18

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1

Nitridable titanium steels. László Gillemot and Mrs. Tibor Tomory. *Gép* 10, 177-84(1958).—Fourteen samples of steel, having Ti/C ratios between 1.04 and 20.6, were nitrided at 550, 600, and 650°, resp., for 1-7 hrs. in an atm. of 80% N and 20% NH_3. Where Ti/C < 4, the depth and hardness of the nitride layer was the same for treatment at any given temp. and time, regardless of compn. (for example, a 0.7-mm.-deep layer of 580° Vickers hardness was obtained on 2 steels with Ti/C of 1.04 and 3.79, resp.). Where Ti/C > 4, the hardness of the nitride layer will vary between 800 and 1400, depending upon the Ti content. Steels with Ti/C < 4 were found suitable for the manuf. of parts presently made of mild steels, while steels with Ti/C > 4 are recommended for parts presently made of carburized or case-hardened steels. Hardness of the nitride layer (after 5 hrs.' treatment at 600°) is equiv. to that of the carburized surface, and no appreciable distortion is evident after heat-treatment of nitrided parts. Nitriding was found to require less time than any other process yielding comparable results. Tensile strength, hardness, fatigue, nitride layer depth, and bendability test results were given for all steels examd. under various treating conditions. Nitrided Ti +7 steels were found suitable for the manuf. of parts subject to fatigue in service and parts made from such steels require little after-treatment after shaping, if any. L. [redacted]ai

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JW **Distr: 4E2c**

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GILLEMOT, L; SINAY, G.

Contraction work as a characteristic of materials. In German. p. 149.

ACTA TECHNICA. (Magyar Tudomanyos Akademia. Budapest, Hungary, Vol. 22, No. 1/2, 1958.

Monthly List of East European Accessions (EEAI) LC, Vol. 8, No. 7, July 1959

Uncl.

GILLEMOT, L.

Distr: 4E2c

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100. Nitriding titanium steels. (In German) L. Gillemot, M. Tömöry, *Periodica Polytechnica*, Engineering. Vol. 2, 1958, No. 1, pp. 1—17, 8 figs., 2 tabs.

The endurance limit of steels measured on polished test specimens increases in proportion with their tensile strength. With sharply notched specimens however the endurance limit of high-tensile tempered steels hardly differs from that of low-tensile mild steels. Nitriding is very suitable for increasing the endurance limit of sharply notched machine parts but the lengthy processing prevents its widespread use. Steels alloyed with titanium may be nitrided independent of their composition in a very short time, a case thickness of 0.7—0.8 mm can be obtained in 5 hours. Hardness and character of the nitrided case are a function of the Ti to C ratio. A relatively soft, deformable case may be developed on steels where the Ti to C ratio is less than 4, max. case hardness is 600 DPH, hardness gradually reduces in the direction of the core. The second group of nitriding titanium steels is constituted of steels possessing a Ti to C ratio exceeding 4. These steels can be nitrided to considerable hardness, hardness increases in proportion to the Ti to C ratio, *e.g.* with Ti : C = 20 a case hardness of 1400 DPH is attained. The hardness of these hard nitrided cases is uniform, decreasing abruptly in the direction of the core. The endurance limit of nitrided and then polished specimens made of soft-nitrided steels attains that of high-tensile tempered steels, in a sharply notched state their endurance limit exceeds that of notched tempered steel specimens by about 50%.

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GILLEMOT, L.

The tole of the testing of materials in up-to-date machine sizing. In German. p. 251.

PERIODICA POLYTECHNIKA. ENGINEERING. (Budapest Muszaki Egyetem.) Budapest, Hungary. Vol. 2, no. 4, 1958.

Monthly list of East European Accessions (EEAI) LC, vol. 8, no. 2, July 1959.

Uncl.

GILLEMOT, Laszlo, dr., Kossuth-dijas, egyetemi tanar

Scientific research and the innovation movement. Ujit lap 12 no.19: 7-8 10 O '60.

1. Magyar Tudomanyos Akademia levelezo tagja.

GILLEMOT, L.

Experiences with a new kind of diploma. work. p. 117.

PERIODICA POLYTECHNICA. ENGINEERING. (Budapesti Muszaki Egyetem) Budapest, Hungary. Vol. 3, no. 2, 1959.

Monthly List of East European Accessions (EEAI) LC. Vol. 8, no. 12, Dec. 1959.

Uncl.

HORGOS, Gyula, dr., muszaki tudomanyok kandidatusa (Budapest); GILLEMOT, Laszlo, dr., ketszeres Kossuth-dijas egyetemi tanar; FREUDENTHALL, A. M., dr. (USA); KRAINER, E., dr. (Austria); MUCSI, Endre; DEVENYI, Miklos

An account of the 2d Congress of Testing of Materials. Ujit lap 13 no.15:8 Ag '61.

1. Koho- es Gepipari miniszterhelyettes (for Horgos) 2. Columbia University, New York, USA (for Freudenthall) 3. Altalanos Geptervezo Iroda (for Mucsi) 4. Kemenyfemipari Vallalat (for Devenyi)

(Testing)

S/137/62/000/007/043/072
A057/A101

AUTHORS: Gillemot, L., Rónay, M.

TITLE: Steels which show a negligible effect of cold deformation upon the tendency to brittle fracture

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 7, 1962, 35, abstract 7I201 ("Acta techn. Acad. scient. hung.", 1961, 35 - 36, 185 -195, German)

TEXT: Reasons for the increase of the tendency to brittle fracture of steel, preliminarily treated by cold deformation (CD) were investigated, and recommendations given for the diminution of the destructive effect of CD. Fine-grained steel with 0.15% C and 0.75% Ti was investigated. The tempered steel was deformed by cold drawing with a shrinkage of 10 - 90%, and afterwards were determined H_v, $\sigma_{0.2}$, σ_b, ψ, the effective stresses and specific work of rupture at tension, and also a_k in dependence of the degree of CD. It is demonstrated that with an increase of the degree of CD to 25% (corresponding to the limit of uniform elongation at tension), H_v, $\sigma_{0.2}$, and σ_b increase (σ_b - to 65 kg/mm^2, $\sigma_{0.2}$ - to 60 kg/mm^2), while ψ decreases. The change of the mentioned characteristics is

Card 1/2

Steels which show a...

