ACC NR.   AR6015450 (N)   SOURCE CODE: UR/0124/65/000/012/B002/B002

AUTHOR: Arkhangel'skiy, M. M.; Volkov, R. A.   56

TITLE: On the magnetohydrodynamic theory of electrical conductivity in metals

SOURCE: Ref. zh. Mekhanika, Abs. 12B7

REF SOURCE: Uch. zap. Mosk. obl. ped. in-ta, v. 147, 1964, 241-244

TOPIC TAGS: magnetohydrodynamics, electric conductivity, strong magnetic field,
superconductivity

ABSTRACT: Magnetchydrodynamic equations are used for calculating the electrical con-
ductivity of metals in a strong magnetic field. Various simplifying assumptions are
made in integration of these equations in two special cases: an infinite strip of
finite thickness and an infinite cylindrical wire of a given radius. The resultant
distribution of the magnetic field and density of the electric current with respect to
the thickness of the plate and radius of the cylinder has a rather complex form so that
it is possible to establish only a differential relationship between the current den-
sity and the strength of the electric field (the coefficient of electrical conductivity
depends on the coordinates). The limiting cases of an infinitely thin plate and an in-
finitely narrow cylinder conform to Ohm's law. Consideration is given to magnetohydro-
dynamic effects as a basis for a qualitative explanation of the phenomenon of destruc-
tion of the superconductivity of metals by a magnetic field. Bibliography of 5 titles.
G. F. Kventsel'. [Translation of abstract]

SUB CODE: 20

Card 1/1

VOLKOV, R.G., inzhener.

Television in aeronautics.   Vest.Vozd.Fl. 38 no.5:92-95 My '56.

(Television in aeronautics)

(MLRA 9:11)

VOLKOV, R.G.

Subject   : USSR/Aeronautics   AID P - 4659

Card 1/1   Pub. 135 - 25/26

Author   : Volkov, R. G.

Title   : Television in aviation

Periodical   : Vest. vozd. flota, 5, 92-95, My 1956

Abstract   : The author, on the basis of various aviation periodicals
                abroad, reviews the application of television for several
                purposes in aviation.

Institution : None

Submitted   : No date

VOLKOV, R.I., inzh.

    Operating conditions of drainage pumping stations and methods for
    their improvement. Gidr. i mel. 14 no.1:39-47 Ja '63.   (MIRA 16:2)

    1. Vsesoyuznyy nauchno-issledovatel'skiy institut gidrotekhniki
    i melioratsii im. Kostyukova.
        (Pumping stations)   (Drainage)

VOLKOV, R.N.; ZAVGORODNIY, S.V.

Mechanism of lactone formation in the course of the liquid-phase
a too idation of certain polyalkylbenzenes. Zhur.ob.khim. 31
no.9:3090-3099 S '61.   (MIRA 14:9)
                        (Benzene) (Lactones)

5(3)

AUTHOR: Volkov, R. N.   SOV/156-59-2-24/48

TITLE: Some   Irregularities   of   Formation of Polyhydro-
               peroxides of Polyalkyl Benzenes (Nekotoryye zakonomernosti
               obrazovaniya poligidroperekisey polialkilbenzolov)

PERIODICAL: Nauchnyye doklady vysshey shkoly. Khimiya i khimicheskaya
               tekhnologiya, 1959, Nr 2, pp 311-315 (USSR)

ABSTRACT: The autooxidation of the di- and trialkylbenzenes might offer
               new possibilities for the production of phloroglucin, hydro-
               quinone, resorcin, etc. Hitherto the kinetics of this
               autooxidation has not been investigated. The author regards
               the autooxidation as a consecutive reaction and derives the
               following equations for triisopropyl benzene:

$$M = (U^{r_1} - U)/(1 - r_1); \quad D = r_1 U^{r_2}/(r_1 - r_2)(1 - r_2) - r_1 U^{r_1}/(r_1 -$$

$$r_2)(1 - r_1) + r_1 U(1 - r_1)(1 - r_2); \quad T = 1 - U - M - D;$$

$$q = M + 2D + 3T.$$ (U, M, D, T = the individual molar shares

Card 1/2   of the initial hydrocarbon and of mono-, di- and trihydro-

Some   Irregularities   of   Formation of Polyhydroperoxides of Poly-
alkyl Benzenes

SOV/156-59-2-24/48

peroxide, q - the degree of oxidation, r_1, r_2 = constants of
reaction rates). As hydroperoxides do readily decompose they
were reduced to tertiary alcohols and the mixture was
analyzed. The results of analyses (Table 1) show that
r_1 = 2/3 and r_2 = 1/3 (within the limits of error). Autooxida-
tion for p-diisopropylbenzene is calculated in the same way
(Table 2). There are 1 figure, 2 tables, and 2 references.

PRESENTED BY: Kafedra organicheskoy khimii Voronezhskogo gosudarstvennogo
universiteta
(Chair of Organic Chemistry, Voronezh State University)

SUBMITTED: November 10, 1958

Card 2/2

VOLKOV, B.N.

Some regularities in the formation of polyhydroperoxides of polyalkylbenzenes. Nauch.dokl.vys.shkoly; khim. i khim.tekh. no.2:311-315 '59.   (MIRA 12:8)

1. Predstavlena kafedroy organicheskoy khimii Voronezhskogo gosudarstvennogo universiteta.
                    (Benzene)   (Hydroperoxides)

84690

S.3300   2209, 1153 only   S/020/60/134/004/015/023
                                                B016/B060

AUTHORS: Topchiyev, A. V., Academician, Volkov, R. N., and
                Zavgorodniy, S. V.

TITLE: A Study of the Rules Governing the Alkylation of Xylenes
                With Propylene in Presence of $BF_3 \cdot H_3PO_4$

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 134, No. 4,
                pp. 844 - 847

TEXT: The rules governing the alkylation of o- (I), m- (II), and p-xylene
(III) with propylene in the presence of $BF_3 \cdot H_3PO_4$ have not been studied
by previous researchers (Ref. 2), nor have their yields of isopropyl
xylene been higher than 52%. The authors of the present paper made a
systematic study of the effects of catalyst concentration, temperature, time of re-
action, and molar ratio of reagents upon the yield and the composition
of the alkylation product of (I) - (III). In doing so, they established
the conditions under which it is possible to obtain a 90% yield in

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A Study of the Rules Governing the Alkylation   S/020/60/134/004/015/023
of Xylenes With Propylene in Presence of   B016/B060
$BF_3 \cdot H_3PO_4$

isopropyl xylenes, and clarified the kinetic characteristics of the re-
action. Alkylation and fractional distillation were performed in the same
way as shown in Ref. 3. The propylation of (I) gives rise to 4-isopropyl-
-o-xylene (IV), 3-isopropyl-o-xylene (V), and 4,5-diisopropyl-o-xylene
(VI), while (II) yields 4-isopropyl-m-xylene (VII), 5-isopropyl-m-xylene
(VIII), 2-isopropyl-m-xylene (IX), 4,6-diisopropyl-m-xylene (X), and
2,5-diisopropyl-m-xylene (XI). The monoalkylate of (III) exclusively
consists of 2-isopropyl-p-xylene (XII), while its dialkylate mainly con-
sists of 2,5-diisopropyl-p-xylene (XIII). Table 1 contains the principal
constants of the resulting compounds and the xylenes employed in the
process. Heretofore, there was no description of (V) and (VI) to be found
in publications. The authors describe the methods of identifying the
isomers. They were oxidized to form benzene polycarboxylic acid, and
examined both refractometrically and by means of infrared absorption
spectra. The authors further describe the separation of benzene tricarb-
oxylic acids, and that of their esters. The dilactone of 2,5-di-(α-oxy-
-isopropyl)-terephthalic acid was obtained from (XIII) by oxidation.

