

SHTER, O.I., inzh.

Determining the strength of concrete by studying the condition
of elements. Anal. prich. avar. i povr. stroi. kon. no. 2:254-
262 '64. (MIRA 18:5)

SHTERN, O.M., inzh.

Calorimetric determination of oxygen dissolved in water. Energetik
12 no.12:18-21 D '64 (MIRA 18:2)

DZYSYUK, A.A., inzh.; KALININA, N.M., tekhnik; KOSTRIKIN, Yu.M., kand. tekhn.
nauk.; PETROVA, S.Yu., tekhnik; RUMYANTSEVA, V.A., inzh.; TOBOLEVA,
A.D., tekhnik; SHTERN, O.M., inzh.; SHCHERBINA, S.D., inzh.

New chemical water analysis techniques. Elek. sta. 35 no.7:31-34
Jl '64. (MIRA 17:11)

SHTERN, R. D.

24336 SHTERN, R. D. Anatomiceskii teatr i prozektura Glavaogo Voennogo Gospitalya im. akad. N. N. Burdenko za 240 let. (Kratkiy 1st. ocherk). Trudy Glav. voyen. Gospitalya Voenush. Sil SSSR im. akad. Burdenko. VIP. 6 N., 1949, S. 71-91. - Bibliogr: 19 nazv.

SO: Letopis, No. 32, 1949.

SHARANOV, A.N., otvetstvenny redaktor, zamestitel' ministra zdavookhraneniya SSSR; DAVIDOVSKIY, I.V., chlen redaktsionnoy kollegii; DVIZHKOV, P.P., chlen redaktsionnoy kollegii; KRAYEVSKIY, N.A., chlen redaktsionnoy kollegii; MIGUNOV, B.I., chlen redaktsionnoy; SMOL'YANNIKOV, A.B., chlen redaktsionnoy kollegii; STEUKOV, A.I., chlen redaktsionnoy kollegii; SHLYAPNIKOV, N.F., chlen redaktsionnoy kollegii; SHTERN, R.D., chlen redaktsionnoy kollegii.

[Conference of pathological anatomists, Kuybyshev, 1951. Transactions] Soveschaniye patologoanatomov, Kuibyshev, 1951. Trudy. Otvetstvennyi redaktor A.N.Shabanov. Moskva, Medgiz, 1952. 253 p. (MLRA 6:7) (Anatomy, Pathological)

SHTERN, R.D.

50th anniversary of Mikhail Ivanovich Avdeev. Arkh. pat., Moskva 14 no.
3:103-104 May-June 1952. (GIML 23:2)

1. Avdeyev is Doctor Medical Sciences, Professor, Communist Party
Member, Head of the Department of Forensic Medicine at First Moscow
State University.

DAVYDOVSKIY, I.V.; SHTERN, R.D., redaktor.

[Gunshot wounds in man] Ognestrel'naiia rana cheloveka. Vol 2.
[Morphological and general pathological analysis] Morfologicheskii i obshchepatologicheskii analiz. Moskva, Gos. izd-vo meditsinskoi lit-ry. 1954. 467 p. (MLRA 7:8)

1. Deystvitel'nyy chlen AMN SSSR.(for Davydovskiy)
(Gunshot wounds)

AERIKOSOV, Aleksey Ivanovich; STRUKOV, Anatoliy Ivanovich; ~~SECRET~~, R.D.,
redaktor; BEL'CHIKOVA, Yu.S., tekhnicheskiy redaktor

[Pathological anatomy] Patologicheskaya anatomia. Moskva, Gos. izd-
vo med. lit-rv. Pt.2. [Pathological anatomy and the pathogenesis of
diseases] Patologicheskaya anatomia i patogenez boleznei. 1954.
499 p. (MIRA 8:4)

(Anatomy, Pathological) (Pathology)

VUPRIYANOV, P.A., otvetstvennyy redaktor; SHTERN, R.D., redaktor; SACHEVA,
A.I., tekhnicheskiy redaktor

[Pirogov lectures of 1954] Pirogovskie chteniia 1954 goda. Moskva,
Gos. izd-vo med. lit-ry, 1956. 57 p. (MLRA 9:7)

1. Akademiya meditsinskikh nauk SSSR, Moscow.
(PIROGOV, NIKOLAI IVANOVICH, 1810-1881)

DVIZHKOV, P.P., otvetstvennyy redaktor; AVTSYN, A.P., redaktor; VINOGRADOVA, T.P., redaktor; DEHGACHEV, I.S., redaktor; KUFYAZEVA, G.D., redaktor; PALEYES, L.O., redaktor; RAPOPORT, Ya.L., redaktor; SMOL'YANNIKOV, A.V., redaktor; UGRYUMOV, B.P., redaktor; ~~SHTERN, B.D.,~~ redaktor; KOMAROVA, Z.N., redaktor; ZAKHAROVA, A.I., tekhnicheskly redaktor

[Proceedings of the All-Union Conference of Pathoanatomists, Leningrad, July 4-9, 1954] Trudy Vsesoiuznoy konferentsii patologoanatomov 4-9 iulia 1954 g. Leningrad. Moskva, Gos. izd-vo med. lit-ry, 1956. 411 p. (MLRA 10:3)

1. Vsesoyuznaya konferentsiya patologoanatomov. Leningrad, 1954. (ANATOMY, PATHOLOGICAL—CONGRESSES)

SHTERN, R.D., kandidat meditsinskikh nauk.

"Thrombosis and embolisms"[in German] (Transaction of the First
International Conference in Basel, July 20-24 1954) Reviewed by
R.D. Shtern. Arkh. pat. 18 no.1:123-130 '56. (MIRA 9:6)

(THROMBOSIS) (EMBOLISM)

С/У е Р М, А-В.

DAVYDOVSKIY, I.V., professor; SHTERN, R.D., kandidat meditsinskikh nauk

Work of the All-Union Society of Pathoanatomists in 1954 and 1955.
Arkh.pat. 18 no.7:137-141 '56. (MLRA 10:1)

1. Predsedatel' Pravleniya Vsesoyuznogo obshchestva patologoanatomov,
Deystvitel'nyy chlen Akademii meditsinskikh nauk SSSR (for Davydov-
skiy) 2. Uchenyy sekretar' Vsesoyuznogo obshchestva patologoanatomov
(for Shtern)
(ANATOMY, PATHOLOGICAL)

SHTERN, R.D., kandidat meditsinskikh nauk

Plenum of the Administration of the All-Union Society of Pathoanatomists. Arkh.pat. 19 no.4:84-85 '57. (MIRA 10:6)
(ANATOMY, PATHOLOGICAL)

SHTERN, R.D., kand.med.nauk

"Pathology in the U.S.S.R." (from "Deutsche medizinische Wochenschrift,"
82, no.12, March 1957). Reviewed by R.D.Shtern. Arkh.pat. 19 no.9:
86-87 '57. (MIRA 10:12)
(PATHOLOGY)

Shtern, R.D.

SHTERN, R.D. (Moskva)

History of the first Russian prosectorium; on the 250th anniversary of the Burdenko Main Military Hospital. Arkh.pat. 19 no.10:90-95 '57.
(MIRA 11:2)

1. Iz patologoanatomicheskogo otdeleniya (nachal'nik R.D.Shtern)
Glavnogo voyennogo gospiralya imeni N.N.Burdenko (nachal'nik N.M.
Nevskiy)

(ANATOMY, history,
in Russia, first anat. theater (Rus))

DAVYDOVSKIY, Ippolit Vasil'yevich.; SHTERN, R.D., red.; BUL'DYAYEV, N.A., tekhn. red.

[Pathological anatomy and pathogenesis of human diseases] Patologicheskaya anatomia i patogenez boleznei cheloveka. Izd. 3., perer. i dop. Moskva, Gos. izd-vo med. lit-ry. [Vol. 2. Diseases of systems and organs] Bolezni sistem i organov. 1958. 691 p. (MIRA 11:10)
(ANATOMY, PATHOLOGICAL)
(PATHOLOGY)

SHTERN, R.D., kand.med.nauk

"Introduction to microscope methods in research" by H.Appelt. Reviewed
by R.D.Shtern. Arkh.pat. 20 no.1:82-84 '58. (MIRA 13:12)
(MICROSCOPY—TECHNIQUE) (APPELT, H.)