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connected with the formation of new slip (S) surfaces. Subsequent increase of the degree of CD to 65 - 70% does not change these characteristics, which is explained by the laminar S along the existing S surfaces. A further increase of the degree of CD effects again a rise of H_V, $\sigma_{0.2}$ and σ_b and decrease of ψ, which is connected with the stop of laminar S and the formation of a new front of dislocations in connection with the bending of the S planes; S becomes herewith turbulent. Already at a small CD, a_k decreases sharply about twice (to 15 - 20 kgm/cm^2), and remains then up to CD 65 - 70% at this level without change. Until the same degree of CD no change occurs in the specific work of deformation. The embrittlement of steel in the CD process is connected with the presence of foreign atoms in the steel which are blocking dislocations. A considerable decrease of the tendency of steel to brittleness can be effected by adding elements to the steel which bind these atoms. There are 21 references.

A. Nikonov

[Abstracter's note: Complete translation]

Card 2/2

GILLEMOT, L., prof. (Budapest, XI., Bertalan Lajos u.6)

Contributions to the question of rigid fragility of welded joints.
Periodica polytechn eng 6 no.2:97-113 '62.

1. Lehrstuhl fur Mechanische Technologie, Technische Universitat, und Mitglied, Schriftleitung, "Periodica Polytechnica - Engineering".

GILLEMOT, Laszlo. dr.

A new type of steel usable in cold-working. Gepgyartastechn
3 no.6:201-204, 219 Je'63.

GILLEMOT, Laszlo, prof., dr. (Budapest, XI., Bertalan L.u.7)

A new method for determining the brittleness danger. Periodica polytechn eng 8 no.1:1-14 '64.

1. Lehrstuhl fur Mechanische Technologie, Technische Universitat, Budapest. Submitted September 30, 1963.

GILLEMOT, Laszlo, dr.; MIHALYI, Erika

Velocity constant determination of metals and alloys on the basis of statical tensile tests. [illegible] 1[illegible] no.3:41-[illegible] [illegible].

1. Budapest Technical University (for Gillemot). 2. Research Institute of Metal Industry, Budapest (for Mihalyi).

L 31357-66

ACC NR: AT6021142 SOURCE CODE: HU/2504/65/050/000/0081/0092

AUTHOR: Gillemot, L.--Zhil'mo, L. (Corresponding member MTA)

2-5
B+1

ORG: none

TITLE: Simplified method for plotting Haigh and/or Smith graphs

SOURCE: Academia scientiarum hungaricae. Acta technica, v. 50, 1965, 81-92

TOPIC TAGS: graph theory, stress analysis, linear function

ABSTRACT: Affected by an alternating load superimposed onto a static mean stress, fatigue limit will be the function of the mean stress. The value of the alternating stress the superimposition of which to a given mean stress is still feasible, can be approximated by a cubical parabola. To plot the alternating stress value that can be still added to the static mean stress under a wide variety of conditions, the idea of introducing the actual stress causing fracture was introduced. Thus, it became possible to arrive at a simple linear relation between the static mean stress and the alternating stress, independent of sample shape and test temperature. The data required are only one result of static test and one result of fatigue limit test. Orig. art. has: 9 figures, 9 formulas, and 1 table. [Orig. art. in Eng.] [JPRS]

SUB CODE: 12, 20 / SUBM DATE: 16Nov64 / ORIG REF: 001 / OTH REF: 011

Card 1/1 CC

PETROV, L.P., redaktor; GILLENEVA, A.V., redaktor.

[Problems of combustion; collection of translated articles]
Voprosy goreniia. Sbornik perevodov statei. Moskva, Izd-vo
inostrannoi lit-ry. Vol. 1. 1953. 291 p. (MLRA 7:1)
(Combustion)

GILLER, A.G.

Nikolai Mikhailovich Korobkov, 1897-1947. Vop.geog. no.51:190-191 '61. (MIRA 14:6)

(Korobkov, Nikolai Mikhailovich, 1897-1947)

GILLER, A.I.

KOZHEVIN, V.G., nachal'nik; INOZEMTSEV,P.P., nachal'nik; BELEVTSEV, T.N., upravlyayushchiy; GARYAZEV, V.V., upravlyayushchiy; GRACHEV, L.I., upralyayushchiy; KONOVALOV, G.I., upravlyayushchiy; GILLER, A.I., nachal'nik; GUBIN, N.I., glavnyy inzhener.

The Soviet miners honor Miners' Day with new industrial victories. (MLRA 6:7)
Ugol' 28 no.8:5-15 Ag '53.

1. Kombinat Kuzbassugol' (for Kozhevin). 2. Kombinat Karagandaugol' (for Inozemtsev). 3. Trest Stalinugol' (for Belevtsev). 4. Trest Kalininugol' (for Gryazev). 5. Trest Molotovugol' (for Grachev). 6. Trest Shchekinugol' (for Konovalov). 7. Shakhtoupravlenie No.9/12 tresta Shchekinugol' (for Giller). 8. Shakhta No.34 tresta Krasnoarmeyskugol' (for Gubin). (Coal mines and mining)

GILLER, A.I., laureat Leninskoy premii; GROMOV, N.V., inzh.

Pillar extraction upon depletion of the main drifts. Ugol'
40 no.1:19-21 Ja '65. (MIRA 18:4)

1. Shakhtoupravleniye No.11-12 tresta Shchekunugol'.

DYSKINA, T.M.; GILLER, A.S.

Clinical and anatomical characteristics of ileocolic typhoid fever. Zdrav. Tadzh. 7 no. 2:28-32 Mr-Ap '60. (MIRA 13:10)

1. Iz kafedry infektsionnykh bolezney (zav. - dotsent D.M. Khashimov) Stalinabadskogo medinstituta im. Abuali ibni Sino i Stalinabadskoy gorodskoy infektsionnoy bol'nitsy.

(TYPHOID FEVER)

GILLER, E.S.

SHIRYAYEV, G.A., inzh.; GILLER, E.S., inzh.

Standardization of main structures in coal mining enterprises.
Shakht. stroi. no.12:7-10 D '57. (MIRA 11:1)

1.Institut TSentrogiproshakhtostroy.
(Mine buildings)

OSTROVSKIY, M.Ye.; GILLER, E.S.; CHEREPOV, I.A.; MELIKHOVA, A.A.

Design for a new type of a chemical plant. Prom. stroi. 41
no.7:13-18 Jl '64. (MIRA 17:8)

GILLER, F.; KRAVTSOVA, A.

Quality of the pancreas. Mias. ind. SSSR 34 no.4:56-58 '63.
(MIRA 16:10)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut myasnoy promyshlennosti.

ROZHKOV, F.; GILLER, I.