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A Study of the Rules Governing the Alkylation   S/020/60/134/004/015/023
of Xylenes With Propylene in Presence of   B016/B060
$BF_3 \cdot H_3PO_4$

Moreover, isopropyl xylenes were also identified by self-oxidation.
Results obtained from some experiments on xylene propylation are shown in
Table 2 and include composition of reaction mass, yields, ratio of apparent
rate constants of the alkylation of isopropyl xylenes and initial xylene
($r = k_2/k_1$). It may be seen from Table 2 that an increase in temperature
and in the concentration of $BF_3 \cdot H_3PO_4$ reduces the relative formation rate
of products resulting from secondary alkylation, as had already been
established previously by the first-named author jointly with N. V.
Kurashev and Ya. M. Faushkin (Ref. 7). The rules governing the iso-
merization of polyalkyl benzenes are formulated as follows: the migration
of the isopropyl group has an inner-molecular character, and chiefly
occurs whenever there are alkyl radicals in the positions 2,3, 2,4, or
2,3,5 relative thereto. These rules, in addition to explaining the charac-
ter of the orientation of substituents, allow the process to be controlled
in such a way that the substances desired can be obtained with highest
yields. There are 1 figure, 2 tables, and 9 references: 8 Soviet and
1 US.

Card 3/4

A Study of the Rules Governing the Alkylation   S/020/60/134/004/015/023
of Xylenes With Propylene in Presence of   B016/B060
$BF_3 \cdot H_3PO_4$

ASSOCIATION: Voronezhskiy gosudarstvennyy universitet (Voronezh State
             University)

SUBMITTED: April 29, 1960

Card 4/4

VOLKOV, R.N.; TSYBIN, Yu.S.

Auto-oxidation of 2-cyclohexyl-p-xylene in the liquid phase.
Zhur. ob. khim. 34 no.7:2335-2340 Jl '64   (MIRA 17:8)

1. Voronezhskiy gosudarstvennyy universitet.

VOLKOV, R.N.; ZAVGORODNIY, S.V.

      Laws governing the autoxidation of polyalkylbenzenes. Liquid
phase autoxidation of isopropyl-o-xylenes. Zhur.ob.khim.
31 no.8:2629-2635 Ag '61.   (MIRA 14:8)

    1. Voronezhskiy gosudarstvennyy universitet.
        (Xylene) (Oxidation)

VOLKOV, R.N.; ZAVGORODNIY, S.V.

Nature of the alkylation of aromatic hydrocarbons by olefins
in the presence of $BF_3 \cdot H_3PO_4$. Dokl.AN SSSR 133 no.4:843-846

Ag '60.   (MIRA 13:7)

1. Voronezhskiy gosudarstvennyy universitet. Predstavleno
akademikom A.V. Topchiyevym.
          (Alkylation) (Olefins) (Hydrocarbons)

S/020/60/132/03/28/066
B011/B008

5.3200

AUTHORS: Volkov, R. N., Zavgorodniy, S. V.

TITLE: Kinetic Peculiarities of the Isopropyl Xylene Autoxidation in the Liquid Phase

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 132, No. 3, pp. 591-594

TEXT: In this paper the authors continued the previous investigations (Ref. 1). They now studied the problem mentioned in the title on polyalkyl benzenes with neighboring substituents. o-xylene (I), 4-isopropyl-o-xylene (II), 3-isopropyl-o-xylene (III), 2-isopropyl-p-xylene (IV), 4-isopropyl-m-xylene (V), 2,5-di-isopropyl-p-xylene (VI) and o-cymene (VII) were investigated. It was determined that γ-lactones (phthalide-derivatives) also develop during the autoxidation of these substances, besides alcohols, ketones, acids etc. From (I) there forms in the presence of 0.6 Mol-% cobalt acetate: o-toluic acid, 5-8% of phthalide, and 2-5% mixture from toluyl aldehyde and tolyl carbinol. The highest concentration of hydroperoxide does not exceed 1-1.5%.

Card 1/3

Kinetic Peculiarities of the Isopropyl   S/020/6C/132/03/28/066
Xylene Autoxidation in the Liquid Phase   B011/B008

A rather complex mixture develops from (II) at the oxidation. It can be seen from Table 1 that the yield of lactones amounts to approximately 5% of the oxidized hydrocarbon. Other products with two oxidized groups develop in noticeable quantities at an intensity of the oxidation of over 30%. (III)-(V) are very slowly oxidized in the presence of manganese resinate. Cobalt acetate and cobalt isopropyl toluylene accelerate the process considerably. It was not possible to direct the process by these two catalysts towards the predominant formation of hydro peroxides, since these decompose very quickly in the presence of cobalt salts. (VI) could oxidize at 110°C within 7 hours with 6 mg/Mol manganese resinate and 10 mg/Mol soda up to a 10% concentration of hydro peroxides. The isopropyl-group can be oxidized in (II) almost 4 times more easily than the CH_3-group, but in (IV) and (V) the total rate of oxidation of the groups placed side by side is only 1.3-1.7 times greater than that of the individually placed groups, owing to steric hindrance. Fig. 1 shows the kinetics of the oxidation products of (V) at 130°C in the presence of 1 Mol-% cobalt isopropyl toluylate, as well as of (IV) at 160°C. The rate of the introduction of air was

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Kinetic Peculiarities of the Isopropyl   S/020/60/132/03/28/066
Xylene Autoxidation in the Liquid Phase   B011/B008

1 1/min. The composition of the oxidation products of (IV) and (V) is
given in Table 2. It follows therefrom that lactones develop at a
considerable rate already in the earliest phases. More than 50% lactones
develop at the oxidation of (VI), (III) and (VII) give also high yields.
Based on the results, the authors come to the conclusion that the main
cause of the high yield of lactones lies in the isomerization of the
free radical (see Scheme). There are 1 figure, 2 tables, and 5
references, 3 of which are Soviet.

ASSOCIATION: Voronezhskiy gosudarstvennyy universitet (Voronezh
              State University)

PRESENTED: January 8, 1960, by A. V. Topchiyev, Academician

SUBMITTED: January 8, 1960

Card 3/3

5(3)   SOV/79-29-5-8/75
AUTHORS: Zavgorodniy, S. V., Volkov, R. N.

TITLE: Alkylation of p-Diisopropyl Benzene With Propylene in the Presence
              of the Catalyst $BF_3 \cdot H_3PO_4$ (Alkilirovaniye p-diizopropilbenzola
              propilenom v prisutstvii katalizatora $BF_3 \cdot H_3PO_4$)

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 5,
              pp 1447 - 1449 (USSR)

ABSTRACT: In the present paper the alkylation of p-diisopropyl benzene with
              propylene in the presence of the catalyst $BF_3 \cdot H_3PO_4$ in the
              temperature range 3 - 105° and at a ratio of p-diisopropyl ben-
              zene, propylene and catalyst 1-5: 1: 0.1 - 0.5 was investigated.
              Triisopropyl benzenes and tetraisopropyl benzene were found to
              be formed. Triisopropyl benzenes represent a mixture of 1,2,4-
              and 1,3,5-triisopropyl benzenes. Their relative content in the
              mixture is 80-82 and 18 - 20%, respectively. According to the
              conditions the total yield is 53-84%. The yield in 1,2,4,5-
              tetraisopropyl benzene is 5-29%. Optimum conditions for the
              alkylation were determined as follows: the molar ratio of n-
Card 1/2   diisopropyl benzene - propylene - catalyst 3 : 1 : 0.3,

Alkylation of p-Diisopropyl Benzene With Propylene   SOV/79-29-5-8/75
in the Presence of the Catalyst $BF_3 \cdot H_3PO_4$

temperature $60°$, rate of propylene introduction 1.5 l/h and
subsequent mixing of the reaction mixture for 40 minutes. Under
these conditions 81% triisopropyl benzenes and 15% 1,2,4,5-
tetraisopropyl benzene are obtained. In this case other pro-
ducts are formed to practically no extent. As can be seen from
the table the yield is considerably influenced by the quantity of
the catalyst. There are 1 table and 2 references, 1 of which
is Soviet.