SHTERN, R.D., kand.med.nauk

"Virchows Archiv, "Vol.330, No.4, 1957. Reviewed by R.D. Shtern.
Arkh.pat. 20 no.4:87-88 '58. (MIRA 11:5)
(ANATOMY, PATHOLOGICAL)

EXCERPTA MEDICA Sec 5 Vol 12/7 General Path. July 59

2006. METASTATIC SPREAD OF ARACHNOID-ENDOTHELIOMAS (MENINGIOMAS) (Russian text) - Shtern R. D. - ARKH. PATOL. 1958, 20/6 (72-83) Tables 1 Illus. 8

In the literature 19 cases of meningiomas with extracranial metastases have been described up to 1957 (table). Report on the case of a 39-year-old man who died in a uraemic coma with bronchopneumonia due to hypertension of many years' standing. The autopsy showed a meningioma of the falx cerebri (4.5 x 3.5 cm.) infiltrating the temporal bone and metastasizing in the dura, and in the pleura and lungs. Histologically the metastases showed a fibroplastic structure.

Brandt - Berlin (V. 8, 18)

SHTERN, R.D., kand.mod.nauk

"Problems in the pathogenesis and pathoanatomy of infectious diseases;
a collection of papers." Reviewed by R.D. Shtern. Arkh.pat. 20 no.7
84-87 '58 (MIRA 11:9)

(COMMUNICABLE DISEASES)

SHTERN, R.D., kand.med.nauk

"Technics of pathoanatomical autopsy and principles of diagnosis"
[in Czech] by H. Siki. Reviewed by R.D. Shtern. Arkh.pat. 20 no.8:
91-93 '58 (MIRA 11:9)

(AUTOPSY)
(DIAGNOSIS)
(SIKI, H.)

SHTERN, P.D., kand.med.nauk (Moskva)

"Virchows arkhiv," vol.330, no.6; 1957. Reviewed by T.D. Shtern.
Arkhn.pat. 20 no.9:89-91 S'58 (MIRA 11:10)
(PATHOLOGY--PERIODICALS)

SHTERN, R.D., kand.med.nauk (Moskva)

"Virchows Archiv," vol.331, no.2, 1958. Reviewed by R.D. Shtern.
Ark.pat. 21 no.1:73 '59. (MIRA 12:1)
(PATHOLOGY--PEDIODICALS)

SHTERN, R.D., kand.med.nauk

Review of I. Kutlik's Pathoanatomical dissection [in Slovak]. Arkh.
pat. 21 no.2:81-83 '59. (MIRA 12:12)

(DISSECTION)

(KUTLIK, I.)

SHTERN, R.D., kand.med.nauk (Moskva)

"Death during air attack" by S.Graff. Reviewed by R.D.Shtern.
(MIPA 14:8)
Ark.h.pat. 21 no.10:76-77 '59.
(HAMBURG (GERMANY)--WORLD WAR, 1939-1945--MEDICAL AND SANITARY AFFAIRS)
(GRAFF, S.)

SHTERN, R.D. (Moskva)

On the problem of reticuloses. Arkh. pat. 22 no. 10:3-16 '60.
(MIRA 13:12)

1. Iz patologoanatomicheskogo otdeleniya (nachal'nik - kand.med.
nauk R.D. Shtern) Glavnogo voyennogo gospiatalya imeni N.N.
Burdenko (Nachal'nik L. I. Lyalin).
(RETICULOENDOTHELIAL SYSTEM—DISEASES)

TEODORI, M.I.; ALEKSEYEV, G.K.; SHTERN, R.D.

Clinical and anatomical differentiation of individual forms of
so-called collagenoses. Klin. med. 38 no. 2:15-23 F '60.
(MIRA 14:1)

(COLLAGEN DISEASES)

SHTERN, R. D.; ARUTYUNOV, V. D. (Moskva)

Use of polystyrol in histological technic. Arkh. pat. no.6:81-82
'61. (MIRA 14:12)

1. Iz patologoanatomicheskogo otdeleniya (nachal'nik - kandidat
meditsinskikh nauk R. D. Shtern) Glavnogo voyennogo gospitalya
imeni N. N. Burdenko (nachal'nik L. I. Lyalin)

(ANATOMICAL SPECIMENS ~~COLLECTION~~ AND PRESERVATION)
(STYRENES)

SHTERN, R.D., kand.med.nauk; ARUTYUNOV, V.D.; LIKHACHEV, Yu.P.

Extensive dissecting aortic aneurysm. Klin.med. 39 no.1:49-54
Ja '61. (MIRA 14:1)

(AORTIC ANEURYSMS)

TEODORI, M.I.; KHAZANOV, A.I.; SHUL'TSEV, G.P.; SHTERN, R.D.
(Moskva)

Cirrhosis of the liver in its clinical and anatomical aspects.
Terap.arkh. no.6:33-41 '61. (MIRA 15:1)
(LIVER--CIRRHOSIS)

POPOV, I. T.; PONOMAREV, P. V.; SHTERN, R. D. (Moskva)

Kidney disorders in myeloma. Klin. med. no.8:50-56 '61.

(MIRA 15:4)

1. Iz terapevticheskogo otdeleniya (nach. B. V. Konyayev) i pato-
logoanatomicheskogo otdeleniya (nach. - kandidat meditsinskikh
nauk R. D. Shtern) Glavnogo voyennogo gospitalya imeni N. N.
Burdenko (nach. L. I. Lyalin)

(M ARROW--TUMORS) (KIDNEYS--DISEASES)

SHTERN, R.D., kandi. med. nauk (Moskva)

Review of "Errors and mistakes in the diagnosis of internal diseases" by K. Bobek and others. Reviewed by R.D. Shtern. Arkh. pat. 24 no.9:74-75 '62.

Vichows Archiv für pathologische Anatomie und Histologie und für klinische Medizin, 1962, vol. 335, no.1. 118:121 '62.

Annales d' anatomie pathologique, 1961, vol. 8, no.3-4. 151:163.
(AMA 1964)

WITKIN, E.D. Moskva

Classification of tumors of the hemopoietic system. Arkh. pat.
25 no.3:3-9 '63. (MIRA 17:12)

1. Iz patologoanatomicheskogo otdeleniya (nachal'nik - kand. med.
nauk R.D. Shtern) Glavnogo voyennogo gosпитalya imeni N.N. Burdenko
i Instituta morfologii cheloveka (direktor - chlen-korrespondent AMN
SSSR prof. A.P. Avtsyn) AMN SSSR.

SHTEIN, R.D., kand. med. nauk (Moskva)

Review of the book "Virchow's Archive for Pathological Anatomy
and Physiology and Clinical Medicine, 1962, Vol. 335, No.5.
Arkhn. pat. 25 no.4:88-89 (MIRA 17:24)

Archive for Pathological Anatomy (France), 1962, vol.10,
no.1. Ibid:39-90

SHTERN, R.D., kand. med. nauk (Moskva)

"Virchow's Archive for Pathological Anatomy and Physiology
and for Clinical Medicine"; Vol. 335, no.6. 1962. Reviewed
by R.D. Shtern. Arkh. Pat. 25 no.6:77-78 '63.
(MIRA 17:1)

SHTERN, R.D., kand.med. nauk; VIKHERT, A.M., doktor med. nauk.

Ways of further development of pathoanatomical service in the
Soviet public health system. Arkh. pat. 25 no.7:3-13'63
(MIRA 16:12)

1. Zaveduyushchiy Tsentral'noy patologoanatomicheskoy laboratoriyey Instituta morfologii cheloveka AMN SSSR (for Shtern).
2. Glavnyy patologoanatom Ministerstva zdravookhraneniya SSSR (for Vikhert).

SHTERN, R.D.; LIKHACHEV, Yu.P. (Mskva)

Endotheliomatosis as a systemic tumorous lesion. Arkh. pat. 25
no.10:35-40 '63. (MIRA 17:7)

1. Iz patclogoanatomicheskogo otdeleniya (nachal'nik - kand.
med. nauk R.D. Shtern) Glavnogo voyennogo gospitalya imeni
N.N. Burdenko.