Make available to the masses the practices of those in front.
Metallurg 8 no.12:30-31 D '63. (MIRA 17:4)

1. Predsedatel' profsoyuznogo komiteta Magnitogorskogo metallurgicheskogo kombinata (for Rozhkov). 2. Nachal'nik normativno-issledovatel'skoy laboratorii Magnitogorskogo metallurgicheskogo kombinata (for Giller).

GILLER, I.R.

Utilization of the ANZh-2 apparatus for disinfection. Veterinariia 33 no.5:68 My '56. (MLRA 9:8)

1. Starshiy veterinaryy vrach Vereshchaginskoy mashino-traktornoy stantsii, Molotovskoy oblasti.

(Disinfection and disinfectants)
(Spraying and dusting equipment)

GILLER, I.R.

Biomycin in the control of paratyphoid in white mice. Lab. delo
8 [i.e.9] no.1 Ja '63. (MIRA 16:5)
(PARATYPHOID FEVER) (AUREOMYCIN)

GILLER, I, YE

TRAKHTER, B.S.; GARCHENKO, V.T.; GILLER, I.Ye.; SHAROPIN, V.D., redaktor; MIKHAYLOV, O.A., redaktor; [redacted] tekhnicheskiy redaktor.

[Operation cycle regulation in an open-hearth process plant] Reglamentirovannyy rezhim raboty martenovskogo tsekha. Moskva, Gos. nauchno-tekhn. izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1954. 83 p. (MLRA 8:1)

(Steel industry) (Industrial management)

LESHCHINER, M.M.; GILLER, I.Ye.

Increasing labor productivity and reducing production costs at the Magnitogorsk Metallurgical Plant. Stal' 15 no.1:70-74 Ja '55. (MIRA 8:5)

1. Magnitogorskiy metallurgicheskiy kombinat.
(Magnitogorsk--Metallurgical plants)

GILLER, M. , LUNTS, V.

Greater attention to income and expernditure balance of enterprise. Den. i k kred. 11, No 6, 1952.

GILLER, M.

Enlarge the sphere of decentralized clearing-house operations. Den. i kred. 13 no.5:23-25 My '55. (MLRA 8:7)
(Leningrad Province--Clearing house)

PECHENIK, M.; TARASOV, M.; RAVICH, A.; GILLER, M.; EYZENBRAUN, R.;
PAVLOVA, D.

Clearing payments and the issue of credit on special loan accounts. Den. i kred. 16 no.4:48-59 Ap '58. (MIRA 11:5)
(Clearinghouse)

GILLER, M.

Practice of payment organization. Den. i kred. 18 no.9:54-58 S '60.
(MIRA 13:8)
(Leningrad--Transportation, Automotive--Finance)
(Payment)

GILLER, M. (Leningrad)

"Credit for commercial enterprises" by S.A.Skorokhodov. Reviewed by M.Giller. Sov. torg. 35 no.8:49-50 Ag '62. (MIRA 15:8)
(Credit) (Retail trade) (Skorokhodov, S. A.)

GILLER, M.

Credit should be secured. Den. i kred. 21 no.7:29-30 Jl '63.
(MIRA 16:8)

1. Nachal'nik planovo-ekonomicheskogo otdela Leningradskoy oblastnoy kontory Gosbanka.

(Leningrad Province—Credit)

GILLER, M.Ye.

Processing the subtropical persimmon. Kons. i ov. prom. 14 no.8: 28-30 Ag '59. (MIRA 12:9)

1.Sechinskiy konservnyy kombinat imeni Lenina.
(Persimmon)

GILLER, M. Ye.

Experience of the V.I. Lenin Sochi Canning Combine in increasing the variety of products and combining various lines of production. Kons.i ov.prom. 15 no.4:41-42 Ap '60. (MIRA 13:6)

1. Sochinskiy konservnyy kombinat imeni V.I. Lenina.
(Sochi--Canning industry--Equipment and supplies)

GILLER, M. Ye.

Use of sorbic acid in the preservation of fruits. Kons.i ov.prom. 16 no.4:21-22 Ap '61. (MIRA 14:3)

1. Sochinskiy konservnyy kombinat.
(Fruit--Preservation)(Sorbic acid)

ROZENFEL'D, I.L.; RUBINSHTEYN, F.I.; YAKUBOVICH, S.V.; PERSIANTSEVA, V.P.;
Prinimali uchastiye: GILLER, R.S.; KURSKAYA, A.G.

Studying chrome acid guanidine as a corrosion inhibitor for oil paints. Lakokras.mat.i ikh prin. no.3:15-21 '62. (MIRA 15:7)
(Protective coatings)
(Guanidine)

VOL'FKOVICH, S.I.; GILLER, M.Ye.; GOL'DERBITER, M.S.; IONASS, A.A.;
KILOCHITSKIY, I.M.; REMEN, R.Ye.

Production of fodder and defluorinated fertilizer phosphate.
Khim. prom. 41 no.1:18-22 Ja '65.
(MIRA 18:3)

GILLER, S. A.

Giller, S. A. - "On the possible cause of bactericidal activity of certain organic compounds, in particular a derivative furan series," Izvestiya Akad nauk Latv. SSR, 1948, No. 12, p. 15-44, - Annotation in Latvian - Bibliog: 28 items

SO: U-4355, 14 August 53, (Letopis 'Zhurnal 'nykh Statey, No. 15, 1949.)

HILLERS, S.

5

Chem Abs V48
1-25-54
Electronic Phenomena

Ultraviolet absorption spectra of 2-nitro-1,3-indandione. G. Vanags, J. Biduss, and S. Hillers. *Latvijas PSR Zinātnu Akad. Vestis* **1949**, No. 8(Whole No. 25), 21-39(Russian summary, 39-40).—Absorption spectra of 2-nitro-1,3-indandione (I) and its salts were detd. in many solvents. In highly dil. aq. soln., the nitroindandione ion is the absorbing agent, and can be represented as a resonance hybrid of 3 out of a no. of possible valence structures. In solvents of low dielec. consts. such as ether and dioxane, in which the energy of shifting of the electrons is high, the enol form slowly transfers into the diketo form; the rate of reaction is proportional to the dielec. const. In 100% H_2SO_4, the absorption is by a mol. form of I, characterized by a superposition of 3 other electronic structures; this form is an intermediate between the diketo and the enol forms. The spectrum of the Et ester of the indandionecarboxylic acid had analogous form, but with the absorption max. shifted by 760 A. towards higher frequency, which can be explained by structural considerations. Salts of I became colored on storage, and the spectra indicated that this is caused by intramol. shifts. A decrease in the ionization potential of the cation facilitates the formation of structures which absorb in the visible. The high ionization potential of Hg prevents formation of an ionic link and the salt of Hg with I remains colorless. Arguments in favor of H bonding in I are given.