ASSOCIATION: Voronezhskiy gosudarstvennyy universitet (Voronezh State Uni-
versity)

SUBMITTED: April 11, 1958

Card 2/2

85465

S/020/60/133/004/037/040XX
B016/B054

5.3300

AUTHORS: Volkov, R. N., and Zavgorodniy, S. V.

TITLE: The Character of Alkylation of Aromatic Hydrocarbons by
               Olefins in the Presence of $BF_3 \cdot H_3PO_4$

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 133, No. 4,
               pp. 843-846

TEXT: The authors report on the investigation of the following alkylation
reactions in the presence of the catalyst $BF_3 \cdot H_3PO_4$: of benzene by
propylene, cyclohexene, as well as α- and β-isobutylene; of binary mixtures
of toluene and benzene, ethyl benzene, cumene, as well as o-, m-, and
p-xylene by the same olefins; of a mixture of benzene and ethyl benzene,
cumene, and the xylenes by butylenes and cyclohexene; of a mixture of
m-xylene with secondary and tertiary butyl benzene by propylene and
β-butylene; of benzene mixed with tert.·butyl benzene by cyclohexene; of
cumene, diisopropyl benzene, and a mixture of the latter with benzene, by

Card 1/4

86465

The Character of Alkylation of Aromatic   S/020/60/133/004/037/040XX
Hydrocarbons by Olefins in the Presence   B016/B054
of $BF_3 \cdot H_3PO_4$

propylene. These experiments were made to check the assumption saying that
the presence of alkyl groups in the benzene ring strongly activates the
substitution reaction only if the attacking agent has a considerable
positive charge. The authors performed the alkylation as it is described
in Ref. 8. They made special experiments to determine the effect of de-
alkylation on the composition of the alkylate. They proved that only
hydrocarbons with tertiary butyl groups are noticeably dealkylated. The
rate of this process only depends on the concentration of the substance
to be dealkylated, and on temperature. Table 1 shows the alkylation results
of the benzene - toluene mixture. Hence, the authors conclude that neither
the reaction conditions nor the ratio of the reagents can strongly
influence the reaction rate of toluene. The same applies to the alkylation
of other hydrocarbons by propylene, n-butylene, and cyclohexene. Only in the
reaction of benzene and its homologues with isobutylene, temperature and
duration of the experiment exerted some influence in the above sense.
Table 2 gives the relative reactivities of benzene homologues to various

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The Character of Alkylation of Aromatic   S/020/60/133/004/037/040XX
Hydrocarbons by Olefins in the Presence   E016/B054
of $BF_3 \cdot H_3PO_4$

olefins. The catalyst $BF_3 \cdot H_3PO_4$ does not produce a strong disproportiona-
tion of primary and secondary alkyl radicals, nor does it form any "special
complexes" during alkylation. Table 3 shows the composition of the
alkylation products. Hence, the authors conclude that the relations of the
rate constants of successive reactions do not depend on the intensity of
alkylation of an aromatic hydrocarbon. Therefore, it is possible to fore-
cast the composition of the alkylate with relative accuracy. The authors
mention the phenomenon of hyperconjugation, but do not discuss it. For an
interpretation of several rules observed by them, they must assume that the
alkyl groups are an obstacle not only in ortho-, but also in meta- and
para-substitutions. Generally speaking, alkyl benzenes can react faster
(than with benzene) only with such olefins that are polarized by the
catalyst, and form ions with a highly effective charge, which are con-
centrated on the reacting carbon atom. Finally, the authors point out that
the rupture of the π-bond proceeds gradually during the formation of a
bond with the aromatic ring. This is confirmed by the difference in

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The Character of Alkylation of Aromatic
Hydrocarbons by Olefins in the Presence
of $BF_3 \cdot H_3PO_4$

86465
S/020/60/133/004/037/040XX
B016/B054

relative reactivities of alkyl benzenes and α- and β-butylene. There are
3 tables and 9 references: 8 Soviet and 1 US.

ASSOCIATION: Voronezhskiy gosudarstvennyy universitet (Voronezh State
University)

PRESENTED: March 19, 1960, by A. V. Topchiyev, Academician

SUBMITTED: March 19, 1960

Card 4/4

TOPCHIYEV, A.V., akademik; VOLKOV, R.N.; ZAVGORODNIY, S.V.

Study of the correlations in the alkylation of xylenes by
propylene in the presence of $BF_3 \cdot H_3PO_4$. Dokl.AN SSSR 134
no.4:844-847 O '60.   (MIRA 13:9)

1. Voronezhskiy gosudarstvennyy universitet.
    (Xylene)   (Propene)   (Alkylation)

VOLKOV, R.S., kand. sel'skokhoz. nauk; GAAS, A.A., nauchnyy
        sotrudnik; CHERNIKOV, G.V., nauchnyy sotrudnik

Reforestation work in Siberia and its mechanization.
Trudy VSNIPILesdrev no.7:36-43 '63.   (MIRA 17:2)

1. Nachal'nik laboratorii mekhanizatsii lesokhozyaystvennykh
rabot Vostochno-Sibirskogo nauchno-issledovatel'skogo i
proyektnogo instituta lesnoy i derevoobrabatyvayushchey
promyshlennosti (for Volkov). 2. Vostochno-Sibirskiy
nauchno-issledovatel'skiy i proyektnyy institut lesnoy i
derevoobrabatyvayushchey promyshlennosti (for Gaas, Chernikov).

VOLKOV, R. S.

VANIN, S. I., VOLKOV, R. S., and SOKOLOV, D. V. "In Regard to Studying the Fungus Diseases of Acorns," Nauchnye Voprosy Polezashchitnogo Leso Razvedeniia, Instut Lesa, Akademiia, Nauk SSSR, vol. 1, 1951, pp. 276-284.
99.9 Ak1N

SO: SIRA SI-90-53, 15 Dec. 1953

L 14465-66

ACC NR: AP6002975   (N)   SOURCE CODE: UR/0286/65/000/024/0149/0149

INVENTOR: Volkov, R. V.; Ivanov, Yu. N.

ORG: none

TITLE: A device for centering an engine. Class 65, No. 177295

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 24, 1965, 149

TOPIC TAGS: marine engine, marine equipment, shipbuilding engineering

ABSTRACT: This Author's Certificate introduces a device for centering an engine during mounting in the substructure of a ship. The unit includes a pressure attachment located between the engine base and the ship substructure. The device is designed for increased accuracy in centering, facilitating the balancing process and moving the engine during mounting. The pressure attachment is made in the form of a closed elastic tank filled with a liquid and fixed between spherical cushions which press against the engine frame and a removable cushion which presses against the substructure of the ship.

Card 1/2   UDC: 629.12.002.72 621.4

L 14465-66

ACC NR: AP6002975
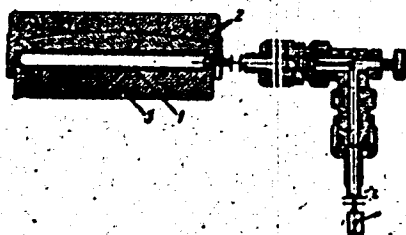
1 - closed elastic tank; 2 - spherical cushions; 3 - removable cushion.

SUB CODE: 13/

SUBM DATE: 29May64

Card 2/2

ARTEMOV, G.A., inzh.; VOLKOV, R.V., inzh.; IVANOV, Yu.N., inzh.

Increasing the life of gear-driven pumps. Sudostroenie 25 no.7:25-26
Jl '59.   (MIRA 12:12)
          (Pumping machinery)

1. VOLKOV, S.; KIYASHKO, A.

2. USSR (600)

4. Radio Operators

7. Stakhanovite group of radio workers, Sov. sviaz. 3, No. 1, 1953.

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

VOLKOV, S.