SHTERN, R.D., kand. med. nauk (Moskva)

"Virchows Archiv fur pathologische Anatomie and Physiologie
und fur klinische Medizin," vol. 336, no.1, 1962. 173-177,
25 no.10:158 '63.

"Annales d'anatomie pathologique," vol. 7, no.2, 1962.
Ibid.:170-171 (MIRA 17:7)

SHTERN, R.D., kand. med. nauk (Moskva)

Brief news. Arkh. pat. 27 no.9:90-95 '65.

(MIRA 18:12)

SHTERN, R.M.

STEPSENKO, I.P.; SHTERN, R.M.

Producing glycerol without using a reagent. Masl.-zhir.prom.
20 no.1:15-19 '55. (MLBA 8:3)

1. Nevskiy mylovarennyy zavod.
(Glycerol)

GARBARUK, Vladimir Nikolayevich; ~~SHTERN, Rafail Yakovlevich~~; KOGAN, Lev
Peysakhovich; LYAKHOVSKAYA, Ye.A., ~~rektor~~; MIRNYEVA, T.M.,
redaktor; MEDVEDEV, L.Ya., tekhnicheskiy redaktor

[UV-2 weft knitting machine] Utochniazal'naya mashina UV-2.
Moskva, Gos.nauchno-tekhn.izd-vo M-va legkoi promyshl.SSSR,
1957. 91 p. (MLRA 10:9)
(Knitting machines)

SHTERN, R.Ya.

The GCh-1 curtain-lace shuttle machine. Biul.tekh.--ekon.
inform. no.8:53-54 '59. (MIHA 13:1)
(Knitting machines)

DZENITIS, Ya.K.; ZILB, I.N.; STRAZDIN', V.F.; SITERN, S.F.

Production of 2-phenyl-1,3-indandione. Med. prom. 16 no.3:26-27 Mr '62.
(MIRA 15:5)

1. Rizhskiy khimiko-farmatsevticheskiy zavod No.3.
(INDANDIONE)

SHTERN. S.I., kand.med.nauk (Moscow)

False pregnancy. Fel'd i akush. 23 no.8:45-46 Ag '58 (MIRA 11:8)
(PREGNANCY)
(HYSTERIA)

TSYRUL'NIKOVA, M.L.; SHTERN, S.I. (Shakhty)

Two cases of primary echinococcus of the abdominal cavity and the small pelvis. Vrach.delo no.4:411-412 Ap '60.

(MIRA 13:6)

1. Akushersko-ginekologicheskoye oteleniye Shakhtinskoy okruzhnoy bol'nitsy imeni V.I. Lenina (zav. - doktor med.nauk V.M. Kasogledov).

(ABDOMEN--HYDATIDS)

(PELVIS--HYDATIDS)

BUSLIK, N.G., inzh.;KRIVOSHEIN, D.I., inzh.;SHTERN, V.A., inzh.

Special problems in assembling the VKT-100 turbine unit. Energ.
stroi. no.2:19-23 '59 (MIRA 13:3)

1. Trest "Teploenergmontazh."
(Turbines) (Concrete footings)

SHTERN, V.A., Inzh.

Universal stand for manufacturing prestressed reinforced
concrete structures. Energ. stroi. no. 4:80-82 '65.
(MIPA 18:12)

L 31037-65 EWT(d)/EWP(1)/EED-2 Po-II/Pq-II/Pg-II/Pk-II IJP(c) GG/BB
ACCESSION NR: AP5003058 S/0119/65/000/001/0026/0027

AUTHOR: Munits, I. N.; Shtern, V. I.

TITLE: Enhancing the reliability of an EMU-8^{16C} electronic simulator^{16C} 35
8

SOURCE: Priborostroyeniye, no. 1, 1965, 26-27

TOPIC TAGS: electronic simulation / EMU-8 electronic simulator

ABSTRACT: As EMU-8 electronic simulators had developed serious shortcomings in actual operation, a few changes were introduced to enhance their reliability. The loss of adjustment of the contacts of RP-4 polarized relays caused self-excitation in operational amplifiers; new VU-6,3 vibrapacks yielding 100-cps modulation were installed to replace the relays, and the reference-voltage circuit was modified. Trouble in the electron-beam indicator was remedied by separating the heater circuits of some (6N8S and 6P7S) tubes associated with it. Undesirable circuits were formed when some units of the

Card 1/2

L 31037-65

ACCESSION NR: AP5003058

simulator were switched off; this situation was corrected by introducing decoupling diodes. Three minor changes are also listed. Orig. art. has: 2 figures.

ASSOCIATION: none

SUBMITTED: 00

ENCL: 00

SUB CODE: EC

NO REF SOV: 002

OTHER: 000

Card 2/2

DERKACH, A.S., inzh.; SHPERN, V.I., inzh.

Characteristics of the performance of automatic electronic
compensators in electrolysis shops. Priborostroenie no.6:26-27
Je '65. (MIRA 18:7)

SHTERN, V. M.

23675

NEKOTORYE RENTGENOLOGICHESKIYE NABLYUDENIYA VAD INFITSIROVANNYMI KOSTNYMI RANAMI DIAFIZOV
DLINNYKH TRU CHATYKH KOSTEY. TRUDY SARAT. GOS. MED. IN-TA, T. VIII, 1949, S. 171-80.

SO: LETOPIS NO. 31, 1949

SHTERN, V.N.; SKOTNIKOV, V.I.

Neurodystrophic periosteal and periarticular ossifications of the lower extremities following trauma of the spinal cord. Vest. rent. i rad. no.6:45-51 N-D '54. (MIRA 8:1)

1. Iz kafedry rentgenologii (i.o.zav. kandidat meditsinskikh nauk V.N.Shtern) Saratovskogo meditsinskogo instituta (dir. dotsent B.A.Nikitin) i kliniki neyrokhirurgii (zav. prof. V.M.Ugryumov) Saratovskogo nauchno-issledovatel'skogo instituta vosstanovitel'noy khirurgii, travmatologii i ortopedii (dir. kandidat meditsinskikh nauk A.A.Krylov)

(SPINAL CORD, wounds and injuries, causing ossification of periosteal & periarticular spaces in lower extremities)

(WOUNDS AND INJURIES, spinal cord, causing ossification of periosteal & periarticular spaces in legs)

(OSSIFICATION, periosteal & periarticular of legs, caused by spinal cord inj.)

(LEG, diseases, ossification of periosteal & pericarticular spaces, caused by spinal cord inj.)

Name: SHTERN, Viktor Nikolayevich

Dissertation: Clinical-Roentgenological Picture of the
Echinococcus Disease of Lungs:

Degree: Doc Med Sci

Affiliation: Saratov State Med Inst

Defense Date, Place: 24 Jun 55, Council of Ryzan' Med Inst imeni
Pavlov

Certification Date: 15 Sep 56

Source: BMVO 6/57

END

39

BOZHENKO, B.S.; SHTERN, V.N.

Tomofluorograph of the "Rentok" plant. Vest.rent. i rad. 32 no.4:
68-70 J1-Ag '57. (MIRA 10:11)

1. Iz kafedry rentgenologii i radiologii (zav. - dotsent V.N.
Shtern) Saratovskogo meditsinskogo instituta (dir. - dotsent B.A.
Nikitin)

(ROENTGENOGRAPHY, appar. and instruments
tomofluorograph)

SHTERN, V.N., doktor med.nauk (Saratov)

Cavernous form of pulmonary candidamycolosis. Klin.med. 35 no.12:
105-108 D '57. (MIRA 11:2)

1. Iz kafedry gospital'noy terapii (zav. - prof. L.S.Shvarts) i
kafedry rentgenologii i radiologii (zav. - doktor meditsinskikh
nauk V.N.Shtern) Saratovskogo meditsinskogo instituta (dir. -
dotsent B.A.Nikitin)

(MONILIASIS, case reports
pulm., cavernous (Rus))

(LUNG DISEASES,
moniliasis (Rus))

SHTERN, V.N. (Saratov, Komsomol'skaya ul., d. 41, kv. 34); KADYSHES, N.L.
(Saratov, Astrakhanskaya ul., d. 118, kv. 29-a)

Roentgenotherapy of giant-cell tumors of the bone. Vop.onk. 4
no.6:721-720 '58. (MIRA 12:1)

1. Iz kafedry rentgenologii i radiologii (zav.- doktor med. nauk
V.N. Shtern) Saratovskogo gosudarstvennogo meditsinskogo instituta
(dir. - dots. B.A. Nikitin).

