

VLADIMIROV, K.A.; GAYVOROMSKIY, A.A.; YUZBASHEV, G.S.; BAYKOV, A.M.;
SHANOVICH, L.P.; LOGVINOV, I.I.; IL'IN, N.G.; SAPIULLIN, M.N.

Effect of a cement ring on the capacity of casing strings
to resist collapsing loads. Neft. khoz. 42 no.6:19-24 Je '64.
(MIRA 17:8)

SHANOVSKAYA, S.S., starshiy nauchnyy sotrudnik.

Irrigation with wetting agents as a means of controlling coal dust.
Bor'ba s sil. 1:126-133 '53. (MLBA 7:10)

1. Makeyevskiy nauchno-issledovatel'skiy institut.
(MINE DUSTS) (WETTING AGENTS)

SHANOVSKAYA, S.S.

Phosphomolybdate and silicomolybdate complexes in solution, A. K. Babko and S. S. Shanovskaya. *Zhur. Obshchei Khim.* 23, 380-92 (1953). The phosphomolybdate and silicomolybdate complexes were prepd. by adding ammoniacal MoO₃, 0.1 mol./l., to Na₂PO₄ (Na₂SiO₃), 0.1 mol./l., and acidifying with 0.2N HNO₃. For the P complex the order of addn. or the interval between addns. and the time of standing after the prepn. did not affect the optical density (detd. with a photometer and against Na₂CrO₄ borax color standards). This indicated complete reversibility of the reaction. For the Si complex partial irreversibility was noted (ascribed to the formation of colloidal H₂SiO₃); the best procedure in prepn. it was to add the ammoniacal MoO₃ to the Na₂SiO₃ and immediately acidify with HNO₃. For pH 0.7-2.0, the optical density was expressed as a function of the Mo/P (Si) ratio for Mo + P = const., Mo const., and P const.; all curves passed through a max. corresponding to Mo/P = 12 and 21 (at 40° only 12) and Mo/Si = 12. The addn. of H₂PO₄ did not appreciably decrease the color intensity of the Si complex; it decolorized the P complex. The color intensity decreased with increased Mo concns., at first, and then became const.; at pH 1.7-2.0 an excess of Mo weakened the color intensity. The dissoen. const. [PO₄³⁻]/[(MoO₃)₂]/[P(Mo₃O₁₀)³⁻] = 5.6 × 10⁻¹⁰. I. H.

[Handwritten initials]

SHANOVSKAYA, S.S.

1954. COMBATING COAL DUST DEPOSITED IN MINE WORKINGS BY SPRAYING WITH WETTING AND BINDING SOLUTIONS. Shanovskaya, S.S. and Bobrov, I.V. (Ugol (Coal, Moscow), Jan. 1957, 37-40). A record of tests in the laboratory and the mine of aqueous solutions of different pairs of hygroscopic substances and wetting agents. Spraying was effective in laying dust for from 7 to 35 days according to the relative humidity of the atmosphere. (L)

BEKIRBAYEV, D.B.; GRODEL', G.S.; GUL'SHIN, P.A.; KLEPIKOVA, M.S.; PETRUKHIN, P.M.; POLYANSKIY, I.P.; RASSOLOV, N.I.; TARASOVA, A.A.; FERTEL'-MEYSTER, Ya.N.; CHERVIENSKIY, M.S.; SHANOVSKAYA, S.S.; KLIMANOV, A.D., otv.red.; ZHUKOV, V.V., red.izd-va; PROZOROVSKAYA, V.L., tekhn.red.; KONDRAT'YEVA, M.A., tekhn.red.

[Coal and rock dust control in mines] Bor'ba s ugol'noi i porodnoi pyl'iu v shakhtakh. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po gornomu delu, 1959. 499 p.
(MIRA 13:6)
(Mine dusts) (Coal mines and mining--Safety measures)

SHANOVSKAYA, S.S., kand.khim. nauk; MOSONOVICH, A.A.

Ways of increasing the effectiveness of controlling dust in mines.
Bor'ba s sil. 5:92-106 '62. (MIRA 16:5)

1. Makeyevskiy nauchno-issledovatel'skiy institut po bezopasnosti
rabot v gornoy promyshlennosti.
(Mine dusts—Prevention)

SHANUVSKAYA, S.S.; RASCOLOV, N.I.; BERINSKIY, B.D. [deceased];
PETRUKHIN, P.M.; GRODEL, G.S.; FROLOV, M.A.; CHERVINSKIY,
M.S.; BOBRITSKIY, V.P.; POLIANSKIY, I.P.; NIKITIN, V.S., ed.
red.; LUCHKO, V.S., red.; izd-va; SHKIYAR, S.Ya., tekhn. red.;
MAKSIMOVA, V.V., tekhn. red.

[Handbook on controlling dust in coal mines] Spravochnoe po-
sobie po bor'be s pyl'iu v ugol'nykh shakhtakh. [By S.S.
Shanuvskoi i dr.] Moskva, Gosgortekhnizdat, 1963. 100 p.
MIRA 1636)

(Mine dusts)

SHANOVSKAYA, S.S.

Estimating the wetting capacity of solutions of various surface-active agents in relation to industrial dust in coal mines. Trudy MakNII 15:206-240 '63. (MIRA 17:11)

ROZENBERG, B.A.; SHANOVSKAYA, S.S.; KOCHAN, L.D.; FISHILEVICH, Z.A.;
BABIN, Ye.P.

Increasing the stability of foams used for dust suppression in
coal mines. Zhur. prikl. khim. 37 no. 4:908-911 Ap '64.
(MIRA 17:5)

21161
S/C 52/61/027/005/007/017
B130/B220

188200 also 2807

AUTHORS: Kalachev, I. B. and Shansheyn, B. V.

TITLE: Methods for testing wire materials for creeping on torsion

PERIODICAL: Zavodskaya laboratoriya, v. 27, no. 5, 1961, 582 - 585

TEXT: A device for determining the creep strength of wire materials on torsion is described. Furthermore, the influence of bending stresses occurring together with tangential stresses is dealt with in these studies. A device was built which is based on the principle of an appliance developed by I. B. Kalachev and I. I. Talakin (Zavodskaya laboratoriya, XXV, 11 (1959)) for studying the influence of static torsion upon wire. A spring of exactly defined dimensions, mean diameter D, diameter of the wire d, number of windings i, and lead t, serves as specimen. The stress τ caused by a load is defined by the formula

$$P = \tau \frac{p \cdot d^3}{8D \cos \varphi}$$

where φ is the angle of lead. The construction diagram of the apparatus is shown in Fig. 1. The spring 1 is fixed to a hollow rod 2 where two thermocouples 3 introduced and connected with the upper and lower front
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S/032/61/027/005/007/017
B130/B220

Methods for testing wire...

side of the spring. The oven 4 is placed on a bracket 5. This bracket is fixed on a table. The load P is transmitted by weights to cup 7 and, thus, by rod 2 and support 8 to spring 1. The deformation occurring during the test is ascertained by means of a scale 9 and an indicator 10 which is fixed on the bracket 11. The displacement of rod 2 is transmitted via bracket 12, slide rail 13 and lever 14 to the indicator. The calculation of the parameters of the spring has to be based upon the following factors: 1) the lead has to be large enough to reach the total deformation (plastic and elastic); the angle of lead has to be relatively small, so that the change of the spring diameter and of the angle of lead during the test may be neglected. The first condition is met, if the following formulae are taken as basis:

$$t = \lambda_1 + 2d; \tag{2}$$

$$\lambda_1 = \frac{\pi D^2 \gamma_n}{d}; \tag{3}$$

$$\gamma_n = \gamma_y + \gamma_s. \tag{4}$$

wherein: t is the lead, λ_1 is the deformation of one winding, $\gamma_p, \gamma_y, \gamma_s$ are the corresponding entire, elastic, and plastic relative angles of shear. The verification of the second condition made it clear that the change of
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the torsion amounts to 1 - 2 % maximum when the given parameters are used; this may be neglected. Based on the relations found for small deformations, it is possible to calculate the setting of the spring due to bending stresses λ_{bend} and that due to torsion λ_{tor} as well as the relation $\beta = \frac{\lambda_{bend}}{\lambda_{tor}}$ according to S. D. Ponomarev, W. L. Bidermann, and collaborators (Raschety na prochnost' v mashinostroyeni, (stress calculations in mechanical engineering) v. 1, Mashgiz (1956))

The results obtained for the testing of wire materials for creeping on torsion are plotted in the system of coordinates, relative angle of thrust γ to time t . γ is calculated based on the formula

$$\gamma = \lambda \cdot \frac{d}{\pi D^2 i}$$

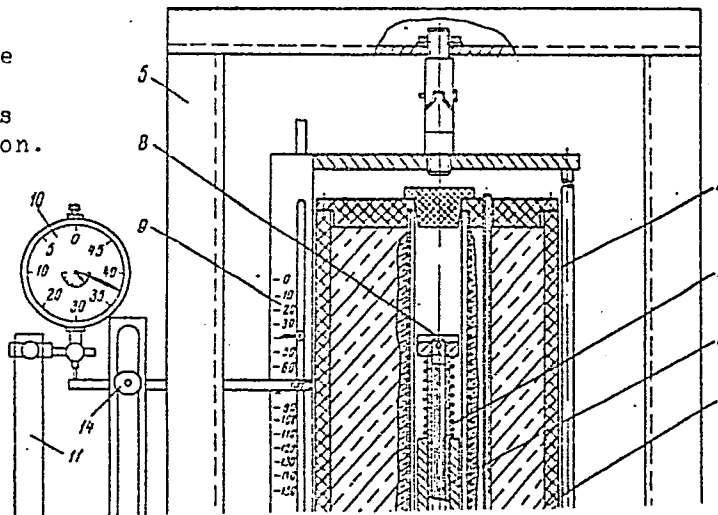
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Methods for testing wire...

