LYUBASHEVSKAYA, A.L.; MARGOLIN, B.R.; NENASHEV, K.G.; FAL'KO, O.S., red. izd-va; DEMKINA, M.F., tekhn. red.

[Motor vehicle engines and their modifications] Avtotraktornye dvigateli i ikh modifikatsii. Moskva, Mashgiz, 1962. 74 p. (MIRA 15:9)

(Motor vehicles--Engines)

MARGOLIN, B.L. (Orel)

Oscillograph for classroom demonstrations. Fiz. v shkole 21 no.1:59-63 Ja-F '61. (MIRA 14:9)
(Physics--Experiments) (Cathode ray oscillograph)

MARGOLIN, B.L.

Experiments with electron tubes. Fiz. v shkole 16 no.6: 60-62 N-D '56. (MLRA 9:12)

1. Pedagogicheskiy institut, g. Orel.
(Electron tubes)

MARGOLIN, B.L.

A demonstrator ultrashort-wave generator and its experimental demonstration. Fiz.v shkole 14 no.1:57-63 Ja-F '54. (MLRA 7:1)

1. Orel, Pedagogicheskiy institut.
(Electric waves)

MARGOLIN, A. Z.: Master Med Sci (diss) -- "The use of fructo-glucose in preserving blood". Minsk, 1958. 20 pp (Min Health Beloruss SSR, Minsk State Med Inst), 150 copies (KL, No 4, 1959, 145)

USSR/Human and Animal Physiology - Blood. Blood Transfusion. I-3
and Blood Substitutes.

Abs Jour : Ref Zhur - Biol., No 18, 1958, 84051

Author : Margolin, A.Z., Perevozkina, Ye.S.

Inst : Belorussian Scientific Research Institute for Blood Transfusion.

Title : Preserving of Blood and of the Erythrocyte Mass in Invert Sugar.

Orig Pub : Tr. Belorussk. n.-i. in-ta perelivaniya krovi, 1957, 6, 110-117.

Abstract : No abstract.

Card 1/1

USSR/Human and Animal Physiology (Normal and Pathological).
Blood. Transfusions and Blood Substitutes.

Abs Jour: Ref Zhur-Biol., No 17, 1958, 79429.

Author : Margolin, A.Z
Inst :
Title : Glucose-Saccharose-Citrate and Fruit-Glucose-Saccharose-Citrate Solutions for Preserved Blood

Orig Pub: Tr. Belorussk. n.-i in-ta perlivaniya krovi, 1957, 6, 83-89.

Abstract: No abstract.

Card : 1/1

MARGOLIN, A.M., kand. med. nauk; MEDVEDKOVA, A.A., kand. med. nauk; OVSYANNIKOVA, N.P., mladshiy nauchnyy sotrudnik.

Significance of Candida in the antibiotic treatment of chronic inflammation of the biliary tract. Kaz. med. zhur. no.5:15-17 S-O'63 (MIRA 16:12)

1. Terapevticheskaya klinika (zav - A.M.Margolin) i mikologicheskaya laboratoriya Leningradskogo nauchno-issledovatel'skogo instituta antibiotikov (nauchnyy rukovoditel' - prof. A.F. Markovich).

MARGOLIN, A.M.; ANISIMOVA, N.A.; MEDVEDKOVA, A.A.; OVSYANNIKOVA (Leningrad)

Use of nystatin in clinical internal diseases. Klin.med. 39 no.3:71-74 Mr '61. (MIRA 14:3)

1. Iz Leningradskogo nauchno-issledovatel'skogo instituta antibiotikov (dir. - dotsent A.V. Loginov).
(NYSTATIN)

MARGOLIN, A.M.; ANISIMOVA, N.A.

Pathogenesis and treatment of chronic pneumonia. Kaz. med. zhur. no.4: 23-26 Jl-Ag '61. (MIRA 15:2)

1. Leningradskiy nauchno-issledovatel'skiy institut antibiotikov (direktor - dotsent A.V.Loginov).
(PNEUMONIA)

MARGOLIN, A.M.; ANISIMOVA, N.A.

Nystatin therapy in cholecystitis with yeastlike fungi in the bile. Sov. med. 24 no. 7:110-113 Jl '60. (MIRA 13:8)

1. Iz Leningradskogo nauchno-issledovatel'skogo instituta antibiotikov (dir. - dotsent A.V. Loginov, zav. direktora po nauchnoy chasti - prof. P.N. Kashkin).
(NYSTATIN) (GALL BLADDER—DISEASES) (CHOLECYSTITIS) (BILE)

MARGOLIN, A.M.; ANISIMOVA, N.A.

Treatment of chronic nonspecific pneumonias with terramycin. Eksp. i klin. issl. po antibiot. 2:94-97 '60. (MIRA 15:5)
(PNEUMONIA) (TERRAMYCIN)

NEKACHALOV, V.Ya.; MARGOLIN, A.M.; NIKITINA, T.A.; LISOVSKAYA, N.D.; KHARENKO, V.I.; MAL'GINA, V.G.

Clinical manifestations of candidiasis observed in patients during antibiotic treatment. Eksp. i klin. issl. po antibiot. 2:89-93 '60. (MIRA 15:5)

(MONILIASIS) (ANTIBIOTICS--TOXICOLOGY)

MARGOLIN, A.M.

Materials for studying the practical use of antibiotics in some Leningrad therapy departments. Eksp. i klin. issl. po antibiot. 1:431-433 '58. (MIRA 15:4)
(LENINGRAD--ANTIBIOTICS)

MARGOLIN, A.M.

Characteristics of pneumonia in Leningrad. Eksp. i klin. issl. po antibiot. 1:427-430 '58. (MIRA 15:5)
(LENINGRAD--PNEUMONIA) (ANTIBIOTICS)

MARGOLIN, A.M., kand.med.nauk

Diaphragmatic flutter. Terap. arkh. 29 no.8:47-51 '57. (MIRA 11:4)

1. Iz Kirovskoy oblastnoy bol'nitsy (glavnyy vrach-zasluzhennyy vrach RSFSR M.K. Popova)

(DIAPHRAGM, diseases,
flutter (Rus)

MARGOLIN, A.M., kandidat meditsinskikh nauk

Calculous pancreatitis with calcification of the pancreas.
Vrach. delo no.1:85 Ja '57 (MLRA 10:4)

1. Kirovskaya oblastnaya bol'nitsa.
(PANCREAS--DISEASES)

MARGOLIN, A.M.

Certain problems in the specialization for physicians and therapeutists at local centers. Sov.med. 18 no.5:36-37 My '54. (MLRA 7:5)

1. Glavnyy terapevt Kirovskogo oblzdravotdela.
(Medicine--Study and teaching)

MARGOLIN, A.M., direktor meditsinskikh nauk; SHUBINA, T.N.

Analysis of the history of a disease during therapy. Sov. zdrav. 13 no.5:33-38 S-O '54. (MLRA 7:12)

1. Iz Kirovskoy oblastnoy bol'nitsy.
(RECORDS, MEDICAL,
analysis of hist. of dis. during ther.)

MARGOLIN, A.M.

Analytical means of determining the accuracy of mining geometric plans. Trudy VNII no.36:210-226 '62. (MIRA 15:11)
(Petroleum geology)

L 63868-65

ACCESSION NR: AP5021557

ers feeds the blocking to a press with an electric drive mechanism for assembling all the elements of the track framework into a section which is ready for laying. An upper pair of conveyers is equipped with a pneumatic pushrod and rollers for feeding both rails to the press. The car also contains a mechanism for moving the assembled section along the installation unit. 2. A modification of this device with a centering unit for placing the crossties in the roadbed on a curve. The centering unit is made in the form of a horizontal bar which is an extension of the pneumatic cylinder rod with a spring-return clamp hinged to its end. 3. A modification of this device with provision for simultaneously pressing both ends of the crosstie onto all vertically standing spikes at once. The press is made in the form of a crankshaft and connecting rod mechanism interlinked with a press table which is located symmetrically with respect to the longitudinal axis of the press. The press is equipped with electromagnetic punches.