A. Dravnicks

Hillers, S

Synthesis of 4-aminosalicylic acid. S. Hillers,
Lokenbachs, and L. Mais. *Latvijas PSR Zinātņu Ak*
Vēstis 1950, No. 3(Whole No. 32), 7-25(in Russian; Latvi
summary).—Various routes to 4,2-$H_2N(HO)C_6H_3CO_2H$ (
were examd. 2,4-$(O_2N)_2C_6H_3Me$ (0.5 mole) in 800 ml.
fluxing EtOH treated with 0.85 mole $Na_2S.9H_2O$ in 160 n
H_2O, the mixt. allowed to stand 6 hrs., concd. and dild. wi
dil. HCl, filtered, and the filtrate neutralized gave 79% 4
$H_2N(O_2N)C_6H_3Me$, m. 77° (from H_2O). This (60 g.) reflux
0.5 hr. with 90 g. Ac_2O gave 98% Ac deriv., m. 161°. Tl
(75 g.) and 100 g. $MgSO_4$ in 15 l. H_2O treated at 95° over 3
hrs. with 200 g. $KMnO_4$, concd., and acidified with HCl ga
80% 4,2-$AcNH(O_2N)C_6H_3CO_2H$, m. 216-17° (from H_2C
This (61 g.) treated in 800 ml. cold 1:1 NH_4OH with 557
$FeSO_4.7H_2O$ in 1.1 l. H_2O with the soln. kept alk., then
lowed to stand 1 hr., filtered, the filtrate cooled to 0
treated with 22 g. $NaNO_2$, then dropwise with 100 ml. 1
H_2SO_4, the resulting diazotate slowly added to 1 l. conc
H_2SO_4, and the mixt. neutralized to pH 3, extd. with Et
to remove the tar, and acidified to pH 3 gave 50% I, m. 14
(crude). To 216 g. $PhCH_2CO_2H$ suspended in 1750
concd. H_2SO_4 was slowly added 875 g. concd. H_2SO_4 and 3
g. HNO_3 (d.1.5) below 60°, and after 24 hrs. at room tem
the mass was poured on ice, yielding 90% crude 2,4-$(O_2N$
$C_6H_3CH_2CO_2H$, decomp. 179.5° (from H_2O), more simp
formed in 81% yield by adding 600 g. powd. KNO_3
1400 g. concd. H_2SO_4 to 200 g. $PhCH_2CO_2H$ suspended in
kg. concd. H_2SO_4 below 60°. This kept 24 hrs. in MeOH
the presence of 20% oleum gave 85% Me ester, m. 8
(from MeOH). This (96 g.) treated in 900 ml. MeOH wi
48 g. iso-AmONO and 9.2 g. Na in 300 ml. MeOH, and ke
36 hrs. gave 48 g. solid ppt., to which was added the addn
product isolated by concn. of the filtrate, yielding a total
85% *Me 6-nitro-3-indoxazinecarboxylate* (II), m. 129-3
(from MeOH); the yield rises to 90% if the mixt. is stirre
This (100 g.) added at 70-5° to 5% NaOH and the sol
cooled and acidified with 2 *N* HCl gave 95% 4,2-$O_2N(HO$
C_6H_3CN (III), m. 161° [anhyd., m. 140-60° (from dil. M

Hillers, S.

3

Oxidation of tetrahydrofuran to succinic acid. S. Hillers and A. Zarins. *Latvijas PSR Zinātņu Akad. Vēstis* 1960, No. 5 (Whole No. 34), 9-10 (Russian summary). $(CH_2CO_2H)_2$, m. 181-2°, was obtained in 60% yields by slow (several days) oxidation of tetrahydrofuran with the theoretical amt. of concd. HNO_3 at 0-5°; to initiate the generation of N oxides, 0.1 g. starch/100 ml. acid was added. Oxidations with permanganate in alk. medium, bichromate in acid, chlorate in the presence of V, and HNO_3 at elevated temps. were unsuccessful in producing a pure product. A. Dravnieks.

①

1. HILLERS, S.
2. SSSR (600)
4. Nitrofuran
7. Activities of the Academy of Sciences of the Latvian S. S. R. on the industrial application and medical acceptance of new drugs. Latv. PSR Zin. Akad. Vestis No. 12, 1950
9. Monthly Lists of Russian Accessions, Library of Congress, March 1953, Unclassified.

HILLERS, S.

(4)

Oxidation of furan to maleic anhydride by atmospheric oxygen in vapor-gas phase over a catalyst from oxides of vanadium. P. Kalnins, S. Hillers, and M. Tarvid. *Latvijas PSR Zinātnu Akad. Vēstis* 1951, 443-52.—Passage of air-furan mixts. through a glass tube over V_2O_5-pumice catalyst gave the following conversions to maleic anhydride. The best results are had with 3 sec. contact and a molar ratio of air to furan of 120-190 at 325°, when an 81-3% yield is secured (92-4% taking into account unreacted furan). It is suggested that the reaction proceeds by formation of the 2,5-di-HO deriv., which yields the 2,5-oxo deriv. or suffers ring cleavage with formation of $HO_2CCH_2CH:CHCHO$, which yields a lactone. Over a pure V_2O_5 catalyst some 27% furan is oxidized to CO_2-H_2O and only 13% yields maleic anhydride; when the catalyst is fully "developed" with use and consists largely of V_2O_4, some 46% conversion to maleic anhydride occurs. The high yields cited above result from a catalyst consisting of both V_2O_5 and V_2O_4. G. M. K.

GILLERS, S.

1. HILLERS, S.; EYDUSS, J.

2. USSR 600

4. Nitrofuran

7. Ultraviolet absorption spectra of some nitrofurans, Latv. PSR Zin. Akad. Vestis, No. 8, 1951.

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

GILLERS, S.

1. HILLERS, S.; BERZINA, A.

2. USSR 600

4. **Nitrofuran**

7. Crystalline modifications of 5-nitro-2-furfurylidene-aminoguanidine sulfate, Latv. PSR Zin. Akad. Vestis, No. 11, 1951.

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

GILLER, S.

USSR.