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S/032/61/027/005/007/017
B130/B220

λ is the setting of the spring in mm. ($i = 10$). A. A. Kapylov assisted in the construction of the apparatus. There are 2 figures and 6 Soviet-bloc references.

Fig. 1: Design scheme of the apparatus for testing wire materials for creeping on torsion.



Card 4/6

SHANSHEYN, Vladimir Borisovich; EYDINOVA, S.G., red.; MEDRISH, D.M.,
tekhm.red.

[Specialized store for woolen materials] Spetsializirovannyi
magazin sherstianykh tkanei. Moskva. Gosizdat-torg.lit-ry,
1958. 25 p. (MIRA 13:1)
(Retail trade) (Wool)

SHAMSHIASHVILI, A. K.

Shamshiasvili, A. K. - "A generalization of the methods of conjugate points in the theory of elastic deformations," A collection of transactions dedicated to the 40th anniversary of the Institute, (Gruz. Mat. Zhurnal, No. 17), Tbilisi, 1948, p. 109-23, (Resume in Georgian)

SO: 8-5220, 17, Dec. 53, (Letopis 'Zhurnal 'nykh Statey, No. 25, 1949).

1. SHINSHILOWELI, A. M.
2. USSR (600)
4. Torsion
7. Solution of a problem on the torsion of linked thin-walled rods. Soob. AN Grun. SSR, 11, No. 8, 1950.

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

124-57-2-2332

Translation from: Referativnyy zhurnal, Mekhanika, 1957, Nr 2, p 121 (USSR)

AUTHOR: Shanshiashvili, A. M.

TITLE: On the Calculation of Steel Columns and Beams With Partly Closed Contours (K raschetu stal'nykh kolonn i balok s chastichno zamknutym konturom)

PERIODICAL: Tr. Gruz. politekhn. in-ta, 1955, Nr 4, pp 43-56

ABSTRACT: An examination of the problem of the stability of a thin-walled beam having an open rigid profile with one axis of symmetry, partly closed by cover plates, under central longitudinal compression. The problem is investigated both exactly and approximately. The exact solution starts from a system of linear homogeneous differential equations with constant V. Z. Vlasov coefficients relative to the three-dimensional deformational stability of a thin-walled beam. Upon solution of the system of equations formulas are obtained for the determination of the second-order moments, the torsional and bending moments, and the transverse force at the ends of the beams in terms of the terminal displacements. An example of the use of these formulas for the calculation of the critical load of a channel iron hinged at its ends

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124-57-2-2332

On the Calculation of Steel Columns (cont.)

relative to torsion and flexure is given. The beam is reinforced with two cover plates at its ends. The approximate solution is obtained by means of Galerkin's variational method. The approximating function for the angle of twist of the beam is assumed analogous to the flexure function of a beam subjected to bending by a transverse load distributed over it according to a sinusoidal law; here it is assumed that the beam is elastically fixed at sections corresponding to the placement of the cover plates provided in the given beam. The example of the approximate calculation of a channel iron with four cover plates is examined. The problem is reduced to the calculation of a beam with open contour with correction factors applied to the determination of the sector-wise rigidity and the center of flexure. The example reveals a large increase in the critical load resulting from the application of cover plates. The author recommends that thin-walled beams operating in bending be reinforced also.

V. A. Marin

1. Beams--Mathematical analysis

Card 2/2

SHANSHIASHVILI, A.M.
SHANSHIASHVILI, A.M.

Stability of plane flexure of I-beams having a partially
closed outline. Trudy GPI no.6:53-62 '56. (MIRA 11:2)

1. Kafedra stroitel'noy mekhaniki Gruzinskogo politekhnicheskogo
instituta im. S.M. Kirova, Tbilisi.
(Girders)

124-57-2-2333

Translation from: Referativnyy zhurnal, Mekhanika, 1957, Nr 2, p 122 (USSR)

AUTHOR: Shanshiashvili, A. M.

TITLE: On the Determination of the Torsional Rigidity of Steel Columns and Beams With Partly Closed Contours (K opredeleniyu kruti-l'noy zhestkosti stal'nykh kolonn i balok s chastichno zamknutym konturom)

PERIODICAL: Tr. Gruz. politekhn. in-ta, 1955, Nr 4, pp 231-238.

ABSTRACT: Determination of the relative angle of twist of a thin-walled beam having a rigid open profile which is partly closed by means of cover plates and angle braces. The forces of interaction between the beam and its reinforcements are determined without reference to the local deformations of the beam. The problem is solved on the basis of the theory of the torsion of thin-walled beams. A numerical example is offered. See also this journal, abstract 2332.

1. Beams--Structural analysis properties 2. Beams--Physical properties V. A. Mar'in
3. Beams--Torque 4. Beams--Mathematical analysis

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SOV/124-58-1-1084

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 1, p 142 (USSR)

AUTHOR: Shanshiashvili, A. M.

TITLE: The In-plane Bending Stability of I-beams With Partly Closed Section Contour (Ustoychivost' ploskoy formy izgiba dvutavrovyykh balok s chastichno zamknutym konturom)

PERIODICAL: Tr. Gruz. politekhn. in-ta, 1956, Nr 6, (47), pp 53-62

ABSTRACT: Utilizing the functions previously introduced by the author for the solution of stability problems of columns with partly closed section profile, the author solves in the present paper two problems of the stability of beams by means of Bubnov's variational method [ref. the paper by Prof. S. P. Timoshenko: Ob ustoychivosti uprugikh sistem (On the Stability of Elastic Systems). Sb. In-ta putey soobshch., 1913, Nr 31; Izbrannye trudy (Selected Works), Sudpromgiz, 1956, pp 136-139]. The approximate results are compared with the exact ones. The errors appear to be insignificant.

L. A. Movsisyan

Card 1/1

LOLADZE, T.N., doktor tekhn.nauk, prof.; SHANSHIASHVILI, G.D., inzh.

Means for reducing dynamic errors in machining metals.
Vest.mash. 42 no.3:73-77 Mr '62. (MIRA 15:3)
(Metal cutting)

1. SHINSHIASHVILI, B. V.
2. USSR (600)
4. Plants - Absorption of Water
7. Effect of phosphorus anions on the absorption capacity of a healthy grapevine and one with chlorosis. Scob. AN Gruz. SSSR 12, No. 8, 1951.

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

L 9816-66 EWT(1)/EWT(m)/EPF(n)-2/EWP(t)/EWP(b)/EWA(h)/ETC(m) IJP(c) JD/WW/CG
ACC NR: AP5027988 SOURCE CODE: UR/0386/65/002/007/0305/0307

^{44,55} 44,55
AUTHOR: Tsakadze, D. S.; ^{44,55} Shanshiashvili, L. G.

ORG: ^{44,55} Tbilisi State University (Tbilisskiy gosudarstvennyy universitet)

TITLE: Concerning the rotation of ²¹helium II near the Lambda point

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. Pis'ma v redaktsiyu. (Prilozheniye), v. 2, no. 7, 1965, 305-307

TOPIC TAGS: liquid helium, vortex, superfluidity

ABSTRACT: The purpose of the investigation was to check on J. R. Pellam's measurements (Proc. of the VII Intern. Conf. on ²¹Low Temp. Physics, p. 268, Univ. of Toronto, Canada, 1960; Phys. Rev. Lett. v. 5, 189, 1960) of the deflection of a Rayleigh disc in rotating liquid helium, where it was observed that the effect has a temperature dependence producing the impression that the helium I participates fully in the rotation, but only the ²¹superfluid component of helium II rotates. Since this interpretation of the experimental data contradicts the existing views on the nature of rotation of helium, the authors propose that in Pellam's experiment the Rayleigh disc served simultaneously as the mirror used to measure the deflection by reflecting a light ray. This was unavoidably accompanied by addition of energy to the helium II, giving rise to convection currents that distorted the velocity field of the rotating helium II. They have repeated Pellam's experiment, using an instrument essentially similar to his, but in which the Rayleigh-disc deflection could be measured with light reflected not only from the disc itself but also from a mirror located outside

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ACC NR: AP5027988

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the liquid. The Rayleigh disc employed was a thin rectangular mirror 0.46 mm thick, measuring 7.9 x 4.0 mm. When the Rayleigh disc was illuminated in the stationary instrument near the λ point, a weak deflection was observed in a direction opposite to that of the rotation. This confirms the assumption that Pellam's paradoxical result is caused by heat currents due to the illumination of helium II. There remains no doubt that near the λ point the liquid helium II rotates, on the average, as a unit. A more detailed study of the phenomenon is recommended. Authors thank Professor E. L. Andronikashvili for interest in the work and for a discussion of the results, and Yu. G. Mamaladze for useful discussions during the performance and interpretation of the experiment. Orig. art. has: 1 figure.