Machine accounting of material in operating accounts. Bukhg. uchet
15 no.4:27-32 Ap '58.   (Accounting)   (MIRA 11:5)

VOLKOV, S.

Agricultural Laborers

"Economics of agricultural labor in the U.S.S.R." Reviewed by S. Volkov.
Sots. sel'.khoz. 23, no. 5, 1952.

MONTHLY LIST OF RUSSIAN ACCESSIONS, LIBRARY OF CONGRESS, AUGUST 1952. UNCLASSIFIED.

VOLKOV, S.

Stock and Stockbreeding

"Organization of work for livestock breeding on collective farms." Reviewed by
S. Volkov. Sots. sel'khoz. 23 no. 1, 1952.

Monthly List of Russian Accessions, Library of Congress, June, 1952. UNCLASSIFIED.

SOV/84-58-9-8/51

AUTHOR: Volkov, S.

TITLE: Growth of Productive Activity (Rastet trudovaya aktiv-
               nost')

PERIODICAL: Grazhdanskaya aviatsiya, 1958, Nr 9, pp 5-6   (USSR)

ABSTRACT: The article reports on recent achievements in the Far
               Eastern Territorial Administration of the GVF related
               to the expansion of local air services, reduction of
               cost of operation and maintenance resulting from higher
               productivity. Negative and positive examples are
               brought up to illustrate the issues.

Card 1/1

VOLKOV, S.

Use of oxygen at the time of childbirth for prophylaxis of intra-uterine asphyxia of the fetus and hemorrhage in the brain of the newborn. Vestis Latv ak no.11:139-144 '60. (EEAI 10:9)

(Oxygen) (Childbirth) (Apoplexy) (Asphyxia)
(Infants) (Fetus)

VOLKOV, S.

Oxyhemometric observations in childbirth. Vestis Latv ak no.12:
147-152 '60.   (EEAI 10:9)

(HEMOGLOBIN)   (CHILDBIRTH)

VOLKOV, S.

Macro-and microscopic study of brain tissues of fetuses and newborn, dead from intrauterine asphyxia or cerebral hemorrhage. In Russian. p. 123.

LATVIJAS PSR ZINATNU AKADEMIJA. VESTIS. RIGA, LATVIA. No. 7, 1959

Monthly List of East European Accessions. (EEAI) LC, Vol. 9, no. 2, Feb. 1960 Uncl.

VOLKOV, S.

Prophylaxis of intrafetus asphyxia and intraskull hemorrhage in fruits and the newborn. In Russian. p. 147.

LATVIIAS PSR ZINATNU AKADEMIJA. VESTIS. RIGA, LATVIA. No. 3, 1959

Monthly List of East European Accessions. (EEAI) LC, Vol. 9, no. 2, Feb. 1960 Uncl.

VOLKOV, S.

Volkov, S. "The coastal vineyard," (On the work of the Michurinite gardeners A.A. Ramming, D.K. Deus, S.T. Belan, and F.L. Mironiuk, an essay,), Sov. Primor'ye, No 7, 1949, p. 180-204.

SO: U-5241, 17 December 1953, (Letopis 'zhurnal 'nykh Statey, No. 26, 1949).

38121. VOLKOV, S.

V sodruzhestve s naukoy. (Rabota Leningr. Myasokombinata im. Kirova).
Myas. industriya SSSR, 1949, no. 6, s. 26-27.

VOLKOV,S., agronom

Apricots in the Maritime Territory. Vokrug sveta no.6:33 Je '55.
(Maritime Territory--Appricot)   (MIRA 8:9)

VOLKOV, S.

Labor activity grows. Grazhd.av. 15 no.9:5-6 S '58. (MIRA 11:11)
(Aeronautics, Commercial)

VOLKOV, S., starshiy inzh. po tekhnicheskcy uchebe

Efficient form of studying. Prof.-tekh. obr 21 no.5:27-28
(MIRA 17:6)
My '64.

USSR / Human and Animal Physiology. Skin.   T

Abs Jour   : Rof Zhur - Biol., No 15, 1958, No. 70650

Author   : Volkov, S. A.
Inst   : Bolotsorkov Agricultural Instituto
Titlo   : Changos in tho Nervous Elomonts of tho Skin in Swino
              Erysipolas

Orig Pub   : Nauchn. zap. Bolotsorkovsk. s.-kh. in-t, 1957, Vol 6,
              67-73

Abstract   : No abstract givon

Card 1/1

                              157

VOLKOV, S.A.

The edible honeysuckle Lonicera edulis L. Bot.zhur.40 no.5:727-728
(MIRA 9:4)
S-O '55.

1.Dal'zveretrest, st.Sedanka.
(Honeysuckle)

VOLKOV, S.A.

4

Electric-furnace cast iron. N. A. Volkov. Sovet Met.
7, No. 12, 30-51(1935); Chem. Zentr. 1936, I, 4493.—
Topics discussed include the construction, operation and
efficiency of elec. Fe smelting furnaces of various types;
quality of the Fe produced; compn. and requirements for
the charge used; and the yield.   M. G. Moore