✓Tautomerism and isomerism of 2-nitro-1,3-indandione. G. Vanags, Ya. Eidus, and S. Giller. *Doklady Akad. Nauk S.S.S.R.* 79, 977-80(1951).—The structure of 2-nitro-1,3-indandione was studied by investigating the ultraviolet absorption spectrum of this compd. and its derivs. in H_2O, EtOH, 0.1*N* H_2SO_4, ether, and dioxane. The spectra of the chloro-, bromo-, and iodo-2-nitro-1,3-indandione in ether were also studied. The spectra of the isomerization products were also used to det. their structure. The keto form exists in solvents having a large dielec. permeability.

J. Rovtar Leach

HILLERS, S.

Catalytic oxidation of furfural in vapor-gas phase with air oxygen. M. Turvida, S. Hillers, and P. Kalniņš. *Latvijas PSR Zinātņu Akad. Vēstis* 1952, No. 11 (Whole No. 64), 57-88 (in Russian).—Numerous types of V-bearing catalysts, with and without support, were investigated for their activity in catalyzing the oxidation of furfural vapor to maleic acid with air at atm. pressures and 200-375°. Typical catalysts were: V_2O_5 (I) on pumice; V_2O_5 on Al; in g. per 100 ml. of the carrier, 6.5 I and 10.3 TiO_2 on pumice, 11.8 I, 5.0 MoO_3, 0.85 Co_2O_3 on pumice; 21 $AgVO_3$ on pumice; 5.7 I, 1.9 MoO_3, 1.1 P_2O_5, 0.3 Fe_2O_3 on pumice; 15.2 I, 3.6 MoO_3, 1.6 B_2O_3, 0.8 TiO_2 on Al (II) or pumice. The salts and the oxides were placed on the carriers from a thin suspension by a slow evapn. of the corresponding salt, oxide, and carrier mixt., with or without help of sacrificial organic binders. The catalysts were slowly dried at 100° in air stream, followed by a gradual increase to 300° within 12 hrs., and holding at 320° for addnl. 12 hrs. The final activation was achieved by heating for 40 hrs. at 370° in a rapid air stream. One-pass conversions of 75-80% were obtained with the best mixed oxide catalyst, with no decrease in activity for 900 hrs. The air-furfural molar ratios were 100:1 to 4000:1, and the contact times 0.75-2 sec. The best catalyst was II, and the optimal conditions: air-furfural molar ratio 1800:1 to 2400:1, temp. 270°, contact time 1.5 sec.; 97% of furfural was oxidized, yielding 80% maleic acid. Andrew Dravnieks

Hillers, S.

Anti-tuberculosis activity of a preparation with isonicotinoyl hydrazide. S. Hillers, M. Lidaks, M. Berklava, and M. Tarvida. *Latvijas PSR Zinātņu Akad. Vēstis* 1952, No. 10(Whole No. 63), 157-60(in Russian).—Prepn. IN-73, m. 100-2°, was obtained from the so-called β-picolinic fraction of the pyridine bases from a phenol plant by oxidation with $KMnO_4$ or H_2SO_4 with SeO_2, or in vapor phase with air over V catalysts, with subsequent esterification with EtOH, and reaction with $NH_2NH_2.H_2O$ to form a mixt. of hydrazides. The prepn. had bacteriostatic activity in 3% glycerin bouillon cultures of several Mycobacteria in diln. of $1:6 \times 10^7$ as compared to $1:8 \times 10^4$ for the pure isonicotinic acid hydrazide. Andrew Dravnieks

HILLERS, S.

Catalytic vapor-phase oxidation of furan with air oxygen. S. Hillers and M. Tarvida. *Latvijas PSR Zinātņu Akad. Vēstis* 1952, No. 11(Whole No. 64), 89–92(in Russian).—A mixt. of air-furan vapor in molar ratios 1400:1 to 3000:1 was passed through a catalyst bed at 220–270°, with a contact time of 0.0–1.4 sec. Two catalysts were used: V_2O_5 + MoO_3 + TiO_2 + B_2O_3 on pumice, and V_2O_5 + MoO_3 + Fe_2O_3 + P_2O_5 on pumice. Furan was oxidized completely to 75% maleic acid. A. D.

HILLERS, S.

USSR.

Preparation of isonicotinic acid from the light ("β-picolinic") fraction of the pyridine bases. M. Lidaks, S. Hillers, and N. Naumenko. *Latvijas PSR Zinātņu Akad. Vēstis* 1953, No. 12(Whole No. 77), 83-8(in Russian).—The "β-picolinic" fraction (b. 142-6°) (I) from phenol production contained 15-20% γ-picoline. I (1.5 kg.) was condensed with formaldehyde (3 kg. of 40% soln.) on water bath for 50 hrs. The residue from steam distn. contained trimethylol-γ-picoline (II) in 90% yield. II was oxidized to isonicotinic acid nitrate (III) by warm 10% nitric acid: the isonicotinic acid was prepd. from III by boiling with 10% Na carbonate soln. In a variation, the oxidation of II was conducted at 90-5° with solid $KMnO_4$. The overall yield was 70-80%.

Andrew Dravnieks

GILLER, S. A.

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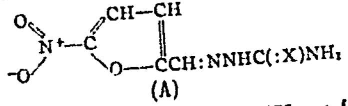
Some investigations of the ultraviolet absorption spectra of nitrofurans. S. A. Giller and N. O. Saldabols. *Izvest. Akad. Nauk S.S.S.R., Ser. Fiz.* 17, 708-14(1953).—Absorption spectra of the following furans were investigated and tabulated: furan, furfural, 2-nitrofuran, 5-nitrofurfural, 5-nitrofurfural diacetate, 5-nitrofurfural semicarbazone, 5-nitrofurfural glycylhydrazone, 5-nitrofurfural dichloroacetylhydrazone, *p*-(5-nitrofurfurylideneamino)benzaldehyde thiosemicarbazone, 5-nitro-2-bromofuran, 5,5'-dinitro-2,2'-difuryl sulfide, 5-nitrosylvan. The introduction of the nitro group shifts the absorption band to longer wave lengths. From the identity of nitrofuran and nitrofurfural spectra in H_2O and the difference in glycerol soln. it can be concluded that nitrofurfural forms a hydrate. The bathochromic effect of the compds. of the type A is as follows:



(A)

for X = S λ = 363 mμ; for X = O λ = 375 mμ; for X = NH λ = 385 mμ. In alk. medium, pH 13, the absorption curve of a cherry-red soln. of nitrofurfural changes radically; a max. appears at 350 mμ. It is assumed that a neg.-charged ion appears in alk. media. If the CHO group is replaced by H, Me, or Br, no coloration appears.

S. Pakswer

11-10-54

Institut lesokhozyaystvennkh problem Akademii nauk Latviyskoy SSR.