(GIANT CELL TUMORS, therapy,
x-ray ther. of bone tumors (Rus))
(RADIOTHERAPY, in various diseases,
giant cell tumors of bones (Rus))
(BONE AND BONES, neoplasms,
giant cell tumors, x-ray ther. (Rus))

SHTERN, V.N., prof.

Seventh All-Union Congress of Roentgenologists and Radiologists. Vop.
onk. 5 no.3:380-383 '59. (MIRA 12:12)
(RADIOLOGY, MEDICAL--CONGRESSES)

SHTERN, V.N., prof.; KADYSHES, N.L.

On S.D. Ternovskii and M.V. Volkov's article "Surgical treatment
of osteoblastoclastomas in children." Ortop., travm. i protes. 20
no.12:66-67 D '59. (MIRA 13:5)

(BONES--TUMORS) (TERNOVSKII, S.D.)
(VOLKOV, M.V.)

SHTERN, V.N.

Segmental structure of the broncho-pulmonary system. Vest. rent.
i rad. 35 no. 5:62-65 S-0 '60. (MIRA 13:12)

1. Iz kafedry rentgenologii i radiologii (zav. - prof. V.N. Shtern)
Saratovskogo gosudarstvennogo meditsinskogo instituta.
(LUNGS) (BRONCHI)

ZEDGENIDZE, G.A., prof. otv. red.; BENTSIANOVA, V.M., dotsent, red.; VIKTURINA, V.P., kand. med. nauk, red.; ZUBCHUK, N.V., kand. med. nauk, red.; LAGUNOVA, I.G., prof., red.; POBEDINSKIY, M.N., prof., red.; REYNBERG, S.A., zasluzhennyy deyatel' nauki, prof., red.; ROZENSHTRAUKH, L.S., doktor med. nauk, red.; ROKHLIN, D.G., prof., red.; SOKOLOV, Yu.N., prof., red.; FANARDZHIAN, V.A., red.; SHEKHTER, I.A., prof., red.; SHTERN, B.M., prof., red.; SHTERN, V.N., prof., red.; ZUYEVA, N.K., tekhn. red.

[Transactions of the Seventh All-Union Congress of Roentgenologists and Radiologists] Trudy Vsesoyuznogo s"yezda rentgenologov i radiologov, 7th, Saratov, 1958. Moskva, Gos. izd-vo med. lit-ry Medgiz, 1961. 317 p. (MIRA 14:7)

1. Vsesoyuznyy s"yezd rentgenologov i radiologov, 7th, Saratov, 1958.
2. Deystvitel'nyy chlen AMN SSSR (for Zedgenidze). 3. Chleny-korrespondenty AMN SSSR (for Rokhlin, Fanardzhyan). 4. Akademiya nauk Armyskoy SSR (for Fanardzhyan)

(RADIOLOGY, MEDICAL)

SHTERN, V.N., prof. (Saratov)

"Clinical roentgenography" by L.S.Semashko. Reviewed by V.N.Shtern.
Vest.rent.i rad. 36 no.3:71-73 My-Je '61. (MIRA 14:7)
(RADIOGRAPHY) (SEMASHKO, L.S.)

KOSTIN, N.A.; SHTERN, V.P.

Advantages of the high-voltage regulation of a.c.locomotives.
Zhel.dor.transp. 45 no.10:69-70 0 '63. (MIRA 16:11)

1. Starshiy inzh.depo Kavkazskaya Severo-Kavkazskoy dorogi (for Kostin). 2. Nachal'nik lokomotivnogo depo Kavkazskaya Severo-Kavkazskoy dorogi (for Shtern).

SHTERN, V.P.; KOSTIN, N.A.

Static charge system of the series K electric locomotive. Elek. i
tepl.tiaga no.7:37-40 Jh '63. (MIRA 16:9)

1. Nachal'nik depo Kavkazskaya Severo-Kavkazskoy dorogi (for Shtern).
2. Starshiy inzh. depo Kavkazskaya Severo-Kavkazskoy dorogi (for Kostin).

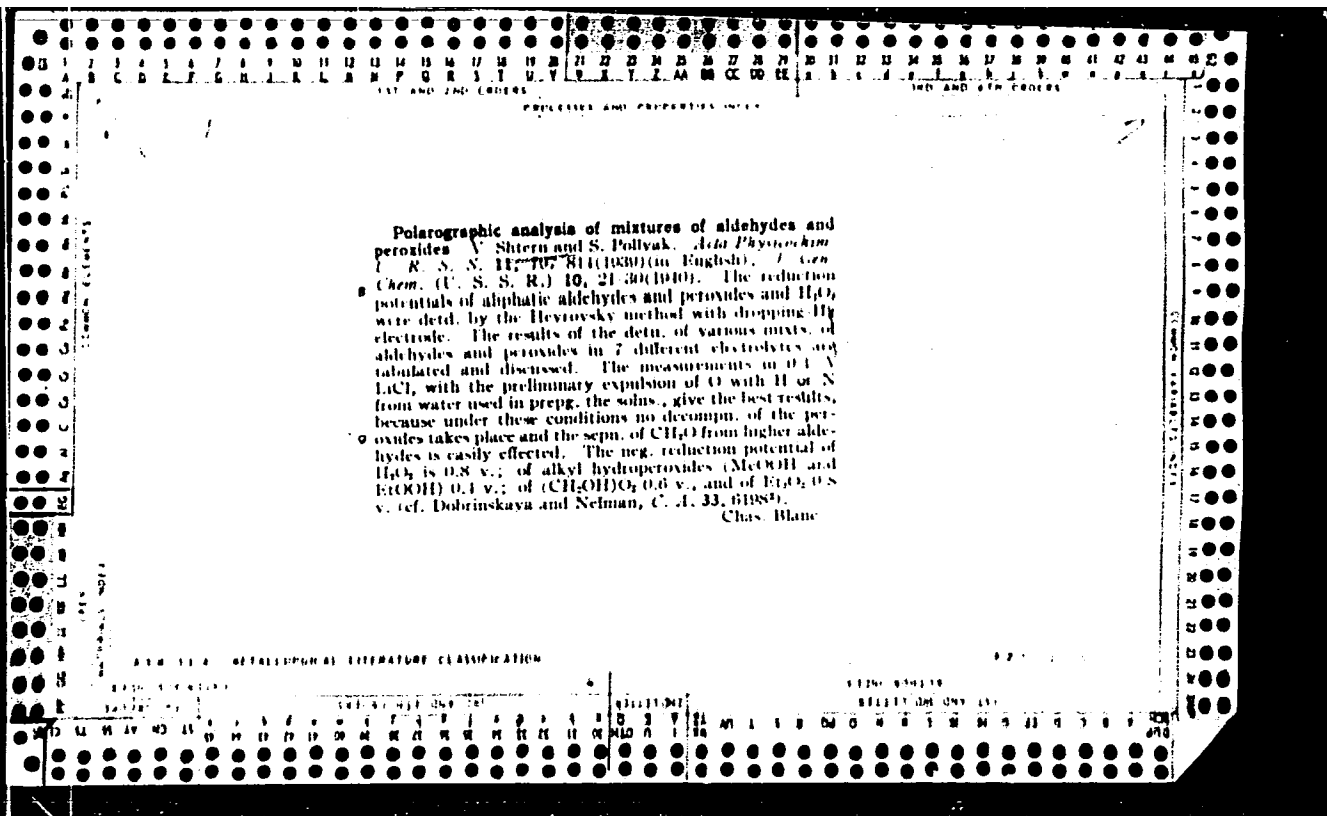
(Electric locomotives--Batteries)

SHTERN, V.