ASM.SLA   METALLURGICAL LITERATURE CLASSIFICATION
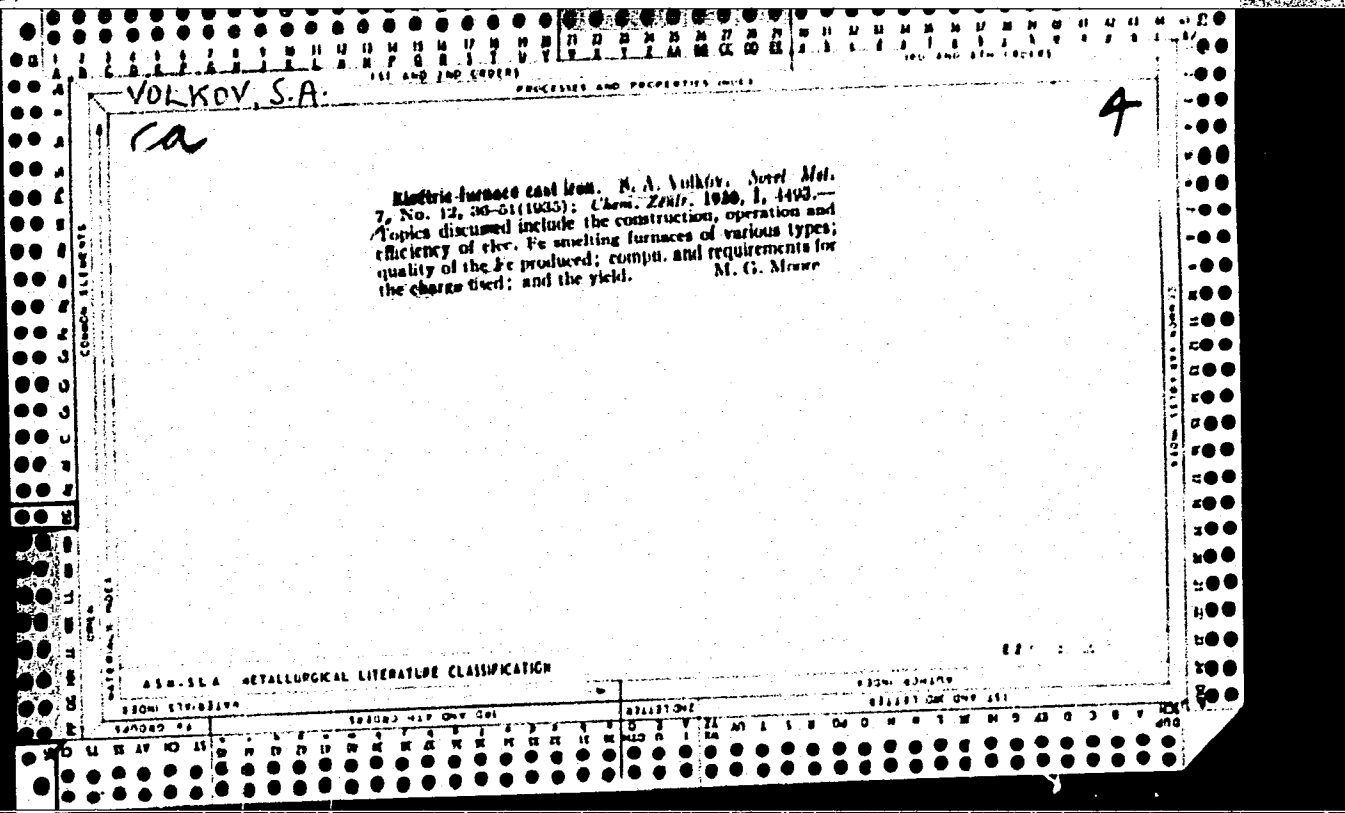
VOLKOV, S. A.   PA 27785

USSR/Petroleum - Well Drilling   Jun 1946
         Drills - Oil Well

"Effect on Drilling Speed of the Quality of Metal in
a Drill Crown," S. A. Volkov, 3 pp

"Razvedka Nedr" No 3

Discussion of the influence of the structure and com-
position of steel used in the drill crown on the speed
of drilling wells. The harder steel was found to be
more efficient.

ID   27T85

VOLKOV, S. A., jt. au.

Boring Moskva, Ugletekhizdat, 1949. 531 p. (50-31117)

TN281.V62

1. Boring. I. Volkov, S. A., jt. au.

VOLKOV, S.A.; BOGOLYUBSKIY, K.A.

       Pumpless boring. Trudy MGRI 30:102-114 '56.   (MLRA 9:11)
             (Boring)

VOZDVIZHENSKIY, Boris Ivanovich, prof.; VOLKOV, S.A., dots.; FILATOV, B.S., dots.; LYUBIMOV, N.I., kand.tekhn.nauk; TRUSOV, I.A., inzh.; BORAVLEV, V.A., nauchnyy red.; NEKRASOVA, N.B., red.; GUROVA, O.A., tekhn.red.

[Core drilling in prospecting] Razvedochnoe kolonkovoe burenie. Pod obshchei red. B.I.Vozdvizhenskogo. Moskva, Gos. nauchno-tekhn.izd-vo lit-ry po geol. i okhrane nedr, 1957. 591 p. (MIRA 11:4)
          (Boring)

VOLKOV, S. A.; SAKODYNSKIY, K. I.

Separation of tracer compounds by the method of gas chromatography.
Atom. energ. 17 no.1:70-71   Jl '64.   (MIRA 17:7)

ACCESSION NR: AP4042268   S/0089/64/017/001/0070/0071

AUTHOR: Volkov, S. A.; Sakody*nskiy, K. I.

TITLE: Gas chromatographic separation of labeled compounds

SOURCE: Atomnaya energiya, v. 17, no. 1, 1964, 70-71

TOPIC TAGS: gas chromatograph, column chromatograph, preparative chromatography, chromatographic separation, labeled compound separation, deuterated methylethoxysilane separation, siloxane rubber preparation

ABSTRACT: A preparative gas chromatographic technique, heretofore virtually unused for the sepa.a·ion of labeled compounds, has been applied to the separation of utcrium-labeled trimethylethoxysilane(I) and dimethyldiethoxysilane(II) out of the mixture produced in the reaction of tetraethoxysilane with deuterium bromide. I and II are used in the preparation of deuterated siloxane rubber. A detailed description is given of a semiautomatic column chromatograph which permits manual introduction of samples and automatic trapping of separated fractions. The operating procedure of the chromatograph

Card 1/2

ACCESSION NR: AP4042268

is also described. Several grams of I and II were separated in a total of 8 runs at a column temperature of about 100C. At that temperature it is thought possible to separate compounds with boiling points up to 160—170C, i.e., even higher boiling labeled compounds than I and II. Orig. art. has: 2 figures.

ASSOCIATION: none

SUBMITTED: 27Apr63   ATD PRESS: 3069   ENCL: 00

SUB CODE: GC   NO REF SOV: 000   OTHER: 001

Card 2/2

VOLKOV, B.A.; OVCHAR, I.L.

Some results of the investigation of the conditions of fine-
diamond drilling. Biul. nauch.-tekh. inform. VIMS no.2:58-
61 '63.   (MIRA 18:2)

1. Moskovskiy geologorazvedochnyy institut imeni Sergo
Ordzhonikidze.

BAZHUTIN, A.N.; GOLIKOV,S.I.; ZVERYUGA, A.A.; LUCHIKHIN, Yu.A.;
VOLKOV, S.A., nauchn. red.

[Mechanization of lowering and hoisting operations in
exploratory core drilling] Mekhanizatsiia spusko-
pod"emnykh opere---ii v razvedochnom kolonkovom burenii.
Moskva, Izd-vo "Nedra," 1964. 110 p.   (MIRA 17:5)

KAZAKEVICH, V.Ye.; BRAZHNIKOV, V.V.; VOLKOV, S.A.; SAKODYNSKIY, K.I.

Automatic sampling in preparative chromatography. Khim.i tekh.
topl.i masel 8 no.11:49-52 N '63.   (MIRA 16:12)

1. Fiziko-khimicheskiy institut im. L.Ya.Karpova.

TREUS, V.D., kand.biolog. nauk; STEKLENEV, Ye.P., kand.biolog. nauk; VOLKOV, S.A., kand.veterin. nauk; ANDRIYEVSKIY, I.V., nauchnyy sotrudnik

Hybridization of musk ducks with domestic ducks and some characteristics of the hybrids. Nauch. trudy "Ask.-Nov." 13:107-119 '63. (MIRA 17:2)

VOLKOV, Spiridon Arkhipovich; VOLKOV, Aleksandr Spiridonovich;
VOZDVIZHENSKIY, B.I., red.; MAKEYEV, V.I., red.izd-va;
GUROVA, O.A., tekhn. red.

[Handbook on exploration boring] Spravochnik po razve-
dochnomu bureniiu. Moskva, Gosgeoltekhizdat, 1963. 547 p.
                                         (MIRA 16:12)

   (Boring—Handbooks, manuals, etc.)

SAKODYNSKIY, K.I.; VOLKOV, S.A.; MALAFEYEV, N.A.; BRAZHNIKOV, V.V.;
    ZHAVORONKOV, N.M., akademik

Separation in preparative columns. Dokl. AN SSSR 148 no.2:394-
396 Ja '63.   (MIRA 16:2)

1. Fiziko-khimicheskiy institut im. L.Ya. Karpova.
                        (Gas chromatography)

VOLKCV, S.A.; ZINENKO, V.P.; KIRSANOV, A.N.

Power of the drive of diamond drill rigs. Razved. i okh. nedr.
28 no.7:28-31 Jl '62.   (MIRA 15:8)

1. Moskovskiy geologorazvedochnyy institut.
                    (Boring machinery—Electric driving)

VOLKOV, S. A., CAND MED SCI, "PROPHYLAXIS OF INTRAUTERINE

FETAL ASPHYXIA AND CEREBRAL HEMORRHAGES IN THE NEWBORN."

RIGA, 1961. (STATE COM FOR HIGHER AND SEC SPEC ED OF THE

COUNCIL OF MINISTERS LISSR. KAUNAS STATE MED INST). (KL-

DV, 11-61, 227).