ASSOCIATION: Proyektno-konstruktorskoye byuro Khabarovskogo instituta inzhenerov zheleznodorozhnogo transporta (Design and Planning Office of the Khabarovsk Institute of Railroad Transportation Engineers).

SUBMITTED: 02Dec63

NO REF SOV: 000 ENCL: 00 SUB CODE: GO

OTHER: 000

Card 2/2

L 63868-65 EWT(d)/EWP(h)/EWP(l)

ACCESSION NR: AP5021557 UR/0286/65/000/013/0024/0024
625.144.5

AUTHOR: Borodin, A. K.; Gol'tsman, V. A.; Grigorov, V. G.; Danilyuk, A. D.; Mokh, V. K.; Margolin, A. I.

TITLE: A device for mechanical installation of railroad track sections. Class 19, No. 172345

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 13, 1965, 24

TOPIC TAGS: railroad, railway construction, railway engineering

ABSTRACT: This Author's Certificate introduces: 1. A device for mechanical installation of railroad track sections. The unit consists of a flatcar which can be moved along the track. The devices needed for mechanical installation of the track sections are located on the frame of the car. The device is designed for efficient mechanization of the process and for continuous and uninterrupted operation. The installation mechanisms are made in the form of synchronously moving conveyers mounted one above the other in pairs. A lower pair of conveyers carries clamps for the crossties. A middle pair carries a pulsating rack with catches for picking up the blocking, which is finished with spike tips upward. This middle pair of convey-

Card 1/2

LIPNITSKIY, M.Ye., kand. tekhn. nauk; MARGOLIN, A.G., insh.

Standardizing multistory industrial buildings. Prom. stroi. 41 no.5:15-18 My '64. (MIRA 18:11)

1. Leningradskiy Gosudarstvennyy proyektnyy institut po obshchestroitel'nomu i sanitarno-tekhnicheskomu proyektirovaniyu promyshlennykh predpriyatiy Gosstroya SSSR.

IVANOV, V.F., doktor tekhn. nauk, prof. [deceased]; ONUFRIYEV, N.M., doktor tekhn. nauk, prof.; ROT, A.V., kand. arkh. dots.; GRIGOR'YEVA, A.M., arkh.; ZAKHAR'YEVSKAYA, M.A., kand. tekhn. nauk; ZEL'TEN, L.V., kand. arkh.; KRAMSKOY, V.A., arkh.; KUNTSMAN, M.S., kand. arkh. dots.; LOKHANOV, G.I., arkh.; NIKOLAYEV, A.I., doktor tekhn. nauk, prof.; OSIPOV, Ye.A., kand. tekhn. nauk, dots.; SAKHNOVSKIY, K.V., doktor tekhn. nauk prof.; TRULL', V.A., kand. tekhn. nauk, dots.; KARRO V.M., inzh., nauchn. red.; MARGOLIN, A.G., inzh., nauchn. red.

[Elements of buildings and structures] Konstruktsii zdanii i sooruzhenii. Leningrad, Stroiizdat, 1965. 487 p. (MIRA 18:12)

LIPNITSKIY, M.Ye., kand.tekhn.nauk; MARGOLIN, A.G., inzh.

Mounted and self-supporting wall panels of industrial buildings. Prom.stroi. 42 no.11:13-15 N '64.

(MIRA 18:8)

1. Leningradskiy gosudarstvennyy proyektnyy institut po obshchestroitel'nomu i sanitarno-tekhnicheskomu proyektirovaniyu promyshlennykh predpriyatiy Gosstroya SSSR.

MARGOLIN, A.G., inzh.; RAKOV, M.V., inzh.; Prinimal uchastiye BRASLAVSKIY, B.A., arkhitektor; NADGORNYY, M.P., inzh., nauchn. red.; ROTENBERG, A.S., red.izd-va; PUL'KINA, Ye.A., tekhn. red.

[Large-panel exterior wall elements for industrial buildings] Krupnopanel'nye stenovye ograzhdaiushchie konstruktsii promyshlennykh zdanii. Leningrad, Gosstroiizdat, 1963. 142 p. (MIRA 17:2)

1. Lenpromstroyproyekt (for Margolin, Rakov, Braslavskiy).

MARGOLIN, A.G.

Arachnitis not caused by injury. Zhur.nevr. i psikh. Supplement: 11-12 '57. (MIRA 11:1)

1. Klinika nervnykh bolezney (zav. kafedroy - dotsent L.M.Shenderovich) Arkhangel'skogo meditsinskogo instituta.
(BRAIN--DISEASES)

MARGOLIN, A.F.

Cultivation of dwarf apple trees. Priroda 50 no.8:114-115 Ag '61.
(MIRA 14:7)

1. Nikitskiy botanicheskiy sad (Yalta).
(Dwarf fruit trees) (Apple)

Dwarf Apple and Pear Trees in Crimea SOV/26-59-4-28/43

There is 1 photo.

ASSOCIATION: Otdeleniye stepnogo sadovodstva Gosudarstvennogo Nikitskogo botanicheskogo sada (pos. Gvardeyskoye, Simferopol'skogo rayona, Krymskoy oblasti) - Department of Steppe Horticulture of the Nikitskiy Botanical Garden (Gvardeyskoye settlement, Simferopol' Rayon, Crimean Oblast)

Card 2/2

SOV/26-59-4-28/43

30(1)
AUTHOR: Margolin, A.F.

TITLE: Dwarf Apple and Pear Trees in Crimea (Karlikovyye yabloni i grushi v Krymu)

PERIODICAL: Priroda, 1959, Nr 4, pp 109-110 (USSR)

ABSTRACT: The author points out that by the end of 1965 orchards and vineyards in the Crimean Oblast will have spread over many dozens of thousands of hectares. He describes the economical advantages of cultivating valuable fruit varieties on grafted dwarf tree stems, trees which bear fruits much earlier after planting than other trees. The Gosudarstvennyy Nikitskiy botanicheskiy sad (State Botanical Nikitskiy Garden) took the initiative of further developing these cultures and in the fall of 1957 provided a collective fruit seedling area of dwarf trees comprising 5 ha.

Card 1/2

: USSR

: Fruits, Berries, Nuts, Tea.

: I. Vergoliz, A.

: Yalta's Botanical Garden

: Vegetative Reproduction of Dwarf Stocks.

: Sadovodstvo i Vinogradarstvo Moldavii, 1957, No.1, 37-39

: An experiment is elucidated which was made by the Division of Steppe Horticulture of Yalta's Botanical Garden on establishing and rearing plantations of dwarf stocks (Paradise and Doucin for apples and quince for the pear) and the techniques of largescale production of stocks by the method of hilling the cuttings vertically. --S.A. Tzhevskiy

: 1/1

MARGOLIN, A.

Country :USSR
Category : CULTIVATED PLANTS.FRUITS. Berries.

Abs. Jour. : REF ZHUR-BIOL..21.1958. No. 96110

Author :Margolin, A.
Institut. :
Title :Important Problems in Dwarf Horticulture in the Crimea

Orig. Pub. :Vinogradarstvo i sadovodstvo Kryma, 1958, No.2, 22-25

Abstract :Observations made over many years have indicated that with a snow cover 10-15 cm thick the root systems of several types of dwarf Paradise, Dusen and Ayva stocks withstand any severe winter conditions. In the Crimea stocks of the type II and III Dusen and type VIII and IX Paradise and the Krymskaya are the most frost-hardy. Type V Dusen and type VI Paradise are less frost-resistant and can be allotted to regions in the foothill and southern shore zones only. The most drought resistant are type II and V of the Dusen, type VI, IX Paradise

Card: 1/2

MARGOLIN, A. F

MARGOLIN, A.F.