GILLER, S. A.

Dissertation: "Investigation of Methods of Synthesis. Physicochemical Properties, and Interrelation Between the Structure and Biological Activity of Some Substituted Derivatives of 5-Nitrofurfurilidenimines." Cand Chem Sci, Inst of Forestry Problems, Acad Sci Latvian SSR, Riga, 1953. (Referativnyy Zhurnal--Khimiya, Moscow, No 12, Jun 54)

SO: SUM 318, 23 Dec 1954

GILLER, S. A.

GILLER, S. A. -- "Study of the Methods of Synthesis, Physicochemical Characteristics, and Interrelationship Between the Structure and Biological Action of Certain Substituted 5-Nitrofurfuryldenimines." Acad Sci Latvian SSR, Inst of Forestry Problems 1954 (Dissertation for the Degree of Candidate of Chemical Sciences)

SO: Izvestiya Ak. Nauk Latviyskoy SSR, No. 9, Sept., 1955

HILLERS, S.

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USSR

Preparation of 1,2-dihydro-3,6-pyridazinedione. E. Dunkels and S. Hillers. *Latvijas PSR Zinātņu Akad. Vēstis* 1954, No. 2 (Whole No. 70), 105-8 (in Russian).—1,2-Dihydro-3,6-pyridazinedione (I) was prepd. in 80% yield from 58.8 g. maleic anhydride (II) with 30.6 g. of 98% hydrazine hydrate (III) in 250 ml. glacial AcOH first at 50° then boiling a short time. Soly. of I in water at 20° was 0.25%, at boiling 2.5%; it was insol. in EtOH, Et_2O, benzene, and $CHCl_3$. The aq. soln. reacted as a strong monobasic acid. Aq. solns. of I gave purple coloration with $FeCl_3$, a white amorphous ppt. with $Ag-NH_3$ soln., bluish green ppt. with $Cu-NH_3$ soln., and white ppt. with Cd sulfate soln. In neutral medium, II reacted with III to form the hydrazone $\overline{O.CO.CH:CH.C}:NNH_2$, since in II the neg. ends of the mol. dipole are at the carbonyl O and are attacked by the singly-charged hydrazine hydrate ion; in acidic medium, I is formed because the dipole on the II orients the doubly-charged hydrazine ion "frontally," leading to a closure of the six-membered ring.

Andrew Dravnieks

BI

Med

Search for new anticoagulants among indandione derivatives. [illegible] 8 [illegible] N. [illegible], and M. V. K[illegible] ([illegible] Blood Transfusion Inst., Leningrad). *Farmakol. i Toksikol.* 19, No. 6, 23-7(1956). Mice and rabbits were tested for toxicity and anticoagulant activity of [illegible] [illegible] had no activity. [illegible] were tolerated [illegible] at 200 mg./kg. except [illegible] (no mortality at [illegible]). [illegible]

Giller, S. A

PA - 2315

AUTHOR: YANUSHKOVSKIY, V.YA., GILLER, S.A.

TITLE: The Conference at Riga on the Use of Radio Isotopes. (Konferentsiya v Rige po primeneniyu radioizotopov, Russian).

PERIODICAL: Atomnaia Energiia, 1957, Vol 2, Nr 3, pp 285 - 286 (U.S.S.R.)
Received: 4 / 1957 Reviewed: 5 / 1957

ABSTRACT: In December 1956 a scientific conference of the Academy of Science of the Latvian S.S.R. was held at Riga, dealing with the use of radioactive isotopes in technology, biology, and medicine, in which also scientists from Moscow, Leningrad, Tallin (Reval), Wilna, and other cities participated. The president of the Latvian Academy of Science reported that the institutes of this Academy carried out a number of investigations dealing with this subject within recent years. It is the task of this conference to demonstrate the principles on which these investigations were based.

Individual lectures dealt among others with the following subjects: The main trends in the application of radioactive isotopes in devices for automatic control, the application of radioactive isotopes within the field of medicine and biology, the application of gas discharge counters in contactless radioactive relays, radioactive marking of steels under industrial conditions in the Leningrad Steel Rolling Mill "MOLOTOV", the use of a radioactive donor in the device for automatic transition from one tele-

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kinematic projector to another in the telecenter of Riga, the radioactive indicators of the level of liquids in covered containers, a radioactive control device for the filling of non-transparent containers in assembly line production, the practical application of radioactive, regulating- and signalling devices worked out in the Physical Institute of the Academy of Science of the Latvian S.S.R. (in cooperation with the factory "BEF"), various wiring circuits for radioactive relays in gas discharge counters, the experimental application of gamma rays for the radioscopic investigation of a thin metal, the application of scintillation counters in gamma-defectoscopy, the determination of the thickness of steel from the scattered gamma radiation, the attenuation of a parallel gamma bundle in layers of matter, the qualitative analysis of a mixture of radioactive isotopes from the half value periods, radioactive marked bacteria, the study of the penetration of pentode and other substances into the lignin by means of radiocarbon, the investigation of the dynamics of the shifting of chemical stimulators in the trunks of fir trees with radioactive phosphorus, the exchange of calcium in the organism of chickens (?), etc. In a resolution also work with stable isotopes and mass spectrographs was described as necessary.

HILLERS, S.

GENERAL

PERIODICALS: VESTIS No.1, 1958

HILLERS, S. Determination of nitrofuran solubility in water by the help of polyarography. In Russian. 113 p.

Monthly list of East European Accessions (EEAI) LC, Vol. 8, No. 2,
February 1959, Unclass.

GILLER, S. A.

"Informed the assembly of the intention of Latvia (latviya) scientists to carry out research on the use of natural polymers"

report presented at the session of the Presidium of the Council for Coordination of Scientific Work of the Academies of Sciences of Union Republics and Branches (on Development of Researches on Highly Molecular Compounds) 21 June 1958. (Vest. Ak Nauk SSSR, 1958, No. 9, pp. 101-104)