SUB CODE: 20/ SUBM DATE: 23Jul65/ OTH REV: 003

Card 2/2 *pid*

SHANSHIYEV, A.K.

New methods for manufacturing precast prestressed concrete elements.
Dokl. AN Arm. SSR 9 no.1:17-22 '48. (MIRA 9:10)

1. Institut Stroitel'nykh materialov i sooruzheniy Akademii nauk
Armenyanskoj SSR, Yerevan. Predstavleno A.G. Nazarovym.
(Prestressed concrete)

SKANSKIYEV, A. K.

35270. Novyy sposob izgotovleniya sbornnykh konstruksiy iz strunobetona.
Trudy IV vsesoyuz. Konf-tsii po beton i zhetzobeton konstruksiyam. Ch.
I. M.-L., 1949, S. 240-48

SO: Letopis' Zhurnal'nykh Statey. Vol. 34, 1949 Moskva

SHANSHIYEV, A. K. Cand Tech Sci -- (diss) "Elements of efficient prefabricated
~~structures~~ structures of bent cast reinforced concrete and concrete." Tbilisi, 1956. 18 pp
with illustrations (Min of Railways USSR. Tbilisi Inst of Engineers of
Railroad Transport im V. I. Lenin ~~Tbilisi~~), 100 copies (KL, 3-58, 98)

ELBAKIDZE, M.G., kandidat tekhnicheskikh nauk; SHANSHIYEV, A.K., inzhener.

Joining envelope slabs to concrete. Gidr. stroi. 26 no.3:24-26 Nr '57.
(Dams) (Concrete construction) (MLRA 10:4)

SCV/99-59-6-2/13

14(10)

AUTHOR: Khlebnikov, S.G., and Shanshiyev, A.K., Candidates of Technical Sciences, and Chaganava, V.A., Engineer

TITLE: Artificially-Curved, Prefabricated Reinforced-Concrete Troughs for Irrigation Chutes

PERIODICAL: *Gidrotekhnika i melioratsiya*, 1959, Nr 6, pp 6-14, (USSR)

ABSTRACT: The article describes an entirely new method to cast troughs for irrigation chutes, which calls for casting artificially-curved, prefabricated reinforced-concrete troughs. Developed by A.K. Shanshiyev of the *Laboratoriya industrial'nogo gidrotekhnicheskogo zhelezobetona Tbilisskogo nauchno-issledovatel'skogo instituta sooruzheniy i gidroenergetiki imeni Vintera*, or the TNISGEI, (Laboratory of Industrial Hydrotechnical Reinforced-Concrete of the Tbilisi Research Institute of Structures and Hydraulic Power Engineering imeni Vinter), the new method differs from the con-

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SOV/99-59-6-2/13

Artificially-Curved, Prefabricated Reinforced-Concrete Troughs
for Irrigation Chutes

ventional one employing a double mold insofar as it has only one mold, the bottom plate. Covered by a concrete layer with laid-in reinforcements and lifted by a transverse beam at four points, the bottom plate bends at a certain angle and remains in this state until the concrete mass hardens. Prior to lifting, the concrete layer with reinforcements is subject to vibration by a flat-type vibrator of the I-7-type. The new trough specifications are: upper width - 65 cm; depth - 40 cm; wall thickness at bottom - 4.5 cm; wall thickness at trough rims - 3 cm; trough length - 4.1 m. The troughs thus made develop no cracks as there is no tensile stress left. The article cites the following names and organizations connected with the new trough development: Engineer A.A. Gabuniya, Gruz-NIIGiM, Samgorskaya orositel'naya sistema

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SOV/99-59-6-2/13

Artificially-Curved, Prefabricated Reinforced-Concrete Troughs
for Irrigation Chutes

(Samgorskaya Irrigation System), Samgorvodstroy,
Soyuzgiprovodkhoz, Teziokamskaya orositel'naya
sistema (Teziokamskaya Irrigation System), Minge-
chaurstroy, Gruzgidroenergostroy, and Cherepovets-
metallurgstroy. There are 10 Soviet references,
7 photographs, 2 sets of diagrams, and 2 diagrams.

ASSOCIATION: GruzNIIGiM

Card 3/3

AKIF'YEVA, K. V.; BELINSKIY, V. A.; BRYUKHANOV, A. V.; VLADIMIROVA,
G. A.; MAKHOVA, Yu. V.; MALINOVSKAYA, N. M.; MYAGKOV, S. M.;
NORMAN, E. A.; SEMEKHIN, Yu. V.; TARASOV, G. K.; TUSHINSKIY,
G. K.; UTYAKOV, P. A.; FAMINTSYN, B. M.; SHATERNIKOVA, I. S.;
SHANSHIYEV, K. M.

Estimation of the danger of avalanches in high mountain areas
designated for development. Inform. sbor. o rab. Geog. fak.
Mosk. gos. un. po. Mezhdunar. geofiz. godu no.8:27-163 '62.
(MIRA 16:1)

(Caucasus--Avalanches)

SHANSHIYEV, S.K., kand.tekhn.nauk

Comparison of Soviet and foreign methods of designing the linings
of pressure conduits for internal pressure. *Gidr.stroi.* 33
no.10:49-51 0 '62. (MIRA 15:12)
(Tunnel lining)

PHASE I BOOK EXPLOITATION

SOV/5524

Shanshiyev, Sergey Konstantinovich

Proyektirovaniye obdelok gidrotekhnicheskikh tunneley iz monolitnogo betona i zhelezobetona; metodologiya i raschety. (Designing Concrete and Reinforced-Concrete Monolithic Linings for Hydraulic Tunnels; Methods and Calculations) Moscow, Gosenergoizdat, 1960. 71 p. (Series: Materialy po proyektirovaniyu gidroenergeticheskikh uzlov. Seriya 4. Gidroelektrostantsii. Gidrotekhnicheskiye sooruzheniya. Konstruktsii i materialy) 2,000 copies printed.

Sponsoring Agency: Ministerstvo stroitel'stva elektrostantsiy SSSR.
Vsesoyuznyy gosudarstvennyy proyektnyy institut "Gidroenergoprojekt".

Ed. (Title page): S. I. Taycher, Engineer; Ed.: O. N. Tistrova; Tech. Ed.:
K. P. Voronin.

PURPOSE: This booklet is intended for engineers and technicians employed in designing hydrotechnical structures.

Card-1/ 6

79
TSAKADZE, D.S.; SHANSHKASHVILI, L.G.

Helium II rotation near the λ -point. Pis'. v red. Zhur.
eksper. i teoret. fiz. 2 no. 7:305-307 0 '65. (MIRA 18:12)

1. Tbilisskiy gosudarstvennyy universitet. Submitted July 23,
1965.

PRIKHOT'KO, A.F.; PTUKHA, T.P.; SHANSKIY, L.I.

Low-temperature methods for magneto-optical studies of crystals
in the temperature region of superfluid helium. Zhur. prikl.
spekt. 2 no.3:223-226 Mr '65. (MIRA 18:6)

ACC NR: AP7003228

SOURCE CODE: UR/0056/66/051/006/1870/1872

AUTHOR: Vladimirov, V. V.; Shanskiy, V. F.

ORG: none

TITLE: Effect of rate of surface recombination on the excitation threshold of an oscillistor

SOURCE: Zh eksper i teor fiz, v. 51, no. 6, 1966, 1870-1872

TOPIC TAGS: semiconductor plasma, surface effect, recombination, semiconductor carrier, physical diffusion

ABSTRACT: The article deals with the excitation of diffusion helical instability of an electron-hole plasma in a semiconductor crystal placed in a strong magnetic field (oscillistor effect). The results of an earlier paper (ZhETF v. 49, 1562, 1965) are used to establish a criterion for the excitation of this instability on the surface of the semiconductor or within its volume. The effect of the rate of surface recombination on the excitation threshold of the oscillistor was investigated experimentally on n-type germanium with near-intrinsic conductivity. A parameter $G_s = D_a / a s$ (D_a - coefficient of ambipolar diffusion of the carriers, a - transverse dimension of the sample, s - rate of surface recombination) is introduced and it is shown that when $G_s > 4$ a surface oscillistor effect takes place, when $1 < G_s < 4$ the experimental points lie between the surface and volume values, and when $G_s < 1$ the experimental points correspond to threshold of excitation of the volume oscillistor. It is

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ACC NR: AF7003228

suggested that the results can be used to determine the rate of surface recombination by measuring the threshold of oscillistor excitation. The authors thank M. A. Leontovich, B. B. Kadomtsev, and L. V. Dubovoy for a discussion of the results. Orig. art. has: 1 figure and 2 formulas.

SUB CODE: 20/ SUBM DATE: 01Jul66/ ORIG REF: 002/ OTH REF: 006

Card 2/2

SHAN'SHUROV, M.; YUGAY, D.