24

The effect of carbon dioxide on the autoignition of hexane-air mixtures. V. Shtern, B. Kravets and A. Sokolik. *Compt. rend. acad. sci. U.R.S.S.* 21, 401 (1958) (in French); cf. preceding abstr. Small addns. (0.1-0.2%) of CO₂ to hexane-air mixts. contg. 3.5% hexane increase the time required for autoignition at a given pressure and temp. More than 5% CO₂ decreases the time, owing to the effect of diln. on the velocity of chain reactions in the pre-flame period. T. H. Dunkleberger

ASSOCIATED METALLURGICAL LITERATURE CLASSIFICATION



SHAPIRO, H., POLYMER, G.

"Polarographic Analysis of Mixtures of Aldehydes and Peroxides", Zhur. O'shch.
Tshim., 15, No. 1, 1960. Scientific-Research Institute of Chemical Physics
Moscow. Received 22 July 1959.

Report N-1426, 24 Oct 61

CHERN, V. YA.

PA 39/49T12

USSR/Chemistry - Propene, Oxidation Mar 49
Chemistry - Oxidation, of Propene

"Cold-Flame and High-Temperature Oxidation of Propylene," V. Ya. Shtern, S. S. Polyak, Lab. Chem Processes, Inst Chemioophys, Acad Sci USSR, 4 pp

"Dok Ak Nauk SSSR" Vol IXV, No 3

Cold-flame oxidation is usually considered a process of oxidizing initial fuel, not down to final products of reaction, but to stage of stable intermediate substances such as aldehydes, peroxides, or acids. Authors question this representation, which disagrees with their data
39/49T12

USSR/Chemistry (Contd) Mar 49

obtained in studying consumption kinetics of initial products and accumulation of intermediate and end products of cold-flame oxidation of equimolecular propylene-oxygen mixture. Submitted by Acad N. N. Semenov, 15 Jan 49.

39/49T12

1A 52/49718

SHREIN, V. YA.

USSR/Chemistry - Ethylene Chemistry
Chemistry - Oxidation

May 49

"Branch-Degenerate Nature of Propylene Oxidation,"
V. Ya. Shreim, S. B. Polyak, Inst of Geol Sci,
Acad Sci USSR, 4 pp

"Dok Ak Nauk SSSR" Vol LXVI, No 2

Describes experiments to establish branch-degenerate nature of propylene oxidation and identify intermediary product which determines kinetic mechanism of this reaction. First task was solved by a modification of the method of N. M. Semenov and N. Emanuel' ("Doklady Akademii Nauk SSSR,"

52/49718

USSR/Chemistry - Polyene Chemistry May 49
(Contd)

Vol XXVIII, p 220, 1940). Second task was solved by experiments with synthetic mixtures. Intermediary product proved to be acetaldehyde. Submitted by Acad N. M. Semenov, 24 Mar 49.

52/49718

Pa. 150T13

SHTERN, V., YA.,

21 Jul 49

USSR/Chemistry - Photochemistry
Oxidation

"Mechanism of Mercury-Sensitized Oxidation of Propane," N. V. Fok, B. B. Bereslavskiy,
A. B. Nalbandyan, V. Ya. Shtern, Inst of Chem Phys, Acad Sci USSR, 3 pp

"Dok Ak Nauk SSSR" Vol LXVII, No 3

Formerly, high temperature necessary for photochemical oxidation of methane and ethane prevented any substantial yield of peroxides and aldehydes. Here, yield of these products was studied as a function of time of exposure in photochemical oxidation of propane in temperature interval 20 - 300°C at a pressure of 50 mm of Hg. Results show peroxides are a primary intermediate product (with respect to temperature), while aldehydes are a secondary intermediate product. Submitted by Acad N. N. Semenov 16 May 49.

Pa. 150T13

CA

Upper-temperature oxidation of propane. N. Ya. Chernyak and V. Ya. Shtern (Moscow State Univ.). *Doklady Akad. Nauk S.S.S.R.*, 70, 91-4 (1961). The kinetics of the gas-phase oxidation $C_3H_8 + O_2$ were investigated at 350°, under 283 mm. Hg, i.e. in the range of neg. temp. coeff. of the rate, with complete analyses for C_3H_8 , O_2 , C_2H_6 , C_2H_4 , CH_4 , C_2H_2 , H_2 , CO , CO_2 , $HCHO$, AcH , $MeOH$, higher alcs., total acids, H_2O_2 , and org. peroxides, along with the over-all pressure change Δp . Sepn. of $HCHO$ and AcH was obtained by polarography; higher alcs. were sepd. from $MeOH$ by oxidation with $K_2Cr_2O_7 + H_2SO_4$; the amt. of H_2O formed was detd. by the difference between the amts. of H and O reacted and the amts. found in the products, the ratio of these differences for H and O having been found close to 2. The amts. of peroxides (mainly H_2O_2) and of aldehydes ($HCHO + AcH$) attain a max. (1.8 and 11.5 + 4.5 mm., resp.) at $\Delta p = 30$ mm. (83 sec.); the aldehydes then remain const., whereas the peroxides decrease, down to 0.2 mm. at the end of the reaction. Up to the max., the increase of the amts. of peroxides and of aldehydes is exponential. The amt. of $MeOH$ increases over the whole course of the reaction, up to 25 mm. at its end (150 sec., $\Delta p = 60$). C_2H_6 and C_2H_4 increase over the whole course, up to 19 and 8 mm., resp., at its end; the ratio $C_2H_6 : C_2H_4$ remains approx. 2.3 throughout. The amt. of CH_4 is of the same order as the amt. of C_2H_6 . The ratio of the amt. of C_3H_8 spent on formation of oxygenated products ($MeOH$, $HCHO$, AcH , alcls., CO , CO_2) and of the amt. producing C_2H_6 , C_2H_4 , and CH_4 , increases with the progress of the reaction, from 0.6 at $\Delta p = 10$ to 1.47 at $\Delta p = 60$ mm. The ratio of the H_2O produced and the amt. of $CO + CO_2$ remains const. and = 1.4. The max. of the rate of consumption of O_2 coincides with the point ($\Delta p = 30$ mm.) where the amts. of peroxides and aldehydes attain their max., whereas the rate of increase of the total pressure Δp is max. much earlier, at $\Delta p = 17$ mm.; in this respect, the oxidation of C_3H_8 differs from that of C_2H_6 (*C.A.* 43, 5286). Addn. of

CA

2

The negative temperature coefficient of the rate of oxidation of propane. V. L. Antonovskii and V. Ya. Shtern (M. V. Lomonosov State Univ., Moscow). *Doklady Akad. Nauk S.S.S.R.* 78, 303-4 (1961).—The reaction $C_3H_8 + O_2$ was investigated in a static system under 282 mm. Hg. at 342, 350, 387, and 420°. Under this pressure, the upper limit of cool-flame oxidation lies at 340°, and ignition occurs at 422-6°; consequently, oxidation at 342° is close to the lower-temp., and at 420° close to the upper-temp. reaction. The max. over-all rate (in mm./sec.) decreases with rising temp. from 340 to 387°, where it passes through a min. (about 0.4 mm./sec.); it then rises with further rising temp. from 387 to 420°. Products were analyzed as described previously (C.A. 45, 6907f). On the basis of the interpretation according to which formation of C_3H_8 , C_3H_7 , C_3H_6 , and H_2 is the result of direct decompos. of normal C_3H_8 radicals, whereas the oxygenated products (HCHO, MeOH, AcH, HCO_2H , CO, CO_2 , etc.) stem from oxidation of both normal C_3H_8 and of iso- C_3H_8 , one can establish, at each temp., the part of the unbranched cracking-type reaction (due to decompos. and oxidation of C_3H_8) and of the branched oxidation-type reaction (due to oxidation of both C_3H_8 and iso- C_3H_8). At 342, 350, 387, and 420°, the amts. of C_3H_8 spent, at the end of the reaction, in formation of cracking and of oxidation products are, resp., 26 and 30.6, 26.6 and 40.8, 41.3 and 25.8, 52.3 and 20 mm., and the ratios of the 2 types are 0.66, 0.63, 1.6, 2.6, for approx. the same amt. of C_3H_8 reacted. The fall of the over-all max. rate between 340 and 387° can thus be attributed to an inhibition of the branched part of the oxidative path of reaction; this inhibition must be strong enough to become predominant. The subsequent rise of the rate between 387 and 420° is due to predominance of the cracking path of the reaction. The inhibition of the branching path is most plausibly attributed to a shortening of the branching process; specifically it is