-242-

PETROV, Vladimir Arsent'yevich; KOLMAKOV, Nikolay Alekseyevich; EPEL'MAN, Gilel' Grigor'yevich. Prinimali uchastiye: NIKITIN, V.V.; MOROZOV, I.I.; SIVOKHA, N.V.; UTROBINA, N.I.; NIKITINA, N.N.; PANKOV, N.N.; BAUSHEV, N.P.; TATEVOSOV, K.G., dots.; LIPKIND, L.M.; LEBEDEVA, A.K., inzh.-ekon.; VIL'DAVSKIY, I.M., dots., retsenzent; VOLKOV, S.A., kand. ekon. nauk, dots., red.; CHFAS, M.A., red. izd-va; PETERSON, M.M., tekhn. red.

[Continuous conveyer methods used in the lot production of composite machines] Potochno-konveiernye metody v seriino m proizvodstve slozhnykh mashin; iz opyta Leningradskogo zavoda poligraficheskikh mashin. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1961. 130 p.
(MIRA 14:9)

1. Rabotniki Leningradskogo zavoda poligraficheskikh mashin(for Nikitin, Morozov, Sivokha, Utrobina, Nikitina, Pankov, Baushev). 2. Leningrad-skiy inzhenerno-ekonomicheskiy institut (for Tatevosov, Lipkind, Lebedeva).
(Leningrad--Printing machinery and supplies)
(Factory management)

VOLKOV, S. A.

    "Changes in Nerve Elements of the Skin in Swine Erysipelas." Cand
Vet Sci, Khar'kov Veterinary Inst, Min Higher Education USSR, Khar'kov, 1954.
(KL, No 11, Mar 55)

SO: Sum. No. 670, 29 Sep 55--Survey of Scientific and Technical
Dissertations Defended at USSR Higher Educational Institutions (15)

AVRUTSKIY, Abram Lazarevich; VOLKOV, S.A.; DEM'YANOVA, Ye.A.; KRIVENKO,
      M.G.; LYUBIMOV, N.I.;—MOROZOV, V.I.; TOKAREV, I.A.; VOZDVIZHENSKIY,
      B.I., prof., doktor tekhn.nauk, otv.red.; SINYAGINA, Z.A., red.
      izd-va; PROZOROVSKAYA, V.L., tekhn.red.; SHKLYAR, S.Ya., tekhn.red.

      [Handbook for core drillers] Spravochnik mastera kolonkovogo
      bureniia. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po gornomu
      delu, 1960. 528 p.   (MIRA 14:4)
                    (Core drilling)

VOIKOV, S.A., red.; YEL'YASHEVICH, A.V., red.; SHAYOVICH, L.L., red.

[Problems of specialization and cooperation in machinery manufacturing] Voprosy spetsializatsii i kooperirovaniia mashinostroitel'nogo proizvodstva. Leningrad, Izd-vo Leningr. univ., 1960. 161 p.   (MIRA 14:4)
            (Machinery industry)

VOIKOV, S.A.

Means for increasing core recovery. Razved. i okh. nedr 25
no.12:13-21 D '59.   (MIRA 13:6)

1. Moskovskiy geologorazvedochnyy institut.
(Ores--Sampling and estimation) (Core drilling)

VOLKOV, Spiridon Arkhipovich; SULAKSHIN, Stepan Stepanovich; ANDREYEV, Mitrofan Mitrofanovich; VOZDVIZHENSKIY, B.I., prof., red.

[Boring operations] Burovoe delo. Moskva, Nedra, 1965. 492 p.   (MIRA 18:8)

VOLKOV, S. D.

USSR/Metals - Testing Equipment   Jul 50

"Machine for Repeated Torsion Tests of Metals,"
S. D. Volkov, P. S. Sokolov, Sverdlovsk Affiliate,
Cen Lab, Min of Transp Mach Bldg

"Zavod Lab" Vol XVI, No 7, pp 891-892

Expresses opinion that, for more complete character-
istic of metal endurance in complex stressed state,
it is necessary to determine, in addition to endur-
ance under monoaxial loading, shear or torsion en-
durance. Describes fatigue testing machine. It
is simple and may be constructed in ordinary

                                               166T73

USSR/Metals - Testing Equipment (Contd)   Jul 50

experimental shop. Makes possible fatigue tests at
prescribed torsion angle and under given load, and
also tests with asymmetrical cycle of deformation
or load.

                                               166T73

VOLKOV, S. D.

"Influence of stress on the plastic deformation of metals," Journal of Tech. Physics, Vol. 20, No. 11, 1950.

USSR/Physics - Plasticity   21 Jan 51

"Condition Governing Plasticity," S. D. Volkov,
Sverdlovsk Affiliate of Cen Lab Min of Trans-
port Mach Bldg USSR

"Dok Ak Nauk SSSR" Vol LXXVI, No 3, pp 371-374

Applies new tensor relations between stress, c
strain, directions, distribution, and proportion-
ality coeff to the steels: ZOKhSA, type-45, and
tyee Cromansil. Finds coeff depend upon the
state (temp of heating cooling in tempering).
Submitted 28 Nov 50 by Acad I. P. Bardin.

17AT101

VOLKOV, S. D.

USSR/Physics - Plasticity   11 Jul 51

"Generalized Condition Governing Plasticity," S. D. Volkov

"Dok Ak Nauk SSSR" Vol LXXIX, No 2, pp 213-216

States the usual condition for plasticity $t_i \neq 0$ ($i = 1,2,3$) yields a simple form for the dependence of crit shearing stress on normal stress, which form is inadequate to describe familiar exptl in- equalities among the various yield points of a quasi-isotropic polycrystallic metal in the case of 2-axial uniform extension, 1-axial compression, and 2-axial uniform compression. Generalizes subject condition. Submitted 26 Apr 51, by Acad A. I. Nek- rasov.

214772

USSR/Physics - Elasticity   11 Aug 52

"Rupture by Way of Tearing During Compression of Brittle Quasi-isotropic Polycrystals," S. D. Volkov

"DAN SSSR" Vol 85, No 5, pp 967-970

Finds the probability of various possible kinds of rupture, the most probable being a break along the surface perpendicular to the axis of tension. Also finds that the probability of rupture during tension is generally greater during compression. Gives schematic representation of macroscopic rupture by way of tearing as a result of action of tensile stresses for various kinds of compression tension. Submitted by Acad A. I. Nekrasov 13 Jun 52

239T93

A Unified Statistical Theory of the Strength of Solids.—III. S. D. Volkov (Zhur. Tekhn. Fiziki, 1954, 24, (12), 2250–2350).—[In Russian]. For I and II, see ibid., 1953, 23, 2025, 2035. A review of theories due to Yu. Davidenkov, von Mises, Hencky, Yakutovich, and others, with special ref. to the theory of ductile fracture.—A. F. B.

Volkov, S. D.

Category : USSR/Solid State Physics - Mechanical Properties of   E-9
          Crystals and Polycrystalline Compounds.

Abs Jour : Ref Zhur - Fizika, No 3, 1957, No 6774

Author   : Volkov, S. D.
Title   : On the Scale-Factor Effect in a Compound Stressed State

Orig Pub : Fiz. metallov i metallovedeniye, 1955, 2, No 3, 428-440

Abstract : A relation is established between the intensity of the scale-
           factor effect on the character of the macroscopic stressed
           state. The limiting surfaces of the macroscopic damage in
           the space of the principal macroscopic stresses are deter-
           mined with an allowance for the influence of the dimensions
           of the body on the resistance of the material to macroscopic
           damage.