Growing dwarf pear trees. Priroda 46 no.5:107-108 My '57.
(MLRA 10:6)

1. Lokhvitskiy sortoispytatel'nyy punkt plodovo-yagodnykh kul'tur (Poltavskaya oblast', USSR).

(Dwarf fruit trees) (Pear)

MARGOLIN, A.F.

Cultivation of dwarf apple trees. Priroda 45 no.3:98-100 Mr '56. (MLRA 9:7)

1.Lokhvitskiy sortoispytatel'nyy punkt plodovo-yagodnykh kul'tur, Poltavskaya oblast', USSR.
(Apple)

MARGOLIN, A.

Dwarf fruit trees. IUn.nat. no.2:29-30 My '56. (MLRA 9:11)
(Dwarf fruit trees)

V.32 Dec 1953 MARGOLIN, A. F.

MARGOLIN (A. F.). Метод борьбы с хлорозом листьев. [A method of controlling leaf chlorosis.] Сад и Огород [*Orchard & Garden*], *1953*, 3, p. 76, 1953.

Leaf chlorosis was observed on apple [cf. *R.A.M.*, 19, p. 714] and pear [loc. cit.; ibid., 24, p. 112] seedlings in a nursery in the Poltava region, U.S.S.R., during the summer of 1952. Ten to 15 days after spraying the crowns of the plants with 2 per cent. ferrous sulphate, chlorosis disappeared and the leaves became green.

MARGOLIN, A. F.

Apple

Growing dwarf apples. Est. v shkole No. 2, 1953.

9. Monthly List of Russian Accessions, Library of Congress, June 1953, Uncl.

1. MARGOLIN, A. F.

2. USSR (600)

4. Apple

7. Raising early-bearing dwarf apple trees in tubs. Sad i og. no. 1, 1953.

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

MARGOLIN, A. F.

Plants - Frost Resistance

Resistance to frost of the dwarfed stalk., Sad i og., no. 2, 1952.

9. Monthly List of Russian Accessions, Library of Congress, May 1952, Uncl.

L 4521-66

ACC NR: AP5026068

SUB CODE: FP,TD,MI/SUBM DATE: 24Feb65/ ORIG REF: 011/ OTH REF: 001/ ATD PRESS 4130

Card 2/2

L 4521-66 EWT(l)/EWP(m)/EWT(m)/EPF(c)/ETC/EPF(n)-2/EWG(m)/EWP(j)/T/FCS(k)/EWA(c)

ACC NR: AP5026068 EWA(l) RPL WW/JW/WE/RM SOURCE CODE: UR/0405/65/000/002/0069/0075

AUTHOR: Gostintsev, Yu. A. (Moscow); Margolin, A. D. (Moscow)

ORG: none

TITLE: Convective heat and mass transfer in combustion of chemically active substances in the boundary layer on a porous surface

SOURCE: Nauchno-tekhnicheskiye problemy goreniya i vzryva, no. 2, 1965, 69-75

TOPIC TAGS: combustion, heat transfer, cooling, transpiration cooling, combustion chamber

ABSTRACT: Thermal protection of walls by injection of a liquid or gaseous coolant through the porous wall was analyzed on the basis of experimental data obtained previously by N. G. Kulgein (Journal of Fluid Mechanics, 12, 3, 1962) with methane injected through the wall into an air stream. In the present article, methane, oxygen, and carbon dioxide concentration profiles in the boundary layer with and without combustion were plotted. The validity of analytical solutions is discussed on the basis of a plot of the skin friction coefficient, Stanton number, and mass transfer coefficient vs Reynolds number. The dimensionless relationships obtained correlated with the experimental data with an accuracy of ±30%. Systematic experiments using other types of combustible systems including liquids are recommended. Orig. art. has: 2 figures and 10 formulas. [PV]

Card 1/2

The decomposition time τ is calculated from

$$\tau = \frac{h_{cr}}{D}\left(\frac{D+c-u}{c}\right),$$

where D is the velocity of the shock wave; c is sonic velocity; and u is the mass flow behind the shock wave (see Fig. 2). Analysis showed that for the given accuracies of h_{cr}, and without increasing the error by more than 5%, it can be assumed that D = c, and

$$\tau = \frac{h_{cr}}{D}\left(2-\frac{u}{D}\right).$$

The decomposition of explosives is undoubtedly influenced by temperature to a greater extent than by pressure, so that future investigations should be directed at this area. Orig. art. has: 2 figures and 1 table. [VS]

SUB CODE: 19/ SUBM DATE: 29Jun65/ ORIG REF: 002/ OTH REF: 002
ATD PRESS: 4227

Card 4/4 net

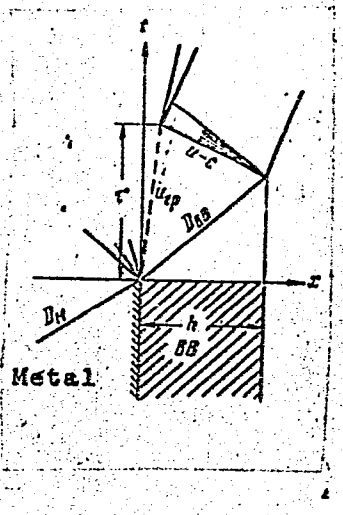
L 21853-66

ACC NR: AP6011660

P, kbar	H_{cr}, mm	τ, μsec
Monocrystalline hexogen		
170	2,98±0,5	1,00
175	2,38±0,10	0,68
180	1,86±0,10	0,47
190	1,18±0,05	0,33
195	1,1±0,05	0,30
Nitromethane		
86	7±0,5	2,54
90	4±0,5	1,42
93	3±0,5	1,05
99	2±0,5	0,67
104*	0,5±0,25	0,33*
Tetranitromethane		
108	3,5±0,5	1,24
111	1,0±0,25	0,35
116	0,5±0,25	0,20

P = 86 kbar; τ = 2.26 μsec;
P = 89 kbar; τ = 1.74 μsec
for nitromethane.

Fig. 2. Schematic representation



Card 3/4

L 21853-66

ACC NR: AP6011660

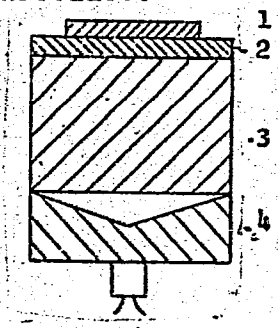


Fig. 1. Experimental arrangement

1 - The explosive investigated; 2 - metallic plate; 3 - active charge; 4 - lens for orthogonalization of the wave front.

The occurrence of the reaction initiated by passage of the shock wave is accompanied by explosion; the flash is registered photographically. When no flash is observed, it is assumed that the reaction time is longer than the time required for passage of the shock wave and return of the rarefaction wave through the layer of the investigated substance. For each wave intensity there exists a layer thickness for which an explosion will still occur. The results of the critical thickness h_{cr} measurements are given in the table:

Card 2/4

L 21853-66 EWP(m)/EWP(j)/EWA(h)/EWT(1)/EWT(m)/T/EWA(d)/EWA(1) RM/WW/JW/WE

ACC NR: AP6011660 SOURCE CODE: UR/0020/66/167/003/0610/0612

AUTHOR: Voskoboynikov, I. M.; Bogomolov, V. M.; Margolin, A. D.; Apin, A. Ya. 76 B

ORG: Institute of Chemical Physics, Academy of Sciences SSSR (Institut khimicheskoy fiziki Akademii nauk SSSR)

TITLE: Determination of decomposition times of explosives in a shock wave

SOURCE: AN SSSR. Doklady, v. 167, no. 3, 1966, 610-612

TOPIC TAGS: explosive, explosion, shock wave, kinetics

ABSTRACT: The purpose of this work was the measurement of the decomposition time of liquid nitromethane, liquid tetranitromethane, and monocrystalline hexogen [RDX] under the influence of a flat shock wave, using the experimental arrangement shown in Figure 1:

Card 1/4 UDC: 534.222.2+541.427.6

ACC NR: AP7001570

and for very long times the solution is the same as that of a rigid body with very small angular velocity. A second method is introduced which consists of a vortex boundary layer approximation $\epsilon \sim \tau^{1/2}$. Using the Karman-Pohlhausen momentum integral method, this analysis leads to an identical result for small times as the first method described above. Orig. art. has: 10 equations and 2 figures.

