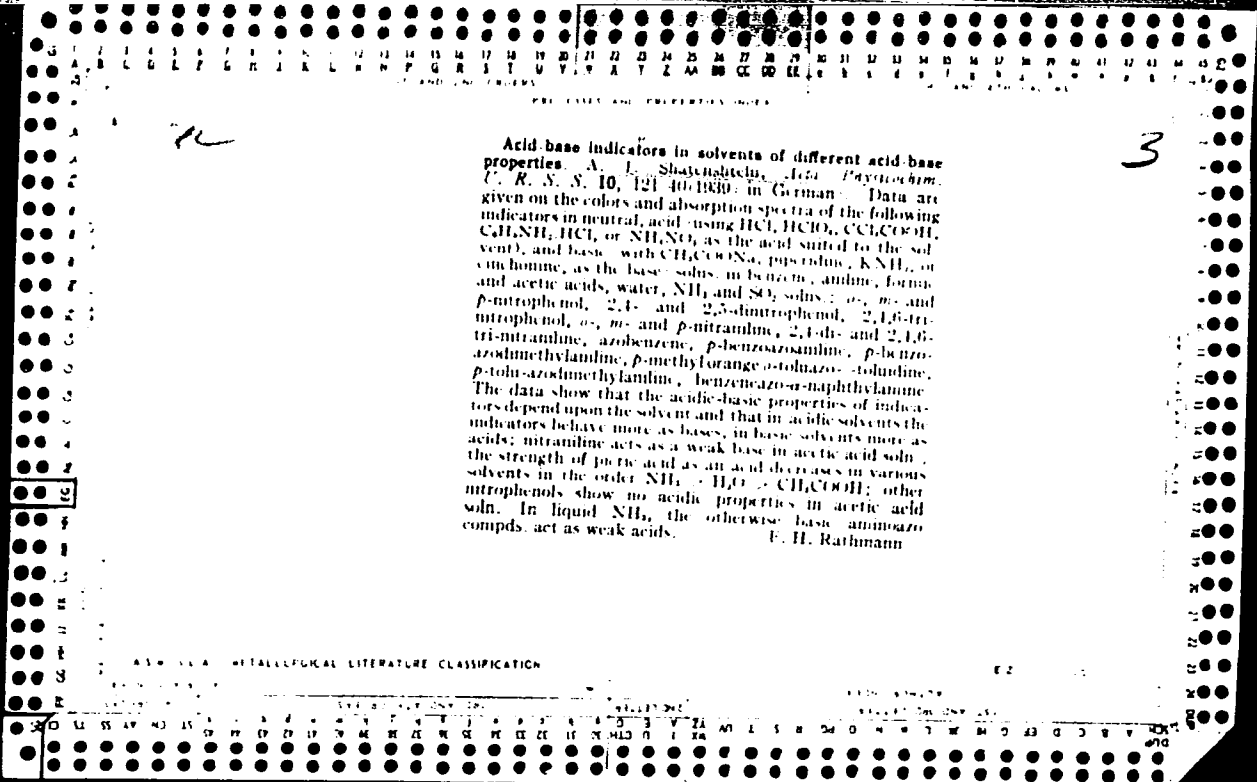
2

Acids and bases. A. I. Shatenshteyn. *Uspekhi Khim.* 8, 813-88(1939); cf. *C. A.* 34, 2684. Theoretical and review. The theory of acids, bases and salts especially as regards nonaq. solvents such as NH₃, CCl₄, SO₂, SbCl₅, HCONH₂, MeCN, dioxane, various alcs., hydrocarbons, phenols, etc.; the theory of acids of Hantzsch, the acidity function of Hammett and the acid-base theories of Brønsted, Usanovich and Lewis are discussed. 155 references. F. H. Rathmann

SHATENSHTEYN, A.I.

"Definitions of the Concepts of 'Acid' and 'Base'", Zhur. Obshch. Khim. 9, No. 17, 1939. received 28 Feb 1939.