Bonuses issued to workers for the improvement of qualitative indices.
Sots. trud 5 no.11:107-109 N '60. (MIRA 14:1)

1. Nachal'nik otдела truda i zarabotnoy platy Sredneural'skogo
medeplavil'nogo zavoda (for Shan'shurov).
(Sverdlovsk Province—Copper industry—Quality control)
(Bonus system)

POKAZAN'YEV, Aleksandr Arkad'yevich; POPOV, A.D., red.; PRIMAKOV, Ye.M., red.; NOVGORODOV, A.T., st. inzh., red.; SHAN'SHUROV, M.I., red.; GETLING, Yu., red.

['Law of the sea"; a documentary tale] "Morskoi zakon"; dokumental'naia povest'. Sverdlovsk, Sredne-Ural'skoe knizhnoe izd-vo, 1964. 56 p. (MIRA 18:3)

1. Sekretar' partiynogo komiteta Sredne-Ural'skogo medeplavil'nogo zavoda, Revda (for Popov). 2. Nachal'nik otdela truda i zarabotnoy platy Sredne-Ural'skogo medeplavil'nogo zavoda, Revda (for Shan'shurov).

SHANSKAYA, N.S.

Results of studying grasses for using them on lawns in Karaganda
Province. Trudy Inst.bot.AN Kazakh.SSR 17:110-127 '63.
(MIRA 17:3)

SHANSKIĬ, K. I.

Utilization of internal potentialities in the foundry industry; work experience of the Kirov rolling and conveying machinery plant.

Moscow. Vsesoiuznyi proektno-tekhnologicheskii institut. Ispol'zovanie vnutrennikh.... 1954
(Card 2, 55-25023 rev.)

TS229.5.R9M6

1. Foundry. I. Shanskii, K. I. II. Umniagin, M. G., ed.

SHANSKIY, K.I.; VYAZ'MENSKIY, A.S.

Founding cast-iron crane drums. Lit.proizv.no.2 supplement:42-44 '56.
(Iron founding) (MLRA 9:7)

SHANSKIY, K. I., and VYAZ'EMEISKIY, A. S.

"Casting of Crane Drums From Cast Iron With Reduced Allowances for Machining," p. 120. in book Mechanization and Automatic Control of Founding Processes, Leningrad, 1957, 224pp.

SHANSKIY, K.V.

How the local population helps to detect Colorado beetles. Zashch.
rast. ot vred. i bol. 3 no.3:47-48 My-Je '58. (MIRA 11:6)

1. Nachal'nik Gosinspektzii po karantinu i zashchite rasteniy po
Litovskoy SSR.

(Lithuania—Potato beetles)

SHANSKIY, L.I.

Use of projectors and microscopes for the projection of microscopic preparation. Biol. v shkole no.2:92-94 Mr-Ap '63. (MIRA 16:4)

1. Kremenetskiy pedagogicheskiy institut.
(Projections) (Microscopy)

L 58955-65 EED(b)-3/EPF(c)/EPF(n)-2/EWT(1)/EWT(m)/EWP(b)/EWP(t) Pr-l/Pu-l

IJP(c) WW/JD

ACCESSION NR: AP5010387

UR/0368/65/002/003/0223/0226
538.61

AUTHORS: Prikhot'ko, A. F.; Ptukha, T. P.; Shanskiy, L. I.

34
33
B

TITLE: ²¹ Low temperature procedure for magneto-optical investigations of crystals superfluid helium temperatures

SOURCE: ²⁷ Zhurnal prikladnoy spektroskopii, v. 2, no. 3, 1965, 223-226

TOPIC TAGS: superfluidity, low temperature research, magneto-optical measurements, cryostat design

9m

ABSTRACT: The purpose of the investigation was to develop a low-temperature procedure for magneto-optical investigations of crystals in the temperature interval down to 1.2K. The cryostat used for the measurements is shown in Fig. 1 of the Enclosure. Earlier cryostats were suitable for operation down to 4.2K only, and were not equipped to cope with the superfluidity which sets in below the λ transition point (2.17K). An operating procedure for the use of the cryostat is described. The procedure was used to investigate the absorption spec-

Card 1/3

L 58955-65

ACCESSION NR: AP5010387

trum of solid oxygen and of antiferromagnetic crystals. It is pointed out that the construction of the cryostat is such that the spectra can be recorded by various standard optical means. 'We thank A. B. Fradkov for valuable help in the work.' Original article has: 1 figure

ASSOCIATION: None

SUBMITTED: 10Nov64

ENCL: 01

SUB CODE: GP

NR REF SOV: 003

OTHER: 003

Card 2/3

L 58955-65

ACCESSION NR: AP5010387

ENCLOSURE: 01

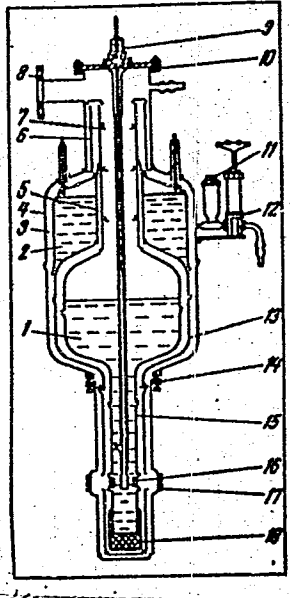


Fig. 1. Cryostat for magneto-optical investigations of crystals in the region of superfluid helium temperatures.

- 1 - Tank, 2 - nitrogen bath, 3 - vacuum cavity, 4 - cover, 5 - thin wall tube, 6 - thin wall tube, 7 - stiffener, 8 - vacuum line, 9 - sleeve, 10 - flange, 11 - ionization manometer, 12 - bellows valve, 13 - copper screen, 14 - teflon gasket, 15 - tube, 16 - window, 17 - window, 18 - carbon pump

Card 3/3

SHANSKIY, L.; YATSOZHINSKIY, Yu.

All-Union Conference on the Control of Tuberculosis. Zdrav. Tadzh.
8 no.6:41-43 N-D '61. (MIRA 15:1)
(TUBERCULOSIS...PREVENTION)

21

SHANSKIY, L.V.; YATSOZHINSKIY, Yu.D.

Present status of and problems in the control of tuberculosis in Tajikistan. Zdrav. Tadzh. 8 no.6:3-6 N-D '61. (MIRA 15:1)

1. Glavnyy vrach Respublikanskogo protivotuberkuleznogo dispansera Tadjhikskoy SSR (for Shanskiy). 2. Zaveduyuschiy kafedroy tuberkuleza Tadjhikskogo meditsinskogo instituta imeni Abuali ibni Sino. (TAJISISTAN--TUBERCULOSIS--PREVENTION)

SHANSKIY, N. K.

Osnovy slovoobrazovatel'nogo analiza (Fundamentals of word formation analysis)
Moskva, Uchpedgiz, 1953.

55 p.

Bibliographical footnotes.

SO: N/5

076.701

.3588

L 37704-65 EPI(n)-2/EPA(w)-2/EWA(h)/EWT(l)/EWI(m)/EWG(m)/EWP(b)/T/EWP(t) Pi-4/
Pg-4/Pz-6/Pab-10/Peb IJP(c) AT/WW/JD S/0056/65/048/003/0800/0803

ACCESSION NR: AP5008735

AUTHOR: Dubovoy, L. V.; Shanskiy, V. F.

TITLE: Stabilization of helical instability in electron-hole semiconductor plasma by an alternating electric field

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 48, no. 3, 1965, 800-803

TOPIC TAGS: plasma instability, plasma helical instability, plasma instability stabilization

ABSTRACT: An experimental investigation was made to determine the effect of an alternating electric field on the development of helical current instability in the plasma of a semiconductor in a magnetic field. A germanium specimen 1 x 1 x 7 mm with a specific resistance of 50 Ω cm placed in a magnetic field of 8500 oe parallel to the largest dimension of the crystal was used. The measurements were conducted within the region of intrinsic conductivity of germanium. Potentials of the electric field were selected so that they did not affect the distribution function of the charge carriers. A pulsed mode of operation which permitted a constant temperature of the crystal lattice to be maintained in the specimen at relatively large currents was employed. The space distribution of the magnetic and electric

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L 37704-65

ACCESSION NR: AP5008735

0

fields in the specimen was homogeneous. Stabilizing plasma effects due to supplemental high-frequency ionization and effects due to the presence of field gradients were eliminated. The comparison of oscillograms for constant and modulated (10 mc/sec) electric fields confirmed the presence of a stabilizing effect. The effect of generation and stabilization of instability was observed also for some region of angles φ between the crystal axis and the direction of the magnetic field H . In the instability generation region φ usually does not exceed 20° . An investigation of the modulated electric field effect on current instability at values of φ different from zero showed a narrow region $\varphi \sim (6 \pm 1)^\circ$ in which the high-frequency field E increased instead of suppressed the instability. No expansion of instability by an alternating electric field was observed in many crystals of different geometry at φ close to zero. The stabilization also depends on the amplitude of E . The suppression of instability has a threshold character. With the increase of threshold value E_0 (E_0 is the value of an electric field at which oscillations begins), the effectiveness of instability suppression increases. Generally, with an increase of crystal length, the stabilizing effect of the alternating field decreases. The results confirm the possibility of applying time-varying electromagnetic fields for the stabilization of plasma. Orig. art. has: 2 figures. [JA]