Corresponding Member, AS Latviyskaya SSR

Hillers, S,

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Synthesis in the series of 2-acetylfuran. N. Saldabols and S. Hillers. *Voprosy Ispol'zovan. Pentozansoderzhashchego Syr'ya, Trudy Vsesoyuz. Soveshchaniya, Riga* 1955, 379-91(Pub. 1958).—The little-known ω-derivs. of 2-acetylfuran (I), e.g. the bromo, amino, ammonium, sulfonium, and hydroxy derivs., and also their 5-nitro derivs. were studied. The nitration of I to 5-nitro-2-acetylfuran (II) was carried out according to H. (*Dissertation*, Riga, 1953) except that the amt. of anhyd. HNO_3 used was lowered to 1-1.5 moles for 1 mole I, and 7-8% concd. H_2SO_4 was added; the nitration was carried out at lower temp. during 1-1.5 hrs. The process of deacetylation of the intermediary product and the sepn. of II was simplified. Under the above conditions no I was observed as a side product as is the case in the Rinkes method (*C.A.* 26, 2455). Expts. showed that decreasing to 1 mole the amt. of HNO_3 for 1 mole I increased the yield of II to 33%. The highest yield of II (61%) was observed when nitrating with a mixt. of anhyd. HNO_3 and 7-8% H_2SO_4 from -14 to -12° and 1:1.5:11 I-HNO_3-Ac_2O. The bromination of I and II with *N*-bromosuccinimide was unsuccessful even in the presence of S or Bz_2O_2. 2-Bromoacetylfuran (III) with secondary cyclic amines gave the HCl and HBr salts of 2-(piperidinoacetyl)furan and 2-(morpholinoacetyl)furan, and the HBr salt of 2-(pyrrolidinoacetyl)furan and 1,4-di-α-furacylpiperazine were obtained. To obtain the highest yield of the corresponding amino ketones in Et_2O, 2 moles of the amine had to be used, whereas in an alc. medium, the reaction could be carried out with equimolar amts. and the amino ketones in this case pptd. directly in the form of crystals of HBr salts. The dialkylaminomethyl 2-furyl ketone obtained in Et_2O as a base can be pptd. (after filtration of the salt of the initial amine) in the form of the HCl salt by passing dry HCl through the Et_2O soln. The reaction of III with tertiary amines, e.g. pyridine, 1-methylpiperidine, and 1-methylpyrrolidine was investigated for the 1st time. Similarly to phenacyl bromide, III reacted with equimolar amts. of the above-mentioned tertiary amines in abs. Et_2O to give high yields of the corresponding ammonium salts. III reacted analogously with hexamethylenetetramine in various org. solvents, e.g. in alc., $CHCl_3$, PhCl, and CCl_4, at room temp., to give a high yield of 2-furacyl hexamethylenetetrammonium (IV) salt (89% in $CHCl_3$). The splitting of IV bromide by HCl in an alc. medium yielded 60% 2-aminoacetylfuran-HCl (V.HCl), which treated with $HClO_4$ yielded V.$HClO_4$. The acetylation of V.HCl by an emulsion of Ac_2O in H_2O at 0° with the addn. of $NaHCO_3$ yielded 61% 2-acetamidoacetylfuran (VI). The hydroxymethylation of VI with 30% aq. HCHO at 35° in the presence of $NaHCO_3$ yielded 60% 1-(α-furyl)-2-acetamido-3-hydroxy-1-propanone (VII). The 5-nitro deriv. of III with hexamethylenetetramine in $CHCl_3$ yielded 79% 5-nitro-2-furacylhexamethylenetetrammonium bromide (VIII). VIII treated with HCl in an alc. soln. yielded 18% 5-nitro-2-aminoacetylfuran-HCl (IX.HCl), which was sepd. from the mixt. by pptn. with acetone after filtration of the ammonium salts. Contrary to V.HCl, IX.HCl was quite hygroscopic and unstable. Owing to a high sensitivity towards alkal. agents, 5-nitro-2-bromoacetylfuran (X) did not form NH_4 salts with secondary and tertiary amines. AcONa in glacial AcOH and X yielded 5-nitro-2-acetohydroxyacetylfuran (XI) which hydrolyzed to 5-nitro-2-hydroxyacetylfuran (XII). A simpler method of substitution of Br in X by the hydroxy group by the action of Na formate in MeOH, on heating, did not give pos. results. In an analogous manner 60% 2-hydroxyacetylfuran was obtained from III, and only 12% by the action of HNO_2 on V.HCl. The hydrazone derivs. of

Distr: 4E2c(j)/4E3d

Saldabols, N.; Hillers, S.

product named was previously prepd. (Mukherjee, *et al.*, *C.A.* 49, 7730*e*), but, unlike these workers results, the compd. obtained was inactive. It was noted that the material darkened on exposure to air and on recrystn. Since the N analysis of crude and recrystd. material differed, it appeared to have undergone a change in compn. Attempts

4 months. The characteristics (percentage yield and the m.p., resp.) of newly synthesized ω-derivs. of I and II are given: 2-(piperidinoacetyl)furan-HBr, 46°, 247-9°; 2-(morpholinoacetyl)furan-HBr, 35°, 220-1°; 1,4-di-α-furacylpiperazine-HBr, 85°, 227-8°; 2-furacylpyridinium bromide, 94, 201-3°; methyl-2-furacylpiperidinium bromide, 63, 209-10°; methyl-2-furacylpyrrolidinium bromide, 87, 204-5°; 2-furacylhexamethylenetetrammonium bromide, 90, 195-6° (decompn.); V.HCl, 66, 222-3° (decompn.), V.$HClO_4$, 60, 189-90°; VI, 61, 116-7°; VII, 66, 110-12°; dimethyl-2-furacylsulfonium bromide, 68, 149-51°; dimethyl-5-nitro-2-furacylsulfonium bromide, 87, 133-4°; diethyl-2-furacylsulfonium bromide, 58, 102-4; diethyl-5-nitro-2-furacylsulfonium bromide, 84, 113-14°; VIII, 79, 100-2°; IX.HCl, 18, gradual charring; XI, 84, 85-6°; 2-(pyrrolidinoacetyl)furan-HBr, 9, 209-8°. The characteristic hydrazones R'R''CX of the prepd. ω-derivs. of I and II (R' = 2-furyl; R'', X, % yield, and m.p. given): $CH_2NH_2.HCl$ (XIV.HCl), $NNHCONH_2$, 23, 225-7° (decompn.); XIV.HCl, $NNHC_6H_4NO_2$-*p*, 51, 185-7° (decompn.); XIV.½H_2SO_4, $NNHC_6H_3(NO_2)_2$-2,4, 89, 231-3° (decompn.); CH_2NHAc (XV), $NNHCONH_2$, 5, 245-6° (decompn.); XV, $NNHC_6H_4NO_2$-*p*, 60, 226-8° (decompn.); XV, $NNHC_6H_3(NO_2)_2$-2,4, 85, 223-5° (decompn.); XV, $NNHCOCONH_2$, 31, 232-3° (decompn.); XV, $NNHCOCONHCH_2CH_2OH$, 59, 213-14° (decompn.); $CH(NHAc)CH_2OH$, $NNHC_6H_3(NO_2)_2$-2,4, 98, 234-6° (decompn.); $CH_2\underbrace{N.(CH_2)_2.O.CH_2}.CH_2$.HCl, $NNHC_6H_3(NO_2)_2$-2,4, —, 178-9° (decompn.); CH_2SMe_2Br (XVI), $NNHC_6H_3(NO_2)_2$-2,4, 73, 197-8° (decompn.); CH_2SEt_2Br, $NNHC_6H_3(NO_2)_2$-2,4, 63, 174-5° (decompn.); XVI Cl analog, $NNHCONH_2$, 35, 148-9° (decompn.); CH_2Br, $NNHCONH_2$, 48, 155-7° (decompn.). R' = 5-nitro-2-furyl: CH_2OAc, $NNHCONH_2$, 77, 201-2° (decompn.); CH_2SMe_2Br, $NNHC_6H_3(NO_2)_2$-2,4, 58, 175-6° (decompn.).