Report of the **APPROVED FOR RELEASE: 08/09/2001** **CIA-RDP86-00513R001548710014-0**



Acid-base indicators in solvents of different acid-base properties. A. L. Shaykhetdin, *Izv. Fizykhim. U. R. S. S. R.* 10, 121-40 (1939) in German. Data are given on the colors and absorption spectra of the following indicators in neutral, acid- using HCl, HClO₄, CCl₃COOH, CH₃NH₂, HCl, or NH₄NO₃ as the acid suited to the solvent, and basic- with CH₃COONa, picric acid, KNH₂, or cinchonine, as the base- solns. in benzene, aniline, formic and acetic acids, water, NH₃ and SO₂ solns.; *o*-, *m*- and *p*-nitrophenol, 2,4- and 2,5-dinitrophenol, 2,4,6-trinitrophenol, *o*-, *m*- and *p*-nitraniline, 2,4-di- and 2,4,6-trinitraniline, azobenzene, *p*-benzozosamine, *p*-benzoazodimethylamine, *p*-methylorange-*o*-toluazo-*o*-toluidine, *p*-tolu-azodimethylamine, benzeneazo-*o*-naphthylamine. The data show that the acidic-basic properties of indicators depend upon the solvent and that in acidic solvents the indicators behave more as bases, in basic solvents more as acids; nitraniline acts as a weak base in acetic acid soln.; the strength of picric acid as an acid decreases in various solvents in the order NH₃ > H₂O > CH₃COOH; other nitrophenols show no acidic properties in acetic acid soln. In liquid NH₃, the otherwise basic aminoazo compds. act as weak acids.

F. H. Rathmann

111 APP 7TH ORDER 100 AND 6TH ORDER

PROCESSING AND PROPERTIES INDEX

CA 2

Common ELEMENTS Common VARIABLES INDEX

ASB-31A METALLURGICAL LITERATURE CLASSIFICATION

ACID CATALYSTS IN LIQUID AMMONIA. III. Catalysis of the reaction of ammonolysis of cyanides by acid amides, phenols and other weak acids. G. S. Markova and A. I. Shatnahteln. *Acta Physicochim U. R. S. S.* 11, 117-30 (1958); *Ch. C. A.* 31, 7322⁶.—The catalytic activity of NH_4 salts of weak mineral and carboxylic acids, phenols, carbonyl-amides and -imides, deriva. of aquo- and ammono-carbonic acids, nitrosamine, $MeNO_2$ and carbazole were investigated and correlated with the acidic character of some of these compounds in liquid NH_3 . IV. Kinetics of the ammonolysis of pilocarpine in liquid ammonia in the presence of ammonium salts. A. I. Shatnahteln and G. S. Markova. *Ibid.* 131-51.—The reaction of pilocarpine with liquid NH_3 is accompanied by a lowering of sp. rotation. The rate of reaction was studied polarimetrically at 0° , 10° , 20° and 30° in the presence of a no. of NH_4 salts. The reaction is pseudo-unimol. The effect of 2 N $NaBr$, $NaNO_3$, NaI and $NaClO_4$ on the reaction in presence of NH_4Cl and NH_4Br was studied. The catalytic activity of the NH_4 salts depends on the nature of the anions present. The anion activities decrease in the order Cl^- , Br^- , NO_3^- , I^- , ClO_4^- . B. C. P. A.

ASB-31A METALLURGICAL LITERATURE CLASSIFICATION

FROM STYRIAN FROM DOMIAN FROM LETTERS FROM AND LETTERS

SHATERSHTEYN, A.I.

"The Gaid-Pase Indicators in Solvents with Diff. Acid-Base Properties"; Zhur. Fiz. Khim.; 13, No. 3, 1939; Physico-Chem. Insti. inemi L. Ya. Karpov, Lab of Combustible Gases, Moscow; red. 22 June 1938.

Report, U-1613, 3 Jan. 1952

SHATENSHTEYN, A. I.

600

1. MARKOVA, G. S.; SHATENSHTEYN, A. I.
2. USSR (600)

"The Physico-Chemical Properties of Solutions in Liquefied Gases" Part XXIII. "The Catalysis of the Reaction of Ammonolis (ammonolize) of Santonin by Amides of Acids, Phenols, and other Weak Acids," Zhur. Fiz. Khim, 13, No. 3, 1939. Moscow, Physico-Chemical Institute imeni L. Ye. Karpov, Laboratory of Compressed Gases. Received 17 March 1939

Report U-1615, 3 Jan. 1952.