SUB CODE: 20/ SUBM DATE: 13May66/ ORIG REF: 005/ OTH REF: 002

ACC NR: AP7001570 SOURCE CODE: UR/0421/66/000/006/0045/0049

AUTHORS: Gostintsev, Yu. A. (Moscow); Margolin, A. D. (Moscow)

ORG: none

TITLE: Boundary layer on the free surface of a flat vortex

SOURCE: AN SSSR. Izvestiya. Mekhanika zhidkosti i gaza, no. 6, 1966, 45-49

TOPIC TAGS: boundary layer, incompressible flow, vortex flow, Laplace transform

ABSTRACT: The rotary motion of a viscous incompressible fluid is analyzed with a cavity of radius r_0 in the center. The flow is assumed to be unsteady and governed by the equation

$$\frac{\partial V_\varphi}{\partial t} = \nu\left(\frac{\partial^2 V_\varphi}{\partial r^2} + \frac{1}{r}\frac{\partial V_\varphi}{\partial r} - \frac{V_\varphi}{r^2}\right).$$

The boundary conditions are $\frac{\partial V_\varphi}{\partial r} - \frac{V_\varphi}{r} = 0$ at $r = r_0$, $V_\varphi \to 0$ as $r \to \infty$, and the initial condition is $V_\varphi = \frac{\Gamma}{2\pi r}$ at $t = 0$. The solution is obtained by using a Laplace transformation. The inversion of the transformation is obtained for two limiting cases only. For small times, $\nu t/r_0^2$, the tangential velocity is

$$V_\varphi(r = r_0, t) = \frac{\Gamma}{2\pi r_0}\left(1 - \frac{4\sqrt{\nu t}}{r_0\sqrt{\pi}} + \frac{3\nu t}{r_0^2} - \frac{5(\nu t)^{3/2}}{r_0^3\sqrt{\pi}} + \cdots\right),$$

Card 1/2

L 46316-66

ACC NR: AP6027959 O

valid only at low temperatures. The criterion derived by Istratov and Librovich (Zhurn. prikl. mekh. i tekhn. fiz., No. 5, 38, 1964) and the criterion derived by Novozhilov (ZhPMTF, No. 4, 157, 1965) are valid over the entire temperature range studied. Orig. art. has: 4 tables. [PS]

SUB CODE: 21/ SUBM DATE: 15Nov65/ ORIG REF: 010/ ATD PRESS: 5154

Card 2/2 egh

L 46316-66 EWT(d)/EWT(l)/EWT(m)/T IJP(c) WW/JW/JWD

ACC NR: AP6027959 SOURCE CODE: UR/0020/66/169/003/0619/0621

AUTHOR: Zenin, A. A.; Leypunskiy, O. I.; Margolin, A. D.; Nefedova, O. I.; Pokhil, P. F.

ORG: Institute of Chemical Physics, Academy of Sciences SSSR (Institut khimicheskoy fiziki Akademii nauk SSSR)

TITLE: Temperature field at the surface of burning gunpowder and combustion stability

SOURCE: AN SSSR. Doklady, v. 169, no. 3, 1966, 619-621

TOPIC TAGS: gunpowder, combustion stability, temperature field, ~~stability criterion~~ temperature distribution

ABSTRACT: Temperature distribution at the surface of burning gunpowder H was measured at initial surface temperatures ranging from -196 to 140C and pressures of 1—20 atm. The experimental data were used to determine the values of combustion stability criteria for various temperatures and pressures. Comparison of the experimental results with published theories showed that the Zel'dovich stability criterion (ZhETF, 12, 498, 1942), which was derived on the assumption that the temperature of the powder surface does not change with changing burning velocity and that there is no heat release in the condensed phase, is

Card 1/2 UDC: 541.126+536.462

L 43010-66

ACC NR: AP6029751

in the second flame zone decreased from 4.5 mm at p = 8 kg/cm^2 to 0.25 mm at p = 45 kg/cm^2. Temperature fluctuations, which are observed in the condensed phase and in the flame at lower temperatures and pressures, decreased as the temperature and pressure increased. The surface temperature of the burning tetryl coincided with its boiling point. Temperature and pressure changes in each zone are discussed in detail. Heat balance in the condensed phase, the burning velocity, and the burning mechanism are also discussed in detail. Orig. art. has: 4 tables, 5 figures, and 7 formulas. [PS]

SUB CODE: 19/ SUBM DATE: 11Feb66/ ORIG REF: 015/ OTH REF: 001 ATD Press 5065

Card 2/2

L 43030-66 EWT(m)/EWP(j)/T WW/JW/JWD/RM

ACC NR: AP6029751 (A) SOURCE CODE: UR/0414/66/000/002/0010/0020

53
52
6

AUTHOR: Margolin, A. D. (Moscow); Fogel'zang, A. Ye. (Moscow)

ORG: none

TITLE: Burning of tetryl

SOURCE: Fizika goreniya i vzryva, no. 2, 1966, 10-20

TOPIC TAGS: tetryl, ~~burning~~, temperature profile, burning velocity, heat balance, ~~burning mechanism~~

ABSTRACT: Temperature profiles and burning velocities were measured as a function of pressure p(up to 45 kg/cm^2) for tetryl charges with densities d = 1.68—1.70 g/cm^3. The experiments were conducted in a constant pressure bomb with windows for oscillographic registration of the changes in temperature and burning velocity and the observation of the character of burning. The temperature profiles show four zones: 1) the initial temperature zone, which corresponds to the melting temperature, i.e., the solid phase zone with temperature below 130C; 2) the liquid phase zone, corresponding to the temperature on the surface of the condensed phase; 3) the first flame zone in which the temperature rises slowly from 900 to 1600C at p = 7 kg/cm^2, and 4) the second flame zone in which the temperature rises rapidly to 2150C at p = 8 kg/cm^2. The distance from the charge surface to the maximum temperature region

Card 1/2 UDC: 541.427.6

L 21446-66

ACC NR: AP6009055

of the flame was observed in the burning of diethylene dinitrate. The size of the large perturbations decreased and the surface was covered with small perturbations. The turbulent character of the combustion of liquid explosives was also confirmed by experiments with tetranitromethane-ethanol and tetranitromethane-butanol mixtures burned at 2—40 atm. The theoretical predictions are in good agreement with the experiment. Orig. art. has: 4 figures and 4 formulas. [PS]

SUB CODE: 19/ SUBM DATE: 23Dec63/ ORIG REF: 005/ ATD PRESS: 4221

Card 2/2 mjs

L 21446-66 FSS-2/EWT(l)/EWP(m)/EWT(m)/EWA(d)/EWP(j)/EWA(h)/EWA(l)

ACC NR: AP6009055 WW/JW/WE/RM SOURCE CODE: UR/0207/66/000/001/0104/0106

66
65
B

AUTHOR: Margolin, A. D. (Moscow); Chuyko, S. V. (Moscow)