ASSOCIATION: none

Card 2/3

I 09350-67 EWP(1)/EWT(m)/EWP(t)/ETI IJP(c) AT/JD

ACC NR: AP6031434

SOURCE CODE: UR/0056/66/051/002/0412/0416

AUTHOR: Dubovoy, L. V.; Shanskiy, V. F. 63

ORG: none

TITLE: Mechanism of stabilization of a plasma by high frequency electromagnetic fields

SOURCE: Zh eksper i teor fiz, v. 51, no. 2, 1966, 412-416

TOPIC TAGS: plasma instability, semiconductor plasma, germanium semiconductor, microwave plasma, semiconductor carrier, carrier density

ABSTRACT: This is a continuation of earlier work (ZhETF v. 48, 888, 1965) and is devoted to an experimental verification of the theoretical assumption that there are no oscillations at the end of a plasma column in a semiconductor, and to check on the presence of spatial long-wave instability harmonics, which is implied by this assumption. All the experiments were made in an electron-hole plasma of germanium, using a microwave procedure with a magnetic field that could be varied from zero to 12 kOe. The procedure for exciting the instabilities and for determining their position was identical with that described in the earlier paper. The microwave technique used to determine the spatial structure of the instability was originally described by I. Misawa and I. Jamada (J. Appl. Phys., Japan, v. 2, 1, 1963). The pulse producing the

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L 09350-67

ACC NR: AP6031434

instability was of 10^{-3} sec duration, and the frequency of the stabilizing generator was 3 Mcs. The electric fields in the experiments ranged from 50 to 100 v/cm. The experiments consisted of recording the amplitude of the reflected or the transmitted microwave signals, which was proportional to the amplitude of variation of the mean value of the carrier density at the intersection of a waveguide and the semiconductor sample. The maximum deviation of the carrier density from their equilibrium value was a measure of the amplitude of the instability in the given section of the sample. The microwave study of the mode spectrum with different spatial periods along the sample axis has shown that with increase in quasistationary electric field the relative content of the short-wave modes increases. This explains why an alternating electric field becomes more efficient in suppressing the instabilities when the quasistationary electric field is increased. The tests show that the zero boundary conditions indeed apply at the ends of the sample, in agreement with the theory, confirm directly the presence of the spatial long-wave instability harmonics predicted by the calculations, and show that the efficiency of stabilization depends strongly on the spectrum of the spatial harmonic in the current plasma during the nonequilibrium state. Orig. art. has: 5 figures and 3 formulas.

SUB CODE: 20/ SUBM DATE: 19Mar66/ ORIG REF: 003/ OTH REF: 002

Cord. 2/2

INDENBAUM, Veniamin Solomonovich, inzh.; LEBEDEV, Mikhail Vasil'yevich, inzh. [deceased]; LIBERMAN, Grigoriy Romanovich, inzh.; OL'-SEVANSKIY, Ya.A., inzh., red.; POPOV, K.S., inzh., red.; TAYTS, A.A., inzh., red.; SENEYEROV, S.A., red.izd-va; BARANOV, M.V., tekhn.red.

[Operation of small steam turbine electric power plants]
Ekspluatatsiia paroturbinnnykh elektrostantsii maloi moshchnosti.
Pod obshchei red. G.R.Libermana. Moskva, Izd-vo M-va kommun.
khoz.RSFSR, 1959. 483 p. (MIRA 13:5)
(Electric power plants)

M.

USSR/Cultivated Plants. - Grains.

Abs Jour : Ref Zhur - Biol., No 4, 1958, 15549

Author : Yu.A. Shanskiy

Inst : -

Title : Harrowing Corn Along the Shoots.
(Boronovaniye kukuruzy po vskhodam).

Orig Pub : Kukuruz, 1957, No 5, 16-18.

Abstract : The study was made in a number of kolkhozes in Chkalovskaya Oblast'. Harrowing the plantings helped the plants to develop better, increased the yield of green stuff and grain. The method of simultaneous harrowing and cultivating the plantings proved even more effective. However, the application of this method was possible only when the seeds were bedded to a depth of 8-10 cm and the plants were in the 3-4 leaflet stage.

Card 1/1

40

Summa, 22.

RUMANIA/General Division. History, Classics.
Personalities.

A-2

Abs Jour : Ref Zhur-Biologiya, No 20, 1957, 85021

Author : M. Shanta

Inst :

Title : Development of Russian Physiology

Orig Pub : Natura (Romin.) 1956, 8, No 1, 67-77

Abstract : No abstract.

Card 1/1

GLUKHOVA, V.A. [translator]; KUDRYAVTSEV, V.A. [translator]; MITBREYT,
B.A. [translator]; MUDROV, B.G. [translator]; SHANTANOV, S.K.
[translator]; SOKOLOV, D.S., red.; ROMANOVICH, G.P., red.;
BELEVA, M.A., tekhn.red.

[Regional stratigraphy of China] Regional'nais stratigrafiia
Kitaia. Pod red. i s predisl.D.S.Sokolova. Moskva, Izd-vo
inostr.lit-ry, 1960. 657 p. Translated from the Chinese. (MIRA 13:6)
(China--Geology, Stratigraphic)

GAVRILOV, V.G.[translator]; KLIMOVA, M.Ye.[translator]; MITREYI,
B.A.[translator]; TIKHONOV, N.S.[translator]; TUPITSYN,
N.V.[translator]; SHANTANOV, S.K.[translator]; FEDOROVA,
L.N., red. izd-va; GUROVA, O.A., tekhn. red.

[Fundamentals of the tectonics of China]Osnovy tektoniki
Kitaa. Moskva, Gosgeoltekhizdat, 1962. 526 p. maps.
Translated from the Chinese. (MIRA 15:11)
(China--Geology, Structural)

SHANTAR, A.A.

Granulometric analysis of arenaceous rocks in sections. Lit. i
pol. iskop. no.6:134-140 N-D '64. (MIRA 18:3)

1. Geologicheskij institut AN SSSR.

SHANTAR, E.A.

Tectonics of the southeastern part of the Dnieper-Donets
Lowland and northwestern margin of the Donets Ridge. Trudy
VNIGRI no.131:17-43 '59. (MIRA 12:9)
(Dnieper Lowland--Geology, Structural)
(Donets Basin--Geology, Structural)

POPUGAYLO, V.M.; SHANTARENKO, I.V.

Food poisoning following consumption of duck eggs. Gig. sanit.,
(CLML 24:2)

Moskva no. 2:46-47 Feb 1953.

SHANTARENKO, I.V.

Etiological and epidemiological properties of Sonne dysentery. Zhur.
mikrobiol.epid. i immun.,supplement for 1956:50 '57 (MIRA 11:3)
(DYSENTERY)

SHANTARENKO, I.V.; SIROKO, I.A.

Problem of specificity of cholera O sera. Zhur.mikrobiol.epid. i
immun. no.1:40-43 Ja '58. (MIRA 11:4)
(CHOLERA, immunology.
serum O (Rus)

SHANTARENKO, I.V.

Atypical bacteria of the dysenterial group; author's abstract. Zhur.
mikrobiol. i immun. 29 no.4:91-92 Ap '58. (MIRA 11:4)

(SHIGELLA,

atypical strains (Rus)

SHANTARENKO, I.V.

Studies on the role of the allergic component in the pathogenesis
of dysentery; experimental dysenterial keratoconjunctivitis. Zhur.
mikrobiol.epid.i immun. 30 no.10:141-145 0 '59. (MIRA 13:2)

(SHIGELLA infect.)

(KERATOCONJUNCTIVITIS exper.)

SIROKO, I.A., mayor meditsinskoy sluzhby, kand. med. nauk; SHANTARENKO, I.V.,
podpolkovnik meditsinskoy sluzhby; MOROZOV, K.A., podpolkovnik meditsinskoy sluzhby;
CHERNUKHINA, V.F., mayor meditsinskoy sluzhby;
KODES, A.M.

Improvement in the method for the isolation and identification of
dysentery bacteria. Voen.-med. zhur. no.5:61-64 My '60.
(MIRA 13:7)

(SHIGELLA PARADYSENTERIAE)

SHANTARENKO, I.V.; TESLYA, Z.S.

Some problems of dysentery on a model of experimental dysenterial
keratconjunctivitis in guinea pigs. Zhur.mikrobiol.epid.i immun.
31 no.1:71-75 Ja '60. (MIRA 13:5)
(KERATOCONJUNCTIVITIS experimental)
(DYSENTERY experimental)

SHANTARENKO, I.V.

Studies on para-agglutination by means of fluorescent antibodies.
Zhur:mikrobiol.epid:i immun. 31 no.11:39-42 N '60. (MIRA 14:6)
(AGGLUTINATION) (ANTIGENS AND ANTIBODIES)

MARESKIN, I.A.; ~~SHANTARENKO, I.V.~~ (Kiyev)

Food toxicoinfection to the consumption of hen's eggs. Gig.
i san. 26 no.9:89-90 S '61. (MIRA 15:3)
(SALMONELLA)
(EGGS---MICROBIOLOGY)

SHUBYGIN, G.M.; SHANTAREN, V.O.

Kinetics of the dissolution of metals. Sbor. nauch. trud. Ural.
politekh. inst. no.126:73-79 '63 (MIRA 17:8)

SHURYGIN, P.M. (Sverdlovsk); SHANTARIN, V.D. (Sverdlovsk)

Kinetics of the dissolution of alloying metals in liquid iron.
Izv. AN SSSR Met. i gor. delo no. 2:33-40 Mr-Ap'64 (MIRA 17:8)

SHURYGIN, P.M.; SHANTARIN, V.D.