assumed that the accelerating effect of AcH, which det. the branching, decreases with increasing temp. This assumption was verified by expts. without and with AcH (1.0 mm.) added in advance. At 380°, advance addn. of AcH accelerates the max. rate considerably (by approx. a factor of 2); with increasing temp., this accelerating effect decreases, and vanishes altogether at the min. at 387°. It thus appears confirmed that the neg. temp. coeff. is found in the temp. range where, with increasing temp., inhibition of the branched part of the oxidative path predominates over the increase of the rate of the unbranched part and of the cracking path. The amts. of HCHO, AcH, and MeOH, actually produced over the whole course of the reaction (i.e. irrespective of their subsequent oxidation) are calcd. (cf. preceding abstr.), at 342, 350, 387, and 420°, to: 56, 20, 30; 48, 25, 25; 57, 6.5, 6.5; 80, 4.5, 4.5 mm. Consequently, with increasing temp. the amts. of AcH and MeOH decrease markedly, whereas the amt. of HCHO varies but little. This means that with increasing temp. the branching oxidation reaction which produces AcH and MeOH is increasingly inhibited. The scheme adopted accounts for the ignition limits in the following way. At low temps., formation of iso- C_3H_8 is predominant, owing to the greater ease of breaking a H atom off a CH_3 group as compared with the CH_2 group. Consequently, in the lower-temp. range, the sp. gr. of the cracking is small, and along the oxidative path the branching part is prevalent. This part is responsible for the ignition at the lower limit which thus appears to be of a chain nature. With rising temp., the amt. of n- C_3H_8 increases, and with it the sp. gr. of the cracking path and of the unbranched part of the oxidative path, and the oxidation of iso- C_3H_8 loses its branched character. The upper-limit ignition thus appears to be thermal. On account of the endothermicity of the cracking process, this upper-limit thermal ignition must be due to the oxidative part of the reaction. N. Thom

SHTEIN, V. Ya. and POLYAK, S. S.

"Mechanism of the Oxidation of Propene," Dokl. AN SSSR, 85, No.1, 1952,
pp. 161-164

Translation 14047

SHTERN, V. Ya.

6

Mechanism of oxidation of hydrocarbons in the gas phase.
I. Chemistry of cool-flame and high-temperature reactions
of oxidation of propylene. S. S. Polyak and V. Ya. Shtern
(Inst. Chem. Phys., Acad. Sci. U.S.S.R., Moscow, U.S.S.R.)
The kinetics of the oxidation of C_3H_6 by O_2 in an equimolar mixture in
the cool-flame and high-temp. regions was studied by means
of a described and illustrated vacuum-line app. In both
temp. ranges $HCHO$, $MeCHO$, $HCOOH$, peroxides, C_2H_4 ,
 CO , CO_2 , and H_2O were obtained as intermediate and final
products. Aldehydes and peroxides accumulate up to the
moment of max. reaction rate; the concn. of aldehydes then
remains const., while that of peroxides decreases. The
oxidation process is nearly the same in cool-flame and high-
temp. regions. V. W. Loweberg, Jr.

SHTERN, V. YA.

May 53

USSR/Chemistry - Hydrocarbon
Oxidation

"Mechanism of the Oxidation of Hydrocarbons in the Gaseous Phase. II The Degenerative-Branched Character of the Oxidation of Propylene," S.S. Polyak and V.Ya. Shtern, Inst of Chem Phys, Acad Sci USSR

Zhur Fiz Khim Vol 27, No 5, pp 631-639

The authors showed the degenerative-branched character of the oxidation of propylene in the cold flame and upper temperature ranges. Acetaldehyde appeared to be the substance which is responsible for the degenerative branching.

273T17

SHTERN, V. Ya.

USSR/Chemistry - Kinetics of Combustion Jul 53

"The Mechanism of Hydrocarbons in the Gaseous Phase. III. Radical-Chain Scheme for the Oxidation of Propylene," S. S. Polyak and V. Ya. Shtern, Acad Sci USSR, Inst of Chem Phys, Moscow

Zhur Fiz Khim, Vol 27, No 7, pp 950-959

Proposes a scheme for the radical-chain oxidation of propylene according to which the allyl radical formed in the beginning stages, adds O_2 to become the peroxide radical. The latter decomposes in two ways, i.e., 1) to form formaldehyde and the acetaldehyde radical, and 2) to form H_2O , CO, and

271T11

the C_2H_3 radical. Draws conclusion from scheme regarding constancy of aldehyde yields as found exptly.

Shtern, V. Ya.

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The cool flame oxidation of propane, *Dokl. Akad. Nauk S.S.S.R.* 197, 309-11 (1966). The cool flame oxidation of a mixt. of propane and oxygen was studied at 280° and an initial pressure of 420 mm. The rate of pressure increase with time was measured. Three cool flames were observed at $t = 100$ sec., 122 sec., and 140 sec. The sharp pressure increases at these points are attributed to temp. rises and not to the stoichiometry of the reaction. A plot of the log of the pressure increase vs. time was linear. The products included formaldehyde, acetaldehyde, peroxides (70% H_2O_2 and 30% org. peroxides), MeOH, propylene (C_3H_6), CO, and CO_2 . The aldehydes and peroxides increased in concn. until the 3rd cool flame was reached. The aldehyde concn. remained const. from this point on, but the peroxide concn. decreased. It is concluded that the results here are similar to those obtained for higher temp. (380°) oxidation (*C.A.* 45: 6907f). Both processes involve simultaneous oxidation and cracking. The ratios of oxidation products to cracking products for the 2 temps. are in good agreement, allowing for the temp. differences. The product distribution for the two temps. is very similar. In both cases the max. rate of pressure change is reached before the aldehyde concn. reaches its const. value and before the max. peroxide concn. is reached.

Joseph B. Levy

LM

LFH

SHTERN, V. YA.

USSR/Chemistry - Combustion Kinetics, 21 Aug 53
Peroxides

"Photochemical Oxidation of Propane Sensitized With
Bromine," G. B. Sergeev and V. Ya. Shtern

DAN SSSR, Vol 91, No 6, pp 1357-1360

Studied oxidation of propane under such conditions
that formation of a hydroperoxide takes place. This
was done at low temps by initiating with the aid of
UV radiation oxidation of propane sensitized with
Br. Plotted kinetic curves for the oxidation and
established polarographically that the resulting pero-
xidic compd is propylhydroperoxide. This finding

269T13

proves that there is formation of radical
 $C_3H_7O_2$. Presented by Acad N. N. Semenov 2 Jul 53.

SHTERN, V. Ya.

1 Sep 53

USSR/Chemistry - Fuels, Kinetics of Combustion

"The Effect of Small Additions of NO₂ on the Oxidation of Propane," A. F. Revzin and V. Ya. Shtern, Moscow State Univ

DAN SSSR, Vol 92, No 1, pp 123-126

Tried to find a way of reducing the temp in the oxidation of propane by adding small amounts (1%) of NO₂ to the reaction mixt. Found that the concn of NO formed at the end of the induction period of the reaction is the same at different temps. At temps at which the time necessary to achieve this concn is less than the induction period, additions

274T14

of NO₂ shorten the time. At temps at which this time is equal to or greater than the induction period, additions of NO₂ shorten the time. Presented by Acad N. N. Semenov 18 May 53.

Shtern, V. Ya

USSR/Chemistry - Hydrocarbon oxidation

Card 1/1 Pub. 147 - 8/27

Authors : Chernyak, N. Ya.; Antonovskiy, V.L.; Revzin, A.F.; and Shtern, V. Ya.

Title : The mechanism of hydrocarbon oxidation in gaseous phase. Part 4.- High and low temperature oxidation of propane

Periodical : Zhur. fiz. khim. 28/2, 240-253, Feb 1954

Abstract : Quantitative investigation was conducted to determine the high- and low-temperature oxidation of propane ($C_3H_8 + O_2$ and $2C_3H_8 + O_2$). The intermediate and final products, obtained in both investigated temperature zones, are listed. Some products, formed under conditions of propane oxidation, were found to be stable against further oxidation. The presence of two oxidizing and cracking tendencies, in the reaction of propane oxidation, was established. The specific weight of the cracking tendency increases with increase in temperature. Seventeen references: 3-USA; 3-English; 9-USSR and 2-French (1915-1953). Tables; graphs.