ORG: none

TITLE: Form of the surface of liquid explosives burning beyond a stability limit

SOURCE: Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 1, 1966, 104-106

TOPIC TAGS: liquid explosive, combustion instability, combustion, explosive

ABSTRACT: Based on Landau's theory of the normal burning of liquid explosives (Landau L. S. K teorii medlennogo goreniya. Zh. eksperim. i teor. fiz., 1944, 14, No. 4), a theoretical study was made of the form of perturbations on the surface of burning ethylene nitrate in a cylindrical vessel and of the effect of the vessel diameter on the combustion stability. The form of surface perturbations was also studied experimentally by high-speed photography (2000 frames/sec). The pictures were taken through the liquid explosive from the end of the reaction vessel utilizing the self-illumination of the burning surface. The light refraction at the liquid explosive surface revealed its surface structure. Etylene nitrate and diethylene dinitrate with critical burning instability pressures of 15 and 54 atm, respectively, were used in the experiments. The pictures were taken at pressures ranging from 14 to 60 atm. In addition to the perturbed surface and turbulent burning which was observed for both ethylene nitrate and diethylene dinitrate, a swirling motion

Card 1/2

L 50529-65
ACCESSION NR: AP5013760

$v_g - u > 0$. For the case when the gas pressure (P) over a pore increases with a velocity dP/dt,

$$v_g = \frac{H_0}{P}\frac{dP}{dt}\frac{T_g}{T_0},$$

where H_0 is the height of the pore, T_0 is temperature of the pore wall far from the inlet, and T_g is the temperature of the penetrating gas. Under decreasing pressures the combustion gases penetrate the pore by the spontaneous mechanism. The theory was verified by experiments with a model pore, a gap (40 mm long and about 0.1 mm wide) between a hexogen charge and a plexiglass plate. The charge was burned in a bomb under controlled nitrogen pressure. The pressure change was registered on an oscillograph, and the combustion process was registered by high-speed photography through the plexiglass plate. The combustion gases penetrated the pore when the initial pressure in the bomb exceeded about 25 atm. The penetration rate increased with pressure. A detailed analysis of the experimental data is given. Orig. art. has: 2 tables and 2 figures. [PS]

ASSOCIATION: Institut khimicheskoy fiziki Akademii nauk SSSR (Institute of Chemical Physics, Academy of Sciences, SSSR)

Card 2/3

L 50529-65 EPA/EPA(s)-2/EWT(m)/EPF(c)/EPR/EWP(j)/EWA(c) Pc-4/Paa-4/Pr-4/Ps-4/
Pe-7 RPL WW/JW/JWD/RM

ACCESSION NR: AP5013760 UR/0020/65/162/002/0388/0391

AUTHOR: Bobolev, V. K.; Margolin, A. D.; Chuyko, S. V.

TITLE: Mechanism of the penetration of combustion products into pores of explosive charges

SOURCE: AN SSSR. Doklady, v. 162, no. 2, 1965, 388-391

TOPIC TAGS: explosive combustion product, pore penetration mechanism, forced penetration, spontaneous penetration, hexogen

ABSTRACT: The following two mechanisms of the penetration of combustion products into the pores of an explosive charge are postulated and experimentally substantiated: 1) forced penetration, which depends on the outer pressure far from the burning surface and which is not connected with the combustion process itself, but with increasing outer pressure; and 2) spontaneous penetration, which is connected directly with the combustion process and occurs under the conditions of unsteady burning near the charge surface, which is attributed to surface and gas-flow nonuniformities. The forced penetration takes place when the velocity of the penetrating gas (v_g) with respect to the pores is higher than the linear burning velocity (u),

Card 1/2

L 21852-66

ACC NR: AP6011507 O

conditions, the smooth-surface charges did not ignite even at temperatures 200—300K higher than the ignition temperature of charges with the usual rough surface; however, a small scratch on the smooth surface leads to ingition of the charges. Thus, the ignition of powder charges is greatly dependent on the state of the charge surface. Microprotrusions on the surface are heated much faster than the whole surface and decrease considerably the surface temperature at which the ignition occurs. Orig. art. has: 1 formula. [PS]

SUB CODE: 19, 21/ SUBM DATE: 06Aug65/ ORIG REF: 002/ OTH REF: 001/ ATD PRESS: 4227

Card 2/2 nat

L 21852-66 EWP(m)/EWA(h)/EWP(j)/EWT(l)/EWT(m)/EWA(d)/EWA(l) RM/WW/JW

ACC NR: AP6011507 SOURCE CODE: UR/0414/65/000/004/0083/0084

AUTHOR: Kiselev, Ye. Ye. (Moscow); Margolin, A. D. (Moscow); Pokhil, P. F. (Moscow)

ORG: none

TITLE: Shock-wave ignition of gun powder

SOURCE: Fizika goreniya i vzryva, no. 4, 1965, 83-84

TOPIC TAGS: gun powder, nitroglycerin, nitrocellulose, shock wave ignition

ABSTRACT: Ignition of nitroglycerin and nitrocellulose powder by a shock wave was studied in a shock tube 4.7 m long and 41 mm in diameter. The tube was divided by a copper diaphragm into a low-pressure chamber filled with air and a high-pressure chamber filled with compressed nitrogen. The pressure in the shock wave was 3—25 atm and temperature was 500—1500K. The ignition delay decreased as the pressure and gas temperature in the reflected shock wave increased. At a gas temperature of about 1000K, the ignition occurred within milliseconds. The effect of the powder surface temperature and the surface structure on the ignition process was discussed. It was suggested that charges with rough surfaces ignite at much lower surface temperatures than charges with smooth surfaces. This was proven by experiments with specially prepared smooth-surface charges. The surface of the nitroglycerin and nitrocellulose powder was moistened with acetone and pressed against a glass plate. After several days, the powder charge was separated and ignited in the shock tube. Under the same

Card 1/2 UDC: 536.46+532.593

L 13880-66
ACC NR: AP6004427

SUB CODE: 21/ SUBM DATE: 19Feb65/ ORIG REF: 010/ OTH REF: 001/ ATD PRESS: 4193

TS
Card 2/2

L 13880-66 EWT(m)/FBA/ETC(m)-6/T/EWP(t) WW/JWD/WE

ACC NR: AP6004427 SOURCE CODE: UR/0414/65/000/003/0027/0035

AUTHOR: Margolin, A. D. (Moscow); Chuyko, S. V. (Moscow)

65

ORG: none

B

TITLE: Conditions of ignition of pore walls in combustion of porous charges

SOURCE: Fizika goreniya i vzryva, no. 3, 1965, 27-35

TOPIC TAGS: combustion, solid propellant, combustion instability

ABSTRACT: Several investigators have previously concluded that instability is connected with the ignition of pore walls, but the conditions have not been analyzed. The ignition or pyrolysis of pore walls is considered to be a necessary but not a sufficient condition for combustion instability. For instability to occur, the front of the ignition or pyrolysis must move faster than the normal combustion front. Perturbation of the normal combustion regime can take place either by penetration of gases into the pores or by heating the gases contained in the pores. In the present study, the following cases were mathematically analyzed and ignition criteria were derived in terms of pore dimensions, gas and propellant temperatures, pressure, etc.: heating and ignition of pore walls by penetrating hot gases, ignition of pore wall caused by flame propagation into the gases contained in the pores, and heating of gases by adiabatic compression. The effects of imperfections in pore structure are also discussed. Orig. art. has: 22 formulas. [PV]

Card 1/2 UDC: 536.46

L 31324-66
ACC NR: AP5026068

results do not correspond to the experimental results because the processes in the gas and condensed phases are not quasi-steady state as assumed in the analysis. Orig. art. has: 20 formulas and 3 figures. [ATD PRESS: 4125]

SUB CODE: 21 / SUBM DATE: 24Feb65 / ORIG REF: 011 / OTH REF: 001

Card 2/2

L 31324-66 EWT(m) WW/JWD

ACC NR: AP5026068 SOURCE CODE: UR/0405/65/000/002/0069/0075

AUTHOR: Gostintsev, Yu. A. (Moscow); Margolin, A. D. (Moscow)

ORG: none

TITLE: Nonsteady-state powder combustion under the action of pressure pulses

SOURCE: Nauchno-tekhnicheskiye problemy goreniya i vzryva, no. 2, 1965, 69-75

TOPIC TAGS: solid propellant, combustion, combustion theory, nonsteady state combustion, combustion instability, solid propellant combustion

ABSTRACT: An analysis was made of the nonsteady-state combustion of solid propellants induced by rectangular or triangular pressure pulses. Combustion of a semi-infinite charge was analyzed on the basis of the Zel'dovich theory of powder combustion. The nonlinear equations of heat conduction were solved through the use of integral relationships. As a result, a diagram was obtained which shows the regions of flame extinction as a function of the intensity and duration of the pressure pulses. The optimum condition for extinction exists when the duration of the pressure pulse is of the same order of magnitude as the thermal relaxation time of the heated propellant layer. With very short pressure pulses, the theoretical

UDC: 536.46+532.501.32

Card 1/2

[illegible]IN, A.D.