Investigating the diffusion kinetics of copper, nickel, and iron solutions in molten metals. Izv. vys. ucheb. zav.; tsvet. met. 6 no.4:58-63 '63. (MIRA 16:8)

1. Ural'skiy politekhnicheskiy institut, kafedra teorii metallurgicheskikh protsessov.
(Diffusion) (Liquid metals)

SHURYGIN, P.M.; SHANTARIN, V.D.

Metal diffusion in iron-carbon melts. Izv. vys. ucheb. zav.;
chern. met. 6 no.10:5-11 '63. (MIRA 16:12)

1. Ural'skiy politekhnicheskiy institut.

SHURVANK, I.M.; SHANTARIN, V.D.

Kinetics of calcium oxide desulfuration of pig iron and steel.
Izv. vyz. ucheb. zav.; chem. met. 7 no.12:13-14 '64
(MIRA 18:1)

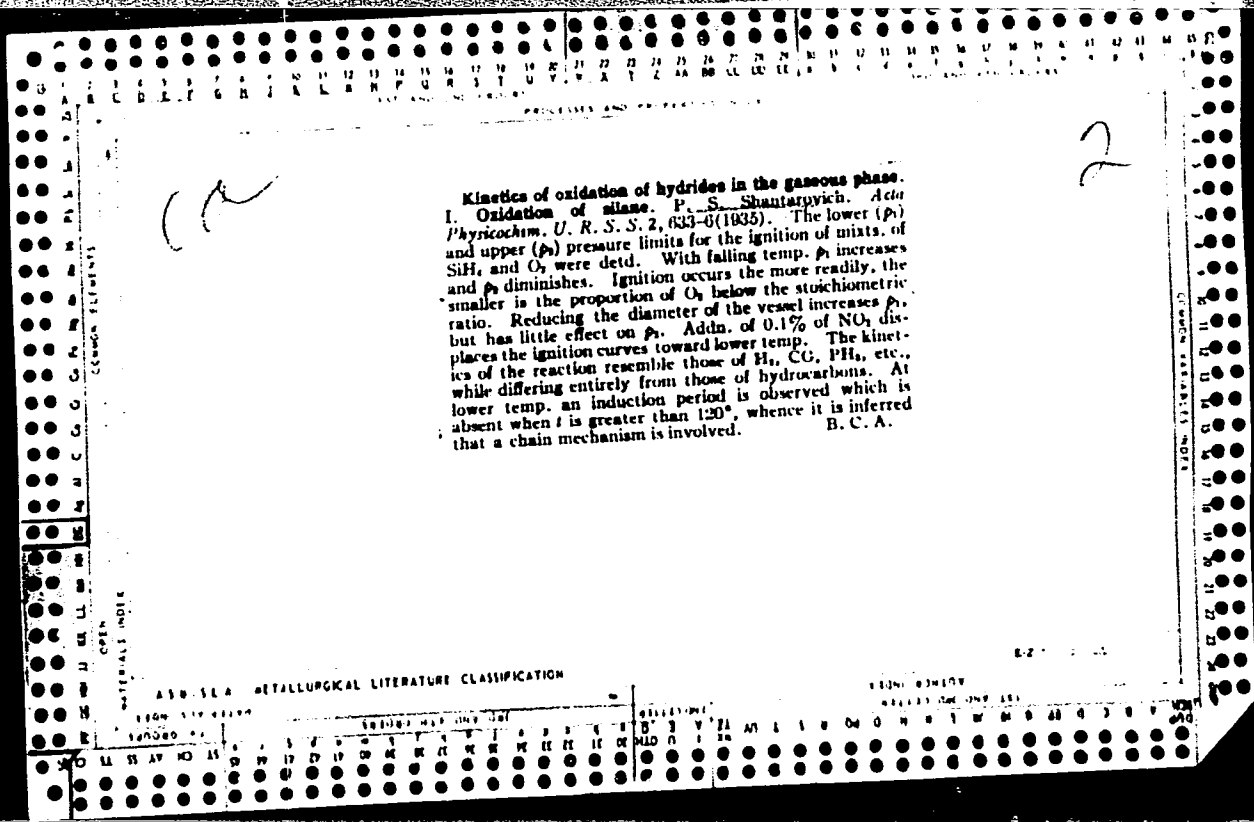
1. Ural'skiy politekhnicheskii institut.

BOBONENKOV, V.V. (Sverdlovsk); SHUEYGIN, P.M. (Sverdlovsk); SHANTARIN, V.D.
(Sverdlovsk)

Kinetics of metal diffusion in molten sulfides. Izv. AN SSSR.
Met. i gor. delo no.6:97-102 N.E '64. (MIRA 18:3)

SHANTARIN, V.D.; SHURYGIN, P.M.

Kinetics of alloying foundry pig iron and steel with additions
of pure metals and ferroalloys. Lit.proizv. no.7:19-21 J1 '64.
(MIRA 18:4)

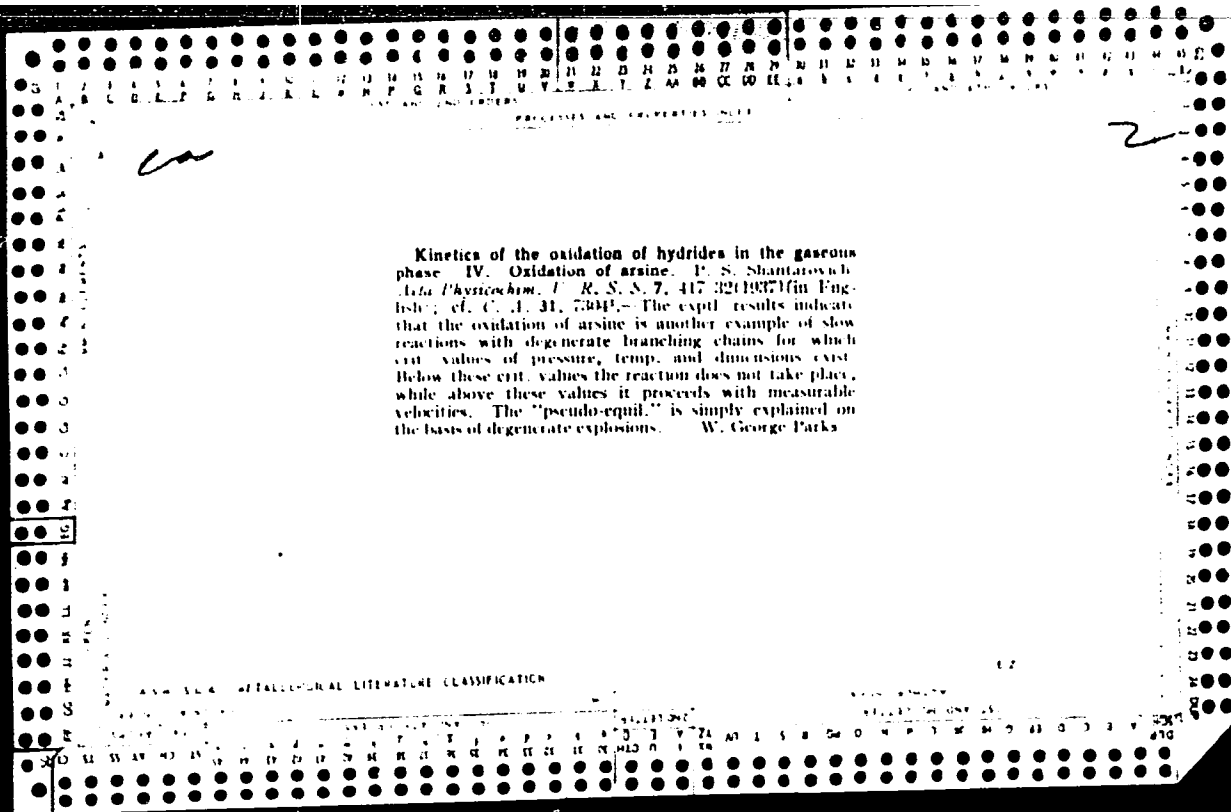


2

or

Kinetics of oxidation of hydrides in the gaseous phase.
II. Oxidation of phosphine. P. S. Shantarovich. *Acta Physicochim. U. R. S. S.* 6, 765-770 (1937); cf. C. A. 30, 5488¹.—As with SiH₄, the pressure limits of ignition of PH₃-O₂ mixts. depend on the compn. As the temp. is raised the lower limit falls and the upper rises. Data are given for mixts. with 10, 22, 32 and 57% of PH₃. III. Oxidation of hydrogen sulfide. B. Yakovlev and P. S. Shantarovich. *Ibid.* 71-94.—See C. A. 31, 4191¹. B. C. A.