Institution : The M.V. Lomonosov State University, Moscow

Submitted : April 14, 1953

SHTERN, V. YA.
USSR/Chemistry

Card 1/1

Authors : Repa, L. A., and Shtern, V. Ya.

Title : Mechanism of oxidation of hydrocarbons in gaseous phase. Part 5.-
Cold flame oxidation of propane

Periodical : Zhur. Fiz, Khim. 28, Ed. 3, 414-421, March 1954

Abstract : Investigated was the kinetics, according to pressure and according to products of cold flame oxidation, of a mixture $C_3H_8 + O_2$ at $T = 280^\circ$ and $p_{in} = 420$ mm (case of three cold flames). A comparison with a previously investigated upper temperature oxidation of upper temperature reactions. All obtained data gave an idea about the insignificant role of the cold flame in the general process of slow oxidation of propane. Eight references. Tables, graphs.

Institution : The M. V. Lomonosov State University, Moscow, U.S.S.R.

Submitted : April 18, 1953

SHTERN, V. YA.

USSR/Chemistry - Oxidation of Hydrocarbons

Card 1/1

Authors : Shtern, V. Ya.

Title : Oxidation Mechanism of Hydrocarbons in a Gaseous Phase. VI.
Radical-Catenary Diagram of Propane Oxidation.

Periodical : Thur. Fiz. Khim. Vol. 28, Ed. 4, 613-626, Apr 1954

Abstract : General information is given on the chain reaction of propane
oxidation, and the degenerative-subdivision characteristics of a
propane oxide, treated with acetaldehyde. Twenty references;
Tables; graphs.

Institution : M. V. Lomonosov's Moscow State Institute

Submitted : April 17, 1953

SHTERN, V. Ya.

USSR/ Chemistry Hydrocarbon oxidation

Card : 1/1

Authors : Revzin, A. F., Sergeyev, G. B., and Shtern, V. Ya.

Title : Mechanism of oxidation of hydrocarbons in gaseous phase. Part 7.-Effect of homogeneous (NO₂, Br₂) additions on propane oxidation

Periodical : Zhur. fiz. khim. 28, Ed. 6, 985 - 996, June 1954

Abstract : The effect of NO₂ additions on the oxidation of 2C₃H₈ + O₂ - mixture and the photochemical Br₂ - sensitization of the oxidation of a 2C₃H₈ + O₂ mixture, were investigated. A reduction in the length of the induction period, without change in the chemism of the consequent propane oxidation during the addition of NO₂, was established. The results of Br₂ addition and simultaneous bombardment with ultraviolet rays, are described. Ten references: 5 USSR, 3 English, 2 German. Tables; graphs.

Institution : The M. V. Lomonosov State University, Moscow

Submitted : April 18, 1953

SHTERN, V. Ya.
USSR/Physical Chemistry

Card 1/1

Authors : Polyak, S. S. and Shtern, V. Ya

Title : Regarding the question on the radical-chain process of propylene oxidation.

Periodical : Dokl. AN SSSR 95, 6, 1231 - 1234, 21 Apr 1954

Abstract : About possibilities for determining, theoretically, the final products of radical chain reactions by the formulae of the radical chain reactions. The table given in the article shows comparative figures of CO + CO₂ quantities calculated by a formula and obtained experimentally.

Institution :

Submitted : 10 Feb 1954

Presented by V.N. Kondrat'yev.

SOV/75-13-5-20/24

AUTHORS: Patsevich, I. V., Topchiyev, A. V., Shtern, V. Ya.

TITLE: Polarographic Determination of Alkyl Nitrites (Polarograficheskiye opredeleniye alkilnitritov)

PERIODICAL: Zhurnal analiticheskoy khimii, 1958, Vol 13, Nr 5, pp 608-612 (USSR)

ABSTRACT: In connection with the fact that alkyl nitrites are formed as intermediates on the nitration of paraffins the question of a quantitative determination method for alkyl nitrites became existent. If alkyl nitrites are found in the final products of paraffin nitration they are due to secondary reactions. Their formation proceeds according to the reaction:
 $RO\cdot + NO \rightarrow RONO$, which is the recombination of two free radicals and proceeds practically without activation energy. For the analysis of the complicated mixture of products of paraffin nitration, in which alkyl nitrites may be present in minute quantities only, polarographic methods are the most suitable ones. Blyumberg and Pikayeva (Ref 3) found that ethyl nitrite in aqueous solutions is reduced on a dropping Hg electrode at a half-wave potential of $-0,96$ V. This potential does not depend

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SOV/75-13-5-20/24

Polarographic Determination of Alkyl Nitrites

on the pH of the solution. The authors of the present paper have elaborated by the example of ethyl nitrite and butyl nitrite a polarographic method of determination of alkyl nitrites. The air oxygen dissolved in the electrolytes was removed before the addition of the alkyl nitrites by passing through nitrogen. The polarographic measurements were taken on a polarograph of the firm "Geologorazvedka". The reduction potentials were related to a saturated calomel electrode, the measurements were performed on a potentiometer K3-5 by means of a glass electrode. The investigations proved that the polarographic determination of alkyl nitrites in aqueous solutions is possible only at $\text{pH} > 7$. In acid solutions hydrolysis of the alkyl nitrites occurs: $\text{RONO} + \text{H}_2\text{O} \rightarrow \text{ROH} + \text{HNO}_2$, the pH of the solution dropping considerably. On the polarographic determination of such solutions only the half-wave potential for the reduction of the formed nitrous acid at $-0,95 \text{ V}$ is obtained. Blyumberg and Pikayeva (Ref 3) have obviously taken this potential of the nitrous acid for the potential of the alkyl nitrite. The half-wave potential for ethyl- and butyl nitrite in alkaline solution (LiOH as medium) lies at $-0,65 \text{ V}$. The height of the polarographic wave of ethyl-

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SOV/76-32-9-45/46

AUTHORS: Yenikolopyan, N. S., Polyak, S. S., Shtern, V. Ya.

TITLE: On the Nature of the "Cold Flame" Phenomenon (O prirode kholodnoplamennogo yavleniya)

PERIODICAL: Zhurnal fizicheskoy khimii, 1958, Vol 32, Nr 9, pp 2224-2226 (USSR)

ABSTRACT: Two views are represented in publications on the oxidation of hydrocarbons in regard to the nature of the "cold flame" phenomenon. M. B. Neyman (Ref 1) explains this phenomenon in terms of the explosive decomposition of organic peroxides, while Pease (Ref 2) and Norrish (Refs 3 and 4) explain it as a result of the thermal instability of the reacting system. The authors suggest a new mechanism. He holds that the peroxide radical reacts in one of two possible ways: either with the initial hydrocarbon ($RO_2^* + RH \rightarrow ROOH + R^*$), or through molecular decomposition ($RO_2^* \rightarrow R'CHO + R''O^*$). The second reaction becomes predominant with an increase in temperature. To explain this phenomenon an idea of N. N. Semenov (Ref 5) was used. This is the so-called "degenerated branching": $R'COH + RO_2 \rightarrow$

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On the Nature of the "Cold Flame" Phenomenon

SOV/76-32-9-45/46

—→ $RO^{\bullet} + O^{\bullet}H + R^{\bullet}CO^{\bullet}$. Because of the action of the above-mentioned mechanisms there is a temperature range in which the optimal conditions for "branching" exist. There are 12 references, 8 of which are Soviet.

ASSOCIATION: Akademiya nauk SSSR, Institut khimicheskoy fiziki, Moskva (AS USSR, Moscow Institute of Chemical Physics)

SUBMITTED: January 31, 1958

Card 2/2

5(4)

AUTHORS: Ballod, A. P., Molchanova, S. I., SOV/20-123-3-23/54
Topchiyev, A. V., Academician, Fedorova, T. V.,
Shtern, V. Ya.