Interaction of the [illegible] and the anomalous dependence of the rate of combustion. Zhur. fiz. khim. 38 no.6:15[illegible] Je '64. (MIRA 18:3)

1. Institut khimicheskoy fiziki AN SSSR.

L 27200-65
ACCESSION NR: AP5002883

combustion, η a parameter characterizing the porosity of the plate, θ the temperature at any point, τ the time, and ξ the distance along the thickness of the plate. The time for complete combustion was obtained in the form

$$\tau_+ = \frac{\eta - 1}{\eta}\left[\frac{\delta_0}{\eta - 1} - \psi_0(\operatorname{th}\delta_0 - \delta_0)\right],$$

where ψ_0 is the value at the center of the plate of the function $\psi(\tau)$ given by

$$\theta = \psi(\tau)\frac{\operatorname{ch}\xi}{\operatorname{ch}\delta(\tau)} + 1 - \psi(\tau).$$

Orig. art. has: 2 figures and 11 formulas.

ASSOCIATION: none

SUBMITTED: 07Feb64 ENCL: 00 SUB CODE: FP

NO REF SOV: 002 OTHER: 002

Card 2/2

L 27200-65 EWP(e)/EWT(m)/EWP(k)/EWP(t)/EWP(b) Pf-4 JD
ACCESSION NR: AP5002883 S/0207/64/000/005/0167/0168

22
15
8

AUTHORS: Gostintsev, Yu. A. (Moscow); Margolin, A. D. (Moscow)

TITLE: On the nonstationary combustion of thin plates of powder 16

SOURCE: Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 5, 1964, 167-168

TOPIC TAGS: combustion, powder combustion rate, powder, porous medium 4

ABSTRACT: The equations governing the nonstationary combustion of a plate of powder are solved by the method of integral relations. A formula is obtained for the time of complete combustion, τ_+, of a plate of thickness $2\delta_0$. The combustion was considered to take place along the two unbounded directions parallel to the plane of the plate. The system of equations governing the combustion of the plate is:

$$\omega = \eta - (\eta - 1)\left(\frac{\partial\theta(\xi,\tau)}{\partial\xi}\right)_{\xi=\delta}$$

$$\frac{\partial\theta(\xi,\tau)}{\partial\tau} = \frac{\partial^2\theta(\xi,\tau)}{\partial\xi^2} \qquad (\tau > 0,\ 0 < \xi < \delta(\tau))$$

$$\theta(\xi,\tau) = 1 \text{ at } \xi = \delta(\tau),\ \frac{\partial\theta(\xi,\tau)}{\partial\xi} = 0 \text{ at } \xi = 0,\ \theta = \frac{\operatorname{ch}\xi}{\operatorname{ch}\delta} \text{ at } \delta \to \infty.$$

All the quantities here are dimensionless; ω is the stationary rate of

Card 1/2

ACCESSION NR: AP4041756

where $a_1 = (d \ln u_1/d \ln y)_{y_0}$; $a_2 = (d \ln u_2/d \ln y)_{y_0}$; $v_1 = (d \ln u_1/d \ln p)_y$; $v_2 = (d \ln u_2/d \ln p)_y$; y_0 and y refer to the distances between the zones, and u_1 and u_2 refer to the burning velocities in the two zones. According to this theory, the anomalous pressure dependence of the burning velocity is explained as follows: at low pressures the gas-phase reaction is a controlling factor with $v = v_2^0 = (d \ln u_2/d \ln p)_T$; the reaction then follows the region of strong interaction between the zones at low v ($v < v_1$; $v < v_2$); as the pressure increases, the condensed phase reaction becomes the controlling factor and $v = v_1^0 = (d \ln u_1/d \ln p)_T$. The equation may also be used for studying other parameters if p (pressure) is replaced by a different parameter such as particle size or additive concentration. The equation may be generalized to include the interaction of more than two zones. Orig. art. has: 9 formulas.

ASSOCIATION: Akademiya nauk SSSR, Institut khimicheskoy fiziki (Academy of Sciences SSSR, Institute of Chemical Physics)

SUBMITTED: 19Nov62 ATD PRESS: 3048 ENCL: 00

SUB CODE: FP NO REF SOV: 008 OTHER: 004

ACCESSION NR: AP4041756 S/0076/64/038/006/1599/1601

AUTHOR: Margolin, A. D.

TITLE: Interaction of burning zones and the anomalous pressure dependence of burning velocity

SOURCE: Zhurnal fizicheskoy khimii, v. 38, no. 6, 1964, 1599-1601

TOPIC TAGS: propellant burning velocity, burning zone, pressure dependence anomaly, condensed phase reaction, gaseous phase reaction

ABSTRACT: A theoretical analysis has been made of the effect of the interaction between burning zones in a system on the burning velocity of the system. A simple two-zone theoretical model is proposed for the interaction between the first zone (reactions in the condensed phase) and the second zone (reactions in the adjoining gaseous phase). The model explains the anomalous pressure dependence of the burning velocity of a system. The pressure dependence of the burning velocity of the entire system is characterized by the function v:

$$v = \frac{a_2 v_1 - a_1 v_2}{a_2 - a_1},$$

Card 1/2

ACCESSION NR: AP4041205

84 to 72 cal/g). The heat capacity of the products that form the smoke-gas mixture and the powder is computed to be 0.4 cal/g deg. "The authors thank N. N. Mikhaylov for designing and preparing the attachments for cooling the samples." Orig. art. has: 6 figures and 2 tables.

ASSOCIATION: none

SUBMITTED: 23Nov63	ATD PRESS: 3079	ENCL: 00
SUB CODE: FP	NO REF SOV: 008	OTHER: 000

Card 2/2

ACCESSION NR: AP4041205 S/0207/64/000/003/0149/0153

AUTHORS: Margolin, A. D. (Moscow); Nefedova, O. I. (Moscow); Pokhil, P. F. (Moscow)

TITLE: Dependence of burning rate of different fuels on initial temperature

SOURCE: Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 3, 1964, 149-153

TOPIC TAGS: burning rate, fuel, hexogene, perchlorate, benzoate, reaction layer

ABSTRACT: Experiments were made with hexogene and mixtures of potassium perchlorate with tungsten, zirconium, or potassium benzoate. Initial temperatures ranged from -140 to 150C. The component ratios, charge densities, and inert-gas pressure were varied in the experiments. It was found that the log of the burning rate of hexogene and mixtures of potassium perchlorate with metals has a linear dependence on initial temperature of the substance, but the relation for mixtures of potassium perchlorate with potassium benzoate has a break in it. Measurements of the surface temperatures in flameless combustion showed that the heat given off in the reaction layer of the condensed phase, on raising the initial temperature of the pyroxylin powder from 90 to 140C, decreases 15% (from

Card 1/2

L 14545-63

ACCESSION NR: AP3003228

2

Increasing the pressure increases the solubility of the gaseous products and impedes dispersion. The mechanism by which pressure affects dispersion and hence combustion rate is described by a series of equations. In real systems, however, where substances with very different solubilities are present in the condensed phase, the relationship between combustion rate and pressure may be more complex. Still, while the many and diverse chemical and physical processes going on in the reaction layer of the condensed phase are the major factors determining combustion rate, the rate may nonetheless depend on the pressure. This report was presented by Academician V. N. Kondrat'yev, 21 Feb 63. Orig. art. has: 10 equations.