ASME S.L.A. METALLURGICAL LITERATURE CLASSIFICATION



PROCESSES AND PROPERTIES INDEX

2

ca

The kinetics of the oxidation of hydrides in the gas phase. III. Oxidation of hydrogen sulfide. B. Yakovlev and P. Shantarovich. *J. Phys. Chem.* (U. S. S. R.) 9, 112-31 (1937).--Like silicane and phosphine, H₂S on combustion with O₂ shows a peninsular region of ignition in *p* and *T* from 0.5 to 30 mm. and 220° to 450° with lower and upper limits. Considerably above the upper limit is found a third limit of renewed ignition, corresponding to the third limit found by previous authors. Like the regions for H₂ and CO, the "peninsula" moves toward lower temps. on increasing the concn. of O₂. Outside the explosion region a slow reaction, increasing with pressure, takes place. The boundary of the ignition region is given by $\log p_0 = (A/T) + B$ or $p_0 = ae^{-B/RT}$, where $A = 2300$, $E = 10,600$, $B = 5.2$ and $a = 1.5 \times 10^6$. Cf. C. A. 30, 5488^h. F. H. Rathmann

METALLURGICAL LITERATURE CLASSIFICATION

1939-1944

SHANTAROVICH, P. S.

Kinetics of polymerization of hydrocarbons with a conjugated bond. P. S. Shantarovich and S. S. Medvedev (Inst. Chem. Phys., Acad. Sci. U.S.S.R., Moscow). *J. Phys. Chem. (U.S.S.R.)* 21, 1163-76 (1947) (in Russian). — Chloro-1,3-butadiene was irradiated with 3030-3130 Å. The rate v of its polymerization dec. from the vol. contraction. The v first rapidly increases, is then (e.g., for 8 hrs.) const., and increases again; the 2nd increase is assocd. with formation of a dense film at the irradiated wall. When the irradiation is continued for 5 or more hrs. and then stopped, polymerization goes on. Its v first decreases, then gradually increases, and starts to increase rapidly when 10% of the original chloroprene is polymerized. The v is greater the longer the preceding irradiation time, but the sharp rise of v occurs always at 10% transformation. The ω polymer is the final product. When the irradiation time is 2 hrs., the rise of v at 10% transformation is less steep, and the μ polymer is the final product. When the μ polymer forms, polymer chains grow and join to produce a net, and formation of links between chains in this net leads to the ω polymer. The kinetics of these processes is calcd. and is shown to agree with the

exptl. data. Irradiation of the com. polychloroprene (which is a mixt. of α and μ forms) sep'd. from the monomer has no effect, but polychloroprene soaked in monomer is transformed into ω polymer by light. The μ polymer introduced into monomer causes polymerization of the latter to the μ form, and this polymerization continues also when chloroprene which was in contact with μ is run off the polymer. On the contrary, chloroprene induced to polymerize (to ω) by introduction of some ω ceases to polymerize when sep'd. from the polymer. Polymers can be kept in a vacuum for months without losing their ability of inducing further polymerization. I. J. B.

CA

Kinetics of the simple vinyl polymerization. I. Poly-
merization of vinyl acetate. P. B. Shostakovich and G. G.
Medvedev (Kazany Inst. Phys. Chem., Moscow;
Zhur. Fiz. Khim. 23, 1426-41 (1949); cf. C.A. 42, 2100)
--When CH_2CHOAc (I) was irradiated to remove the
inhibitors present, its further polymerization in ultraviolet
occurred without any induction period, hence, contrary
to Cuthbertson, *et al.* (C.A. 33, 4000), the induction
period was due to impurities. In the radiation of 3650-
3130 A., the rate of polymerization v (detd. dilatometri-
cally) was const. during an expt. for at least 90 min. In
I solids, in EtOAc, v was proportional to the mole fraction
 n of I between 0.02 and 1.0. After the irradiation was
interrupted, v decreased in 100 sec. to 0.04 of its value.
For pure I, v at 60° was 4 times that at 10°; hence, the
energy of activation was 5000 cal. The rate r_1 of poly-
merization of I induced by $(\text{H}_2\text{O})_2$ is, according to the
literature, proportional to $B^{1/2}$ (where B = concn.
of $(\text{H}_2\text{O})_2$). Polymerization of I is a chain reaction with-
out branching. J. J. Bikerman

SHANTAROVICH, P. S.

Doc Chem Sci

Dissertation: "Kinetics of Chain Polymerization." 1/12/50

Inst of Chemical Physics, Acad Sci USSR

SO Vecheryaya Moskva
Sum 71

LA 31

Kinetics of polymerization of vinyl compounds. II. Photopolymerization of allyl chloride. P. S. Shantarovich and S. S. Medvedev (Acad. Sci. U.S.S.R., Moscow). *Zhur. Fiz. Khim.* 24, 10 20(1950); cf. C.I. 44, 2833. Allyl chloride (I) in EtOAc polymerized in light of 3650 Å, at a rate r independent of diln. (2.0-10.2 M) and proportional to light intensity I , at $I = 6 \times 10^{-4}$ (units?) r was 7.8×10^{-4} , 5.4×10^{-4} , 3.7×10^{-4} , and 2.8×10^{-4} mole sec. cc. at 75°, 60°, 45°, and 30°, resp. Polymerization in the dark, also after illumination, was negligible. The mol. wt. M , detd. cryoscopically, of the final product was 1000, 1200, 850, 570, and 410 at 75°, 60°, 45°, and 30°, resp.; it was independent of diln. The apparent energy of activation was 4100-4400 cal. The active radical (II) of the growing chain reacts with a mol. of I forming (with reaction const. k_1) a radical $\text{CH}_2\text{CH}(\text{CH}_2)\text{CH}_2\text{---}$ (III) which is not active enough to react with I but adds to II, thus interrupting the chain. This mechanism yields the equation $r = \alpha k_1 k_2 / 2k_3 k_4$; these consts. are for the reactions "excited monomer + normal monomer \rightarrow 2 normal monomers" (k_1), "excited monomer \rightarrow radical" (k_2), and "radical + monomer \rightarrow dimer" (k_3). The equation shows that r is independent of diln. and proportional to I . In this instance the length of the "kinetic chain" (ν = the no. of monomers involved in a chain initiated by one radical) is equal to that of the "mol. chain" (λ = the no. of monomers in the mol. of polymer); if III were as active as II, ν would be much greater than λ . The kinetics of polymerization depends on the relation between λ and ν .

J. J. Bikerman

USSR/Chemistry - Synthetic Rubber Jul 51

"SK (Synthetic Rubber)," P. S. Shantarovich, Dr
Chem Sci

"Nauka i Zhizn'" Vol XVIII, No 7, pp 27-29

A plane requires 500 kg of rubber, a 6-wheel truck 200 kg. Ten-twelve tons of potatoes or 9-10 tons of sawdust yield 1 ton of alc; 1 ton of alc yields 600 kg of butadiene. The proportion of natural crude rubber used in USSR rubber manu' is low, but natural rubber is a valuable compounding ingredient and the demand for it grows with increased use of synthetic rubber.

199T10

USSR/Chemistry - Synthetic Rubber Jul 51
(Contd)

The properties of crude rubber obtained from various species of cultivated plants are uniform, but michurinist rubber growers are trying to develop plants which will yield products exhibiting a greater variety of properties.

199T10

SHANTAROVICH, P. S.

CA

Kinetics of polymerization of compounds with conjugated bonds. Polymerization of methyl methacrylate. P. S. Shantatovich (Inst. Chem. Phys. Acad. Sci. U.S.S.R., Moscow). *Izv. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1952, 10, 3; cf. C. I. 42, 2405. Methyl methacrylate (I) in bulk was exposed to light of 303-313 m μ for various lengths of time, t_1 , during which polymerization attained an extent of $x_1\%$, and then the illumination was shut off. During the illumination, polymerization began after an induction period of about 1.5 min., and then proceeded at a const. rate. Significant acceleration was observed at 8-30% conversion, and at 45% conversion rapid acceleration set in. In the dark, polymerization continued first at a high rate which fell off very rapidly to a const. min. velocity v_{min} , rate which fell off very rapidly to a const. min. slow increase. This const. v_{min} is maintained, with only a slow increase, up to the point where nuclei of insol. polymer appear in the mass; that stage is usually reached at 30-33% conversion. From that point on, the rate of polymerization again begins to grow rapidly. In expts. with $t_1 = 10, 19, 24,$ and 32 min., at 20% x was 7.5, 14, 18, and 24.5%. The period of the slow dark reaction is shorter, the greater is x_1 . In this respect, I behaves like chloroprene (II), except that the trans-

sition from the slow const. rate to the rapid nonstationary polymerization occurs at about 32% conversion instead of 40% with II. Further in contrast to II, the shape of the kinetic curve of the dark polymerization of I is independent of x_1 , and the end product is the same irrespective of x_1 . The dependence of v_{min} on x_1 or x_{min} (amt. of polymer formed at the moment of the establishment of the const. v_{min} in the dark) is of the form $v_{min} = \alpha x_{min}^n$, with $n = 0.53$ and $\alpha = 1.42 \times 10^{-7}$. With these values, the formula is in very good agreement with the exptl. data: $x_{min} = 0.02205, 0.00473, 0.00358, 0.00379$ moles, $10^4 v_{min} = 0.0077, 0.0102, 0.01010, 0.0130$ moles/sec. cc. This empirical relation is taken to mean $v_{min} = 1.42 \times 10^{-7} \sqrt{x_{min}}$. The decay of the no. n of active centers on interruption of the illumination is described by $-dn/dt = k_1 n^2 - f_n$, and hence $v_{min} = k_2 f / k_1$. This is consistent with the exptl. formula if $k_1 = k_2 / \sqrt{x_{min}}$, and the kinetics of the dark reaction is described by $dn/dt = f_n - k_3 n^2$. By integrating this equation, and taking $k_3/k_2 = 1.42 \times 10^{-7}$, the rates of the dark reaction can be calculated as a function of the degree of conversion x , for different x_1 attained during the illumination period. The calculated curves agree very satisfactorily with the exptl. curves. The space reaction consisting in generation and propagation of chains in the liquid phase ceases with the cessation of the illumination. The dark reaction consists in the development of the spatially branched structure of the polymer, and the rate of termination of the growing chains follows the law $k_4 x^{1/2} = \text{const.}$
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SHANTAROVICH, P. S.