Card   : 1/1

·AUTHOR   VOLKOV, S.D.   PA - 2242
TITLE   A Contribution to the Theory of the Strength of Materials (K teorii
                 prochnosti).
PERIODICAL   Doklady Akademii Nauk SSSR,1957,Vol 112,Nr 4,pp 632-635 (U.S.S.R.)
                 Received 4/1957   Reviewed 4/1957

ABSTRACT   The strain on gypsum in the case of twodimensional of stress con-
                 firm the fact that in the case of destruction by fracture the I.
                 hypothesis of strength agrees better with experimental data than the
                 II. hypothesis of strength; the present paper investigates the sta-
                 tistical condition of strength as a natural generalization of the
                 I. hypothesis. This generalization at otherwise equal conditions re-
                 sults in better agreement with the experiment than the classical
                 hypothesis of strength. A formula is given for the density of dis-
                 tribution of microscopic normal stresses over the boundary surfaces
                 of a microscopic elementary volume W. S_n here denotes the resistance
                 of material against a microscopically small destruction in the volume
                 V. Here the volume V is assumed to be destroyed in the case of $\sigma_x \geqslant$
                 $S_n (S_n \geqslant 0)$ and a microscopic gap then occurs. The relative number of
                 micro-gaps which causes a microscopic destruction of material can be
                 described as "critical" and is here denoted as q_k. For $q_k = 1/2$ $\sigma_1 =$
                 S_n is found from the formulae given here. The condition of the con-
                 stancy of the critical value of the relative number of microgaps
                 does not meet with any direct opposition. The equation $q_k = 1/2$, how-
                 ever, cannot stand up to criticism. Further objections are raised.
Card 1/2

PA - 2242

A Contribution to the Theory of the Strength of Materials.

A formula for the family of the boundary-surfaces of destruction is derived and this family depends on two parameters. The same formula is the most simple natural generalization of the I. hypothesis of strength. The application of two arbitrary hypotheses of strength for the description of the results of the investigation of gypsum (e.g. the I. and IV. hypothesis) is equivalent to the introduction of a family of boundary surfaces of the destruction. This family here depends on two parameters. It consists of two sub-families each of which depends on a parameter. In general the family with two parameters of theoretical curves agrees better with the experimental data than the family with one parameter. For the determination of the constants the experimental data for one-axis expansion and compression are used here. (2 illustrations)

ASSOCIATION Polytechnical Institute "S.M.KIROV" of the Ural.
PRESENTED BY P.A.REBINDER, member of the Academy, on 3. 11. 1957
SUBMITTED   21. 3. 1955
AVAILABLE   Library of Congress

Card 2/2

Volkov, S. D

24-58-3-7/38

AUTHOR: Volkov, S. D. (Sverdlovsk)

TITLE: The Problem of the Distribution on Microscopic Stresses and
         Deformations (Zadacha o raspredelenii mikroskopicheskikh
         napryazheniy i deformatsiy)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Otdeleniye Tekhnicheskikh
         Nauk, 1958, Nr 3, pp 65-72 (USSR)

ABSTRACT: In media with microscopic non-homogeneity the solution of
         the boundary value problem determines the distribution of
         macroscopic stresses and deformations only, which can also
         be considered as the first moments of the distribution of
         microscopic stresses and deformations. The present paper
         presents a method for determining moments of the second and
         higher orders of the micro-distribution for a linearly elas-
         tic medium. The linearly elastic micro-nonhomogeneous medium
         is defined mathematically. The randomness of the local elas-
         tic constants is one part of the definition. The macroscop-
         ic stress can be considered as a mathematical expectation.
         Expressions are given for the macroscopic and average volume
         density of potential energy. The distribution of microscopic

Card 1/2

24-58-3-7/38

The Problem of the Distribution on Microscopic Stresses and
Deformations.

stresses and deformations is derived on the assumption that
the medium is macroscopically isotropic but microscopically
anisotropic, in which case it is called quasi-isotropic.
Formulae are given to relate the second order moments of
the micro-stress and micro-deformation distributions to the
mechanical properties, the structural peculiarities of the
medium and the macroscopic volume density of the potential
energy in the vicinity of a given point in the volume. These
formulae are the solution of the problem when the variations
of the random quantities are small or when their statistical
distribution follows the normal law. In the latter case the
same formulae can be used to find moments of all orders of
the micro-distributions. There are 5 Soviet, 2 English and
1 German references.

SUBMITTED: April 30, 1957.

Card 2/2   1. Materials—Deformation   2. Stresses—Distribution

Volkov, J.D.

L 26303-66   EWT(m)/EWA(d)/EWP(t)   IJP(c)   JD

ACC NR: AP6012502   SOURCE CODE: UR/0181/66/008/004/1275/1277

AUTHOR: Mekhontseva, D. M.; Rybalko, F. P.; Volkov, S. D.

ORG: Ural Polytechnical Institute im. S. M. Kirov (Ural'skiy politekhnicheskiy ins-
titut); Ural State University im. A. M. Gor'kiy, Sverdlovsk (Ural'skiy gosudarstvennyy
universitet)

TITLE: Distribution of elastic deformation in the structure of quasi-isotropic poly-
crystalline titanium

SOURCE: Fizika tverdogo tela, v. 8, no. 4, 1966, 1275-1277

TOPIC TAGS: titanium, polycrystal, crystal structure, crystal deformation, elastic
deformation

ABSTRACT: The authors study the distribution of microscopic elastic deformations in
large-grained quasi-isotropic titanium specimens. The measurements were made on a
specially designed loading device. The specimens were made from VT5-1 titanium alloy
in the form of plates measuring 3 × 50 × 300 mm with an average grain size of about
10 mm. The one-dimensional distribution functions for longitudinal and transverse
microscopic deformation show an approximately normal distribution density. It is shown
that the standard deviation of transverse microdeformations is approximately 33% low-
er than that of longitudinal microdeformations when the longitudinal macrodeformation

Card 1/2

L 26383-66

ACC NR: AP6012502

is 0.287%. This means that the tensor of the central moments of the second order is not isotropic, as was previously demonstrated from measurements of plastic microdeformations. Orig. art. has: 2 figures.

SUB CODE: 20/   SUBM DATE: 09Sep65/   ORIG REF: 006/   OTH REF: 000

Card 2/2 CC

VOLKOV, S.D.; KLINSKIKH, N.A.

Theory of the elastic properties of polycrystals. Fiz. met. i
metalloved. 19 no.1:25-32 Ja '65.   (MIRA 18:4)

1. Ural'skiy politekhnicheskiy institut imeni Kirova.

VOLKOV, S. D. (Sverdlovsk)

"On the uniqueness of solution of some statistical boundary value
problems of the mathematical theory of elasticity"

report presented at the 2nd All-Union Congress on Theoretical and Applied
Mechanics, Moscow, 29 Jan - 5 Feb 1964.

VOLKOV, S.D. (Sverdlovsk); KOMISSAROVA, M.L. (Sverdlovsk)

Some representations of general solutions to boundary problems
in the theory of elasticity. Inzh. zhur. 3 no.1:86-92 '63.

(MIRA 16:10)

(Elasticity)

RYBALKO, F.P.; KLINSKIKH, N.A.; VOLKOV, S.D.

Linear approximation in the elasticity theory of polycrystals.
Fiz.met.i metalloved. 14 no.6:857-863 D '62.   (MIRA 16:2)

1. Ural'skiy gosudarstvennyy universitet im. A.M.Gor'kovo i
Ural'skiy politekhnicheskiy institut im. S.M.Kirova.
        (Aluminum crystals)   (Elasticity)

VOLKOV, S.D.; KLINSKIKH, N.A.

Distribution of elastic constants in quasi-isotropic
polycrystals. Dokl. AN SSSR 146 no.3:565-568 S '62.   (MIRA 15:10)

1. Predstavlenko akademikom P.A.Rebinderom.
      (Elasticity)   (Crysallography, Mathematical)

S/126/63/015/002/019/033
E081/E441

AUTHORS: Volkov, S.D., Klinskikh, N.A., Komissarova, M.L.