ASSOCIATION: Institut khimicheskoĭ fiziki Akademii nauk SSSR (Institute of Chemical Physics, Academy of Sciences SSSR)

SUBMITTED: 12Feb63 DATE ACQ: 24Jul63 ENCL: 00

SUB CODE: CH, PH NO REF SOV: 010 OTHER: 000

Card 2/2

L 14545-63 EPF(c)/EWT(m)/BDS AEDC/AFFTC/APGC/RPL Pr-4 BW/WW/JW/
JWD/H
ACCESSION NR: AP3003228 S/0020/63/150/006/1304/1306

66
64

AUTHOR: Margolin, A. D.; Pokhil, P. F.

TITLE: The effect of pressure on the rate of processes in the reaction layer of the condensed phase of burning gunpowder

SOURCE: AN SSSR. Doklady*, v. 150, no. 6, 1963, 1304-1306

TOPIC TAGS: pressure, burning gunpowder, powder combustion rate, condensed phase

ABSTRACT: Since the processes occurring in the reaction layer of the condensed phase in some cases contributed 0.9 q (q = total amount of heat required for heating this phase), these processes may be one of the major determinants, if not the principal one, of the powder combustion rate. One of the many factors determining the combustion rate of gaseous mixtures and of gunpowder - where the main stage of combustion starts in the gaseous phase - is pressure. It affects the rate and kinetics of chemical reactions involving the dissolved gaseous substances given off on dissociation of the condensed phase, the temperature equilibrium and phase shifts, and the surface temperature of the condensed phase.

Card 1/2

L 16926-63 EPR/EPF(c)/EWT(1)/EPF(n)-2/EWT(m)/BDS AEDC/AFFTC/ASD/APGC/
SSD Pe-4/Pr-4/Pu-4 BW/WW/JW/JFW/JWD/H S/076/63/037/004/018/029

78

AUTHOR: Margolin, A. D.

TITLE: Thermal explosions with constant distribution of the heat source

PERIODICAL: Zhurnal fizicheskoy khimii, V. 37, No. 4, 1963, 887-888

TEXT: In the case of a thermal explosion, the presence of a constant, distributed source of heat could mean a high frequency electrical field, penetrating radiation, or an ultraviolet field. An elementary analysis shows that when there is an increase in the intensity of the constant source of heat, the critical temperature of the thermal explosion will decrease.

ASSOCIATION: Institut khimicheskoy fiziki, Akademiya nauk SSSR (Institute of Chemical Physics, Academy of Sciences USSR)

SUBMITTED: April 27, 1962

Card 1/1

L 16204-63
ACCESSION NR: AP3006345 0

gravitation on combustion stability. Stability at zero gravity is discussed. On the basis of photographs obtained by high-speed frame photography, it is shown that flame pulsations arise as a consequence of perturbations of the liquid surface. Both radial and tangential instability modes were distinguished. The wave length of the oscillations was evaluated as 2—8 mm, which lies within the range of dangerous oscillations predicted by theory. Measurements of flame pulsations indicated that their frequency increases somewhat with increasing pressure. Photographs of nitroglycol dyed with nigrosine showed helical traces and cellular patterns resembling those observed with spinning detonation waves. It may be assumed that the dimension of the surface perturbation during unstable combustion equals the dimension of the most dangerous oscillation predicted by stability analysis. Orig. art. has: 6 figures and 17 formulas.

ASSOCIATION: none

SUBMITTED: 16Oct63 DATE ACQ: 27Sep63 ENCL: 003

SUB CODE: AS, PR NO REF SOV: 004 OTHER: 001

Card 3/3

3

$$n = (J/J_1)\sqrt{\frac{\rho_1}{\rho_2}}, \quad J = \rho_1 v_1 \text{ (the mass burning rate),}$$

and $J_1 = \rho_2^* v_2^*$ (the critical mass burning rate). The region in which oscillations are amplified was defined by inequalities in terms of n and x. The values of r_n, λ_n and x_n were calculated for nitroglycol and tabulated in the range of n = 1 - 2. A plot of x versus n is shown in Fig. 1 of the Enclosure. Experiments with nitroglycol were conducted in tubes (1.5-10mm diameter) and in rectangular vessels (2 x 10 mm). To secure uniform ignition along the entire surface, nitroglycol was ignited by a layer of steadily burning ethylnitrate placed over the nitroglycol and ignited by a nichrome wire. The time of development of unstable combustion of nitroglycol was less than 0.1 sec. The effects of the tube diameter and the shape of the vessel on combustion stability were also studied. Some of the results are shown in Fig. 2 and Fig. 3 of the Enclosure. Fig. 3 shows that in tubes of small diameter the largest possible perturbations will be the most dangerous while in tubes of large diameter the most dangerous will be perturbations having the highest values of f. Further analysis yielded criteria for the effect of

L 16204-63 EPR/EPF(c)/EWT(m)/BDS AFFTC Ps-4/Pr-4 RM/BW/WW/
JW/JWD/H
ACCESSION NR: AP3006345 S/0258/63/003/003/0460/0467

AUTHOR: Margolin, A. D. (Moscow); Chekirda, L. F. (Moscow); Chuyko, S. V. (Mo[redacted])

TITLE: The combustion stability of liquid explosives at constant pressure

SOURCE: Inzhenerny*y zhurnal, v. 3, no. 3, 1963, 460-467

TOPIC TAGS: combustion stability, combustion instability, liquid explosive, propellant, stability analysis, liquid fuel, nitroglycol, instability mode, combustion

ABSTRACT: A comprehensive theoretical and experimental study of combustion stability is presented. An analysis is made of combustion in an infinite vessel based on L. D. Landau's general theory on the combustion stability of liquid explosives (K teorii medlennogo goreniya. Zh. eksperim. i teoret. fiziki, v. 14, no. 4, 1944), and the following formulas are derived for determining the dimensionless wave number of dangerous oscillations (x_n) (those which develop most rapidly) and the time required for their development (τ_n):

$$x_n = 4/3n^2; \text{ and } 1/\tau_n = 1.5\,(gn^3/J_1)\sqrt{\rho_1\rho_2}^*,$$

Card 1/2

POKHIL, P.F.; NEFEDOVA, O.I.; MARGOLIN, A.D.

Anomalous dependence of the gunpowder rate of burning on the initial temperature. Dokl.AN SSSR 145 no.4:860-862 Ag '62. (MIRA 15:7)

1. Institut khimicheskoy fiziki AN SSSR. Predstavleno akademikom V.N.Kondrat'yevym.
(Combustion) (Gunpowder)

32320
S/020/61/141/005/014/018
B101/B144

Leading stage of burning

references to English-language publications read as follows: O. K. Rice, R. Ginell, J. Phys. Coll. Chem., 54, 885 (1950); R. G. Parr, B. L. Crawford, J. Phys. Coll. Chem., 54, 929 (1950).

ASSOCIATION: Institut khimicheskoy fiziki Akademii nauk SSSR (Institute of Chemical Physics of the Academy of Sciences USSR)

PRESENTED: June 23, 1961, by V. N. Kondrat'yev, Academician

SUBMITTED: June 21, 1961

Fig. 1. Dependence of surface temperature of the condensed phase and burning temperature (T_2) on the initial temperature T_0 of powder.