TITLE: Three Types of Kinetic Curves of the Interaction of Methane
and Propane With Nitrogen Dioxide (Tri vida kineticheskikh
krivyykh vzaimodeystviya metana i propana s dvuokis'yu azota)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol 123, Nr 3,
pp 464-467 (USSR)

ABSTRACT: The kinetics of methane and propane nitration by means of
nitrogen dioxide was carried out by the authors in a vacuum
device with a self-recording colorimetric photometer; thus,
the consumption of nitrogen dioxide was recorded. A diaphragm
gauge recorded the increase in pressure. According to the
composition of the reaction mixture, the initial pressure
and temperature 3 types of the reaction course were determined:
a) slow reaction (Figs 1a, 2a). A continuous increase in the
total pressure up to saturation and a corresponding
continuous NO_2 - consumption up to 30-50 % (Fig 2a) is a

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typical feature of this process. In propane the curve of

Three Types of Kinetic Curves of the Interaction of SOV/20-123-3-23/54
Methane and Propane With Nitrogen Dioxide

increase at 250-300° is S-shaped if there is no high initial pressure and the mixture consists of $C_3H_8 : NO_2 = 1 : 1; 2 : 1$ and $4 : 1$ (Fig 2a). The total pressure sometimes remains practically constant up to 30-40 seconds, although NO_2 is rapidly consumed. In methane nothing of that kind was observed. b) Reaction with a maximum (Figs 1b, 1v, 2v). With an increase in the initial pressure or in temperature the reaction of type a (at constant composition of the mixture) passes to a reaction with a maximum. After a period of 1.5-7 seconds (according to initial conditions) during which an autocatalytic reaction is seen, the pressure increases abruptly, while NO_2 is consumed to a considerable extent or practically completely. The abrupt increase in pressure has no relation with a visible flash. Afterwards, a rapid pressure decrease occurs, sometimes (in the case of propane) down to the initial pressure. It is followed by a slow increase in pressure up to saturation. Figure 2 b shows limiting cases between

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Three Types of Kinetic Curves of the Interaction of Methane and Propane With Nitrogen Dioxide SOV/20-123-3-23/54

reactions of type a and type b. c) Reaction with flash (Figs 1g, 2g). At a further increase in the initial temperature and initial pressure the reaction passes to an actual explosion process. The entire reaction practically ends in a flame, wherein NO_2 is completely consumed. The intensity of the

shining increases at constant temperature with the initial pressure, wherein the pink-reddish-lightblue coloration is turning white-yellow. No luminiscence (Ref 1) was found. The ratio of the pressure increases at the moment of the completed NO_2 consumption to the NO_2 initial pressure in the mixture

$\Delta P_1/P_{\text{initial NO}_2}$ for the reaction between CH_4 and NO_2 depends -

within the limits of the corresponding mixture - neither on the type of the reaction kinetics nor on the initial pressure, nor on temperature. This ratio varies insignificantly with the composition of the mixture. On the other hand, $\Delta P_1/P_{\text{initial NO}_2}$

for the reaction between C_3H_8 and NO_2 is influenced by the

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reaction kinetics and composition of the mixture. This ratio is the lowest for the reaction of type b and the highest for type c. There are 4 figures, 1 table, and 1 reference.

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5(2,3)

AUTHORS:

Patsevich, I. V., Topchiyev, A. V.,
Academician, Shtern, V. Ya.

SOV/20-123-4-34/53

TITLE:

Interaction Between Alkyl Radicals and Nitrogen Dioxide
(Vzaimodeystviye alkil'nykh radikalov s dvoukis'yu azota)

PERIODICAL:

Doklady Akademii nauk SSSR, 1958, Vol 123, Nr 4,
pp 696 - 699 (USSR)

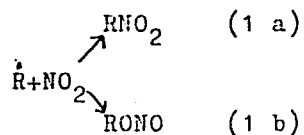
ABSTRACT:

The interaction mentioned in the title represents, according to modern concepts, the central elementary process of the nitration of alkanes in the vapor phase. This nitration probably takes place in two parallel ways: a) Nitro compounds, b) Alkyl nitrites are formed. The further transformation of the alkyl nitrites is usually regarded as source of the formation of oxidation products actually formed in the nitration, and in the destruction of the paraffin chain. The primary act would be the decomposition of alkyl nitrite:
 $\text{RONO} \longrightarrow \text{RO} + \text{NO} \text{ (2)}$. This decomposition either takes place thermally (Ref 1) or at the moment of the formation of alkyl nitrite (Ref 2). The alkoxy radical further yields such oxidation products, as aldehydes, CO, CO₂. Moreover, it

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can yield a nitrite of secondary origin by the interaction with NO: $R\dot{O}+NO \longrightarrow RONO$ (3). These concepts on the mechanism of the nitration are hypothetical and have never been proved by means of a direct experiment. In the present paper the direct interaction between R and NO_2 at moderate temperatures was investigated, by which fact thermal transformations of the intermediate and final products were excluded. This was made possible by the fact that NO_2 due to its unpaired electron forms a radical-like molecule, and that the interaction $\dot{R}+NO_2$ at low temperatures takes place very easily. The purpose of the work was to explain if the two suggested ways:



(1a) and 1(b) are correct. Furthermore, data on the further behaviour of RONO had to be collected, and the difference between the activation energies (ΔE) from the dependence of the quantitative relation of the forming RNO_2 and RONO on the

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temperatures had to be determined; finally the ratio between the steric factors (f_1 and f_2) of the ways (1a) and (1b) had to be found. From table 1 it may be seen that the two mentioned ways actually are correct. No interaction of molecular hydrogen takes place with RONO or RNO_2 (Table 2). Table 3 shows the results of two experimental series at different temperatures. Alkyl nitrite was identified in the reaction products by means of spectral photometry. Thus, the assumption by Gray (Grey) (Ref 2) that nitrite decomposes the very moment it is formed from R and NO_2 , is not correct. Table 4 and figure 1 show the above activation energies and the ratio f_1/f_2 . The formation of the alkyl nitrite requires a somewhat higher activation energy and has a greater steric factor than the formation of nitro paraffin. Table 5 demonstrates that the reaction of the alkyl radicals with nitrogen dioxide has a homogeneous character. There are 1 figure, 5 tables, and 6 references, 2 of which are Soviet.

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5(2,3)

AUTHORS:

Fedorova, T. V., Ballod, A. P.,
Topchiyev, A. V., Academician, Shtern, V. Ya.

SOV/20-123-5-25/50

TITLE:

On the Question of the Kinetic Mechanism of Interaction
Between Methane and Nitrogen Dioxide (K voprosu o kinetiches-
kom mekhanizme vzaimodeystviya metana s dnuokis'yu azota)

PERIODICAL:

Doklady Akademii nauk SSSR, 1958, Vol 123, Nr 5,
pp 860 - 863 (USSR)

ABSTRACT:

It appears highly probable that the nitrification of alkanes
by NO_2 in the vapor phase occurs with the participation
of free radicals and not on the basis of a molecular mechanism.
So far, however, it could not be clarified whether this is
a free radical process or a chain process. The present paper
is concerned with the solution of this problem. In earlier
paper (Ref 10), the authors differentiated among three types
of methane nitrification: a) slow nitrification, b) nitrifi-
cation with a maximum, and c) nitrification with inflamma-
tion. In the present paper the experimental results for the
reaction a) (Fig 1) at low conversion degrees are described.

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Between Methane and Nitrogen Dioxide

The order of the reaction, both with regard to CH_4 (Fig 2) and with regard to NO_2 (Fig 3), is practically equal to one. The determination results of the energy of activation E_{Nitr} are presented in figure 4. The tangent of the inclination angle of the straight line corresponds to the value $E_{\text{Nitr}} = 30.5$ Kcal/Mol. In the present case of a process consisting of two parallel reactions - a) nitrification of a hydrocarbon, and b) dissociation of NO_2 - the E_{Nitr} value could be determined in another independent way, viz. from the comparison of the velocities of these two reactions. The steric factor of the methane nitrification by means of NO_2 was found to be $f_{\text{Nitr}} = 0.5$. In the course of further experiments, it could be clarified that the reaction is homogeneous. The energies of activation, calculated by the authors for the reaction $\text{RH} + \text{NO}_2 \longrightarrow \dot{\text{R}} + \text{HNO}_2$ (1), were found to be very close to those determined experimentally. Therefore, it can be concluded that the kinetic rules found by the authors depend on the reaction (1)

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