TITLE: Stresses and strains in polycrystals

PERIODICAL: Fizika metallov i metallovedeniye, v.15, no.2,1963,274-279

TEXT: The connection is discussed between structural (microscopic and macroscopic) stress components and the corresponding strains.   It is shown that if the microstresses and microstrains are given in a determinate coordinate system, their mean (mathematically) values coincide with the macroscopic values determined for the whole polycrystal.   If, however, the microscopic values are given in a random coordinate system and averaged over all possible orientations of the random coordinates, the mean values do not coincide with the macroscopic values. Accordingly, in contradiction to the assertion of E. Kröner (Zs.Phys., v.151, no.4, 1958, 504; Acta met., v.9, no.2, 1961, 155) the method considered by him for the calculation of macroscopic elastic constants appears to be inaccurate.   There also appears to be an error in the initial assumptions of S.B.Batdorf and B. .Budiansky (J. Appl. mech., v.121, no.4, 1954, 323) in which a

Card 1/2

Stresses and strains ...   S/126/63/015/002/019/033
                                            E081/E441

theory of plasticity allowing for structural effects is proposed.

ASSOCIATION: Ural'skiy politekhnicheskiy institut im. S.M.Kirova
              (Ural Polytechnic Institute imeni S.M.Kirov)

SUBMITTED: May 28, 1962

Card 2/2

S/258/63/003/001/009/022
E201/E141

AUTHORS: Volkov S.D. and Komissarova M.L.   (Sverdlovsk).

TITLE: On some representations of general solutions of
boundary value problems in the theory of elasticity

PERIODICAL: Inzhenernyy zhurnal, v.3, no.1, 1963, 86-92

TEXT: The basic equations for the classical linear boundary
value problems in the theory of anisotropic elasticity are the
equilibrium equations, the geometrical equations expressing strains
in terms of displacements, and the stress-strain equations (the
generalised Hooke's law), containing 21 elastic constants.   A
general method of solving these equations is proposed which is more
compact and convenient than the usual solution, particularly when
dealing with statistically non-linear problems.   These problems
arise when the body under consideration is subject to chance
fluctuations either in the conditions to which it is exposed, or
in its own properties, for example, an aircraft wing in a
turbulent air current, or a loaded polycrystalline body.   The
equilibrium equations, the geometrical equations, and the

Card 1/2

On some representations of ...   S/258/63/003/001/009/022
                                        E201/E141

stress-strain equations are generalised to fit the statistical
problem; the distribution of chance magnitudes and functions is
governed by the "expectation" and "correlation" functions.
Thus, in the statistical boundary value problem, it is necessary
to find not only the stress and strain distributions, but also
the expectation and correlation functions, and a method based on
three and six arbitrary functions is proposed for accomplishing
this.

SUBMITTED: May 28, 1962

Card 2/2

VOLKOV, S.D., starshiy nauchnyy sotrudnik

Tissue extracts and the production of beef. Zhivotnovodstvo 24
no.9:36-37 S '62.   (MIRA 15:12)

1. Krasnoyarskiy nauchno-issledovatel'skiy institut sel'skogo
khozyaystva.
              (Beef cattle)   (Tissue extracts)

VOLKOV, S.D.; KLINSKIKH, N.A.; KOMISSAROVA, M.L.

Stresses and deformations in polycrystalline materials. Fiz.
met. i metalloved. 15 no.2:274-279 F '63.
(MIRA 16:4)

1. Ural'skiy politekhnicheskiy institut imeni Kirova.
(Dislocations in crystals)
(Crystal lattices)

AUTHORS: Rybalko, F.P., Klinskikh, N.A., Volkov, S.D.

TITLE: On the linear approximation in the theory of
            elasticity of polycrystalline aggregates

PERIODICAL: Fizika metallov i metallovedeniye, v.14, no.6, 1962,
            857-863

TEXT: The present paper is concerned with the problem of
evaluating the degree of approximation which the conditions of
quasi-homogeneity introduce in the solution of the statistically
generalized problem of determining, from a given set of conditions,
the distribution of moments (of at least the first two orders) of
the stress and strain components in a polycrystalline body.   The
first order moments, i.e. the microscopic stresses and strains,
are determined by solving equations of the classical elasticity
theory.   The second order moments can easily be determined if the
conditions of quasi-homogeneity are fulfilled, i.e. if the
nonlinear (in the statistical sense) equations of the generalized
Hooke's law are replaced by linear equations which do not contain
any products of random magnitudes.   To attain this linearization
of the equations of the generalized Hooke's law, it is assumed that
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the coefficients of variation of the elastic constants are
negligible in comparison with the coefficients of variation of
stresses and strains; as a result, the elastic constants become
determinable and the nonlinearity in the Hooke's law disappears.
The basic shortcomings of such an approximate solution consist of
the fact that identical dispersion of longitudinal and transverse
microstresses is obtained for any given macrostresses. In other
words, the tensor of the second order central moments of the
microstresses and microstrains in a quasi-isotropic medium, under
any given load, is "isotropic", similar to the tensor of
macroscopic elastic constants. The object of the present
investigation was directly to compare the coefficients of
variation of strain and elastic constants and to establish to
what extent the actual tensor of the second order central moments
of microstrains in polycrystalline aluminium differs from the
"isotropic" tensor obtained from the approximate solution, based
on the conditions of "quasi-homogeneity". The experimental work
was carried out on flat cold rolled aluminium specimens with an
average grain size of 3 to 5 mm. A network of coordinates with
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1 mm spacing was inscribed on the polished surface of the test
piece and the dimensions of each cell were measured (with an
accuracy of 0.001 mm) before and after extending the test piece
to a given degree of uniform plastic macrodeformation.
Analytical treatment of the result obtained showed that the
coefficient of variation of the elastic constants was small
compared with that of the strains and that the actual anisotropic
tensor of the second order central moments of microstrains in
polycrystalline aluminium differed from the theoretical "isotropic"
tensor by no more than 4.5%.   Thus, it was shown that in the
case of aluminium not only were the conditions of quasihomogeneity
fulfilled to a degree sufficient to make the approximate solution
of the problem acceptable but the results obtained by this method
were sufficiently close to those yielded by experiment.
There are 1 figure and 2 tables.

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Distribution of the elasticity constants in hexagonal polycrystals. PMTF no.4:69-72 N-D '60.   (MIRA 14:7)

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            (Metal crystals)
            (Elasticity)

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AUTHORS: Volkov, S. D., Klinskikh, N. A.

TITLE: Distribution of the elastic constants in quasiisotropic
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TEXT: In a quasiisotropic medium (large-scale isotropic and small-scale
anisotropic the components a_{ij} (b_{ij}) of the elastic constants related to a
fixed (x,y,z)-system are random quantities. In a single-phase polycrystal,
the characteristic values a'_{ij} (b'_{ij}) of a_{ij} (b_{ij}) in a crystallographic
(x', y', z')-system can be determined empirically. Transformation formulas
of the type

$$a_{ij} = \sum_{m,n=1}^{6} a'_{mn} q_{mi} q_{nj} \quad (i,j = 1,2,\ldots,6) \qquad (1)$$

are valid between a_{ij} and a'_{ij}, where q_{mi}, q_{nj} are known functions of the
direction cosines α_{ks} $(k,s, = 1,2,3)$ of the crystallographic axes with

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respect to the (x,y,z)-system. α_{ks} are random quantities which can be expressed by the Eulerian angles φ, ψ, Θ with the common distribution density

$$\varrho(\Theta,\psi,\varphi) = \frac{1}{8\pi^2}\sin\Theta \qquad (8).$$

Thus the distribution moments of a_{ij} can be calculated from the distribution moments of Θ, ψ, φ. First-order and second-order moments are calculated by this method for quasiisotropic polycrystals showing cubic symmetry of the crystal lattice such that (1) has the form

$$a_{ij} = a'_{ij} + A \cdot \gamma_{ij} \qquad (i,j = 1,2,\ldots,6) \qquad (9),$$

where $A = 2(a'_{11} - a'_{12}) - a'_{44}$ and $\gamma_{ij} = \gamma_{ij}(\alpha_{ks})$. Based on the method here adopted, moments of higher order can also be calculated with no fundamental difficulty. There is 1 figure.

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