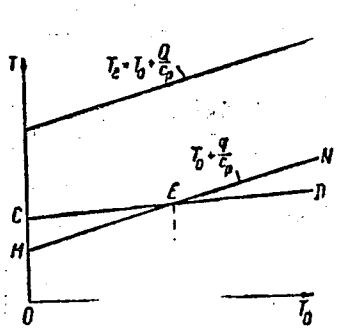


Fig. 1

Card 4/4

Leading stage of burning

ous phase to the condensed phase. At p = const, T_{sE} = const, q can be determined from the salient point of the curve $\beta(T_o)$: $q = c_p(T_{sE} - T_{oE})$ (6). The effect of pressure on the transition of the leading part can be analyzed in the same way. In Eq.(4), p is substituted for T_o. The physical meaning of the lines CED and MEN remains the same. For the pressure dependence of the burning rate it is written: $u \sim p^{\nu_1} \exp(-E_s/2RT_s)$ (p) (7). $\nu_s = (p/u)\partial u/\partial p + (p/u)(\partial u/\partial T_s)dT_s/dp = \nu_1 + p(E_s/4RT_s^2)dT_s/dp$ (8), where $dT_s/dp = (1/c_p)dq/dp$. For the pressure dependence of T_s in the leading gaseous phase, the following approximately holds (with $E/RT \gg 1$): $dT_s/dp = [(\nu - \nu_1)/p]\,4RT_s^2/E_s$ (9). The present results agree with the physical principles of burning of powders as formulated by P. F. Pokhil (Sborn. Fizika vzryva, no. 2, 1953; ibid. no. 3, 1955; ibid. no. 5, 1956). O. I. Leypunskiy, A. I. Korotkov (Sborn. Fizika vzryva, no. 2, 1953), Y. B. Zel'dovich (ZhETF, 12, 498 (1942), and V. M. Mal'tsev are mentioned. There are 1 figure and 9 references: 7 Soviet and 2 non-Soviet. The two

Card 3/4

Leading stage of burning

leading part. For the temperature at which this transition occurs it holds: $T_{oE} = T_s - q/c_p$ (2) (T_s = surface temperature). For the point of intersection, the following generally holds: $(\partial T_{CED}/\partial T_o)_E \gtrless (\partial T_{MEN}/\partial T_o)_E$ (3). Here, the symbol < denotes the transition of the leading part from the gaseous to the condensed phase; the symbol > the inverse transition. If Eq.(3) is valid, the position of the point of intersection depends on the ratio of the temperature coefficients β of burning rate u: $\beta = (\partial \ln u/\partial T_o)_p$; $(\partial u_+/\partial T_o)_E \gtrless (\partial u_-/\partial T_o)_E$; $\beta_+ \gtrless \beta_-$; $(\partial \ln u_+/\partial \ln T_o)_E \gtrless (\partial \ln u_-/\partial \ln T_o)_E$. Subscript + holds for $T_o > T_{oE}$; subscript - , for $T_o < T_{oE}$. It is assumed that the total kinetics in the gaseous and the condensed phase follows the Arrhenius equation. Then, for $E/kT \gg 1$, Eq. (3) can be expressed by $E_g/T_g \lessgtr (E_c/T_c^2)\left[1 + (\partial/\partial T_o)q/c_p\right]$ (5) (subscript g refers to the gaseous phase; subscript c, to the condensed phase). The increase of β with rising temperature found by other researchers becomes evident from the function $\beta(T_o)$. At $T_o > T_{oE}$, the leading part passes over from the gas-

Card 2/4

32320
S/020/61/141/005/014/018
B101/B144

11,7000

AUTHOR: Margolin, A. D.

TITLE: Leading stage of burning

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 141, no. 5, 1961, 1137 - 1139

TEXT: Basing on the model by A. F. Belyayev (ZhFKh, 12, 93 (1938)) and Ya. B. Zel'dovich (ZhETF, 12, 498 (1942)) the author assumes two burning stages: Burning in the gaseous and smoke phase, and burning in the condensed phase. Fig. 1 shows the dependence of surface temperature of the condensed phase and burning temperature T_b on the initial temperature T_o of a powder. If the gaseous phase is the leading one, the temperature of the condensed phase increases along the line CED. Due to heat transfer to the reaction layer, heating occurs along the line MEN: $T_{MEN} = T_o + q/c_p$ (1). If the initial temperatures are in the range $0 < T_o < T_{oE}$, burning in the gaseous - smoke phase takes the leading part. At $T_o > T_{oE}$, burning in the reaction layer of the condensed phase takes the

Card 1/4

29019
S/020/61/140/004/020/023
B139/B110

Burning stability of porous

the depth S is reached at the following pressure variation frequency ω.

$$\omega_1 = \frac{2\pi u}{S}, \quad \left(\frac{P_1}{P_0}\right)_{min} = \frac{2\sqrt{2}}{\sqrt{N(\omega_1)}},$$

where u is the rate of flow of the gas = burning rate, $N = 2\omega a^2 \rho_0 k/u^2 m\mu$ (a is the sound velocity in filtered gas, ρ_0 the mean gas density, m the porosity, k the permeability, μ the viscosity coefficient) For any pressure P_0, there exists an optimum pressure variation frequency ω_1, at which the sudden change of the burning process takes place soonest. The existence of an optimum value for ω_1 is of great importance from the point of view of physics. There are 4 Soviet references

ASSOCIATION: Institut khimicheskoy fiziki Akademii nauk SSSR (Institute of Chemical Physics of the Academy of Sciences USSR)

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SUBMITTED: May 15, 1961

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AUTHOR: Margolin, A. D.

TITLE: Burning stability of porous explosives

PERIODICAL: Akademiya nauk SSSR Doklady, v 140, no 4, 1961, 867-869

TEXT: When powdery porous explosives burn, there is a critical pressure at which the normal burning process changes into explosive burning. This sudden change takes place when the hot gases developing during burning penetrate into the pores of the explosive due to dynamic pressure increase above the burning surface. This happens the sooner, the higher the burning rate and the larger the pores of the explosive. The penetration of hot gases into the pores of the explosive which burns at a certain rate is accelerated by intensive changes in pressure. In order to affect the burning process it is necessary that the hot gases penetrate to the depth S. The depth of penetration S should be proportional to the width l of the heated layer, the proportionality factor depending on the conditions of heat exchange and in the flammability of the explosive. The minimum pressure difference $(P_1/P_0)_{min}$ required for the penetration of gases to

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Problemy narodonogo khozyaystva Dal'nego Vostoka. Moskva, Izd-vo Akademii Nauk SSSR, 1963.

253 p. maps, tables.

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AUTHOR: Sturcz, Jozsef; Kotra, Zsuzsanna; Purjesz, Istvan; Lakatos, Katalin, S.; Saliga, Margit K. 31 B+1

ORG: [Sturcz, Purjesz, Lakatos, Saliga] Institute of Physiology, Medical University of Budapest (Budapesti Orvostudomanyi Egyetem, Elettani Intezet); [Kotra] KOJAL, Budapest

TITLE: Effect of vagotomy on aldosterone secretion in the dog 22

SOURCE: Academiae scientiarum hungaricae. Acta physiologica, v. 28, no. 2, 1965, 163-170

TOPIC TAGS: corticosteroid, dog, endocrinology

ABSTRACT: A study was carried out on the effect of vagotomy on the rate of aldosterone secretion in hypovolemic and hypervolemic dogs. The rate of secretion achieved in the hypovolemic state was significantly increased by vagotomy. In the hypervolemic state, vagal section had no effect on the aldosterone output of the adrenals. Under such experimental conditions, the inhibitory effect of hypervolemia on aldosterone secretion was overruled by the stimulating effect of blood loss. The authors thank Ciba, Basel and Organon, Oss, Netherlands for supplies of steroid preparations. Orig. art. has: 3 figures. [Orig. art. in Eng.] [JPRS]

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Card 1/1