11 Sep 52

USSR/Chemistry - Isotopes

"Investigation of the Reaction of Formation of Thiosulfate From H_2S and SO_2 With the Aid of Radioactive Sulfur," M. B. Neyman, Ye. S. Torsuyeva, A. I. Frdoseyeva, P. S. Shantarovich, Inst of Chem Phys, Acad Sci USSR

"Dok Ak Nauk SSSR" Vol 86, No 2, pp 317-320

The mechanism of the reaction of the formation $Na_2S_2O_3$ from SO_2 and H_2S was investigated using active H_2S^{35} and inactive SO_2 . The H_2S^{35} was prepd by reducing $BaS^{35}O_4$ at $900-1000^\circ$ to BaS^{35} which was decomposed to H_2S^{35} with HCl. The central S atom of the thiosulfate mol is derived from the inactive SO_2 . The peripheral S atoms come from both the H_2S and the SO_2 . Presented by Acad N. N. Semenov 3 Jun 52

PA 235T26

Shantarovich P.S.

USSR/Kinetics - Combustion. Explosions. Topochemistry. Catalysis. B-9

Abs Jour : Referat Zhur - Khimiya, No 6, 1957, 18559

Author : P.S. Shantarovich, B.V. Pavlov.

Title : Dissociation Mechanism of Methane.

Orig Pub : Zh. fiz. Khimii, 1956, 30, No 4, 811-820

Abstract : The kinetics of the thermal homogeneous dissociation of CH_4 at 850 to 1000° was studied. In the transformation depth was not great (up to 3%), the dissociation proceeds according to the law $w = k/\text{CH}_4$, where $k = 4.28 \times 10^{12} \exp(-35000/RT) \text{sec}^{-1}$. In case of great transformation depths, self-braking is observed, which is caused by the inhibiting influence of H_2 forming at the dissociation. The authors propose and analyse the chain scheme of CH_4 dissociation in detail. It is shown that the found effective energy of the activation of the gross process is the actual activation energy of the reaction $\text{CH}_3 \rightarrow \text{CH}_2 + \text{H}$ as a limiting stage of the chain dissociation.

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*SHANTAROVICH, P. S.

20-2-26/50

AUTHOR: Shantarovich, P. S.TITLE: The Kinetics of the Decay of Diazomethane in a Nitrogen Beam
(Kinetika raspada diazometana v struye azota)

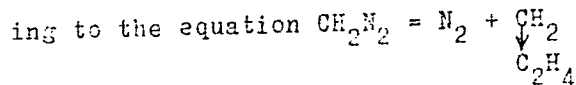
PERIODICAL: Doklady AN SSSR, 1957, Vol. 116, Nr 2, pp. 259 - 258 (USSR)

ABSTRACT: Method and Results: The diazomethane obtained by the decomposition of "nitrosemethyl urea" in an alkaline medium was dissolved in cold dibutyl phthaline from where it was conveyed by means of a beam of absolutely pure nitrogen in a receiver. In this way it was possible to change the concentration of CH_2N_2 in the gas. In previous experiments it was found that the slow (non-explosive) decay of diazomethane at high temperatures can be observed only in a noble gas. A diagram shows the quantity of the mentioned C_2H_4 transferred from the reaction gases, and a second diagram shows the quantity of ethylene, which is obtained by the decomposition of the not reacted diazomethane. The sum of these quantities supplies the content of CH_2N_2 in the original mixture, and their ratio shows the degree of decay. Besides, the values of the constants are given which were computed in accordance with the law for reactions. From all these data it follows that the slow decay of diazomethane develops accord-

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The Kinetics of the Decay of Diazomethane in a Nitrogen Beam



Consequently, the dependence $2 \Delta P = x \dots$ must be true for this reaction at steady conditions, where $x(\text{mm})$ denotes the amount of the decaying CH_2N_2 . Another diagram shows the results of the computation of the kinetics of the decay of diazomethane according to the law of reactions of first order in consideration of a certain theoretical relation given here. The good agreement of experiments points with the computed curve confirms the decay mechanism of the diazomethane and the ratio of the products obtained. In the case of higher concentrations of diazomethane in the gas mixture computed results agree with the experiment only in the initial stages of decomposition. Next, the temperature dependence of the velocity of decay of the diazomethane and the decay mechanism of diazomethane in the nitrogen beam are discussed. The occurrence of ethane in the decay products can be explained only either by the reaction of the disproportioning of the methyl radicals or by their interaction with the original diazomethane molecules. At present neither the one nor the other possibility can be proved. There are 3 figures, 1 table and 4 non-Slavic references.

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.20-2-26/50

The Kinetics of the Decay of Diazomethane in a Nitrogen Beam

ASSOCIATION: Institute for Physical Chemistry AN USSR
(Institut fizicheskoy khimii Akademii nauk SSSR)

PRESENTED: April 6, 1957, by V. N. Kondrat'yev, Academician

SUBMITTED: April 2, 1957

AVAILABLE: Library of Congress

Card 3/3

SHANTAROVICH, P.S.; SHLYAPNIKOVA, I.A.

Polymerization of cyclohexadiene. Vysokom. soed. 2 no.8:1169-1175
Ag '60. (MIRA 13:9)

1. Institut khimicheskoy fiziki AN SSSR.
(Cyclohexadiene) (Polymerization)

S/076/60/034/05/03/038
B010/B002

5.3200

AUTHORS: Shantarovich, P. S., Pavlov, B. V.TITLE: Thermal Cracking of Methane //PERIODICAL: Zhurnal fizicheskoy khimii, 1960, Vol. 34, No. 5,
pp. 960-965

TEXT: The authors investigated the kinetics of the initial stage of thermal methane cracking at 1200-1400°C, a methane pressure of from 0.2 to 3.4 torr, and contact times in an interval of from 10^{-3} to 10^{-2} sec. Experiments were made in a helium current, and crackings were performed in small porcelain tubes (Tables 1-2, results) and small porcelain tubes coated with carbon black (Tables 3-6). Results show that a heterogeneous self-accelerated reaction takes place. The self-acceleration of the reaction is apparently caused by the decomposition of the methyl radical $\text{CH}_3 \longrightarrow \text{CH}_2 + \text{H}$, which occurs on the surface. It is quite possible that the CH_2 radical reacts with CH_4 and does not

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S/190/61/003/003/001/014
B101/B204

AUTHORS: Shantarovich, P. S., Shlyapnikova, I. A.

TITLE: The kinetics of the polymerization of hydrocarbons with conjugate bond. I. Polymerization of phenylacetylene and the properties of the polymers

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 3, no. 3, 1961, 363-367

TEXT: The polymerization of phenylacetylene (PhA) was studied on the basis of the assumption that polymers with conjugate double bonds must exhibit high heat resistance. The thermal initiation of polymerization begins with the formation of the dimer: $2\text{CH}\equiv\text{CR} \rightarrow \sim\text{RC}=\text{CH}-\text{CH}=\text{CR}\sim$ (A). Preparatory experiments showed that the thermal polymerization of PhA always ends with an explosion when it is performed in wide ampoules ($d_c > 20$ mm) at 150°C . At $d_c < 20$ mm, the reaction takes place at thermal equilibrium. The present paper is a report on the kinetics of this reaction. The conditions of thermal autocatalysis and of explosion are to be examined in a special work. 1) Polymerization of phenylacetylene under Card 1/6

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The kinetics of the polymerization...

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B101/B204

conditions of thermal equilibrium : It was found that at $d_c \leq 9.0$ mm and a heating temperature of $t_h < 180^\circ\text{C}$ the heat supply equals the heat loss. Fig. 1 shows the ratio $x/(a - x)$ as depending on time at 136, 156, and 176°C (a - weighed portion, x - polymer yield). From the inclination of the straight line follows a second-order reaction. The activation energy E_m was found to be 33.7 ± 0.5 kcal/mole. In the case of a high degree of conversion the rate constant (dashed in Fig. 1) will increase, which is explained by a change in viscosity of the medium. 2) Thermal polymerization of dissolved phenylacetylene: n-nonane and cyclohexadiene served as solvents. A slight addition (5%) of the solvent already prevented self-heating of the mass at $d = 15$ mm and 176°C . Fig. 2 shows the reaction rate ω and the ratio ω/C_M as depending on C_M , the concentration of the monomer. The reaction rate for nonane as well as for cyclohexadiene was proportional to C_M , and a second-order reaction $\omega = kC_M^2$ took place. The rate constant was nearly the same in both solvents: $k_{\text{nonane}} = 0.02$;

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