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Syntheses with methyl 2-furyl ketone. 1 II. ω-Bromination of methyl 2-furfuryl ketone and its 5-nitro derivative. N. Saldābola and S. Hillers. *Latvijas PSR Zinātnu Akad. Vēstis* 1958, No. ~~11, 91-6(in~~ Russian); cf. *C.A.* 53, 11334g. —The reaction of ω-bromination of Me 2-furyl ketone and Me 5-nitro-2-furyl ketone was investigated, with the use of Br, dioxane dibromide (I) and *N*-bromosuccinamide. I was found to give the best results with 70% and 80% yields of corresponding products, resp.; 18 references. M. ~~D.~~

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4E2c

Some new chloromercurifurans. 1 S. Hillers and Z. Zelmene. *Latvijas PSR Zinatnu Akad. Vestis* 1958, No. 11, 97–101(in Russian).—5-Chloromercuri-2-methoxyfurfural, m. 88–9° (EtOH) (decompn.), 5-chloromercuri-2-acetofuran (I), m. 142° (decompn.), and 5-chloromercuri-2-methylmercaptofuran, m. 58°, were prepd.; the semicarbazone of I m. 118° (decompn.). Michael Dymicky

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HILLERS, S.

Distr: 4E2c(j)/4E3d

The question of the multiplicity of the bond between atoms 3 and 4 in the furan ring. S. Hillers and G. Sokolovs (Inst. Org. Synthesis, Latv. Acad. Sci., Riga). *Latvijas PSR Zinātņu Akad. Vēstis* 1958, No. 12, 125-8(in Russian); cf. *C.A.* **27**, 2368; **31**, 6200^{7}; **33**, 8066^{7}; **38**, 5701^{9}; **43**, 4918*a*; **47**, 4350*d*.—Ultraviolet absorption spectra were detd. from 220 to 520 mμ, for solns. 0.0001*M* solute in abs. EtOH, with an SF-4 quartz photoelec. spectrograph for β,β'-bis(5-nitrofurfurylidene)dihydrazide of succinic acid (I); β,β'-bis(5-nitrofurfurylidene)dihydrazide of fumaric acid (II); β,β'-(5-nitrofurfurylidene)dihydrazide of acetylenedicarboxylic acid (III); and β,β'-bis(5-nitrofurfurylidene)dihydrazide of 3,4-furandicarboxylic acid (IV). Spectra of I to IV are presented. The % yield of the prepns. and their m.p.'s are, resp.: I 90, 236-7 (decomp.); II 97, >300 (decomp.); III 84, 237-8 (decomp.); IV 99, 236-7 (decomp.). Details of the prepns. of I-IV are given. The wave lengths (mμ) of peak absorption and the corresponding extinction coeffs. are: I 260 (2900), 350 (2700); II 240, (2800), 370 (2750); III 300 (2520); and IV 200 (1632), 300 (1030). From the ultraviolet spectra it is believed that IV shows evidence for partial double bond character and thereby establishes evidence for some aromatic character of the furan ring.

R. W. Kiser

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HILLERS, S.; Kurgan, B.; Saldabola, N.

A method for the preparation of 5 nitropyromucic acid. In Russian. p. 49.

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

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

GILLERS S

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Synthesis in the methyl 2-furyl ketone series. IV. ω-Dialkylsulfonium derivatives of methyl 2-furyl ketone and methyl 5-nitro-2-furyl ketone. N. Saldābols and S. Hillers. *Latvijas PSR Zinātņu Akad. Vēstis* 1959, No. 3, 53-6(in Russian); cf. *C.A.* **53**, 21862*b*.—($\overline{O.CH:CH.CH:C}COCH_2SR_2)^+Br^-$, where R = Me(I), Et(II), Bu(III), and isopentyl(IV), were prepd. by treating 0.03 mole bromoethyl 2-furyl ketone with 0.03 mole dialkyl sulfide in 12 ml. Me_2CO at 0° for 3-7 days; the yellowish ppt. was filtered off, washed with Me_2CO and Et_2O, and recrystd. from EtOH; I m. 149-51°, yield 68%; II m. 102-4°, yeld 58%; III m. 105-6°, yield 37%; IV m. 98-9°, yield 42%. $[\overline{O.C(NO_2):CH.CH:C}HCOCH_2SR_2]^+Br^-$, where R = Me(V), Et(VI), Pr(VII), Bu(VIII), and isopentyl(IX), were prepd. by treating 0.005 mole bromomethyl 5-nitro-2 furyl ketone with 0.005 mole dialkyl sulfide in 4 ml. Me_2CO off for 1-2 days at room temp.; the yellowish ppt. was filtered off, washed with Et_2O, and pptd. from EtOH soln. by Et_2O. V m. 133-4°, yield 87%; VI m. 112-14°, yield 84%; VII m. 105-6°, yield 47%; VIII m. 94-5°, yield 35%; IX m. 89-90.5°, yield 64%. Bimal C. Pal

HILLERS, S.; Stradins, J.; Ratenbergs, N.

Dynamics of the secretion of some new nitrofuran preparation series from the organism; task and study method. In Russian. p. 107

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

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

GILLER, S

Distr: 4E2c(j)/4E3d

Alkylation of furan by olefins. II. Increase of increment of molecular refractions of mono- and polyalkylfurans. S. Hillers and A. Bērziņa. *Latvijas PSR Zinātņu Akad. Vēstis* 1959, No. 5, 100-14.—Treating 2-ethyl-5-acetylfuran with hydrazine yielded 2-ethyl-5-acetylfuran hydrazone (I). Treatment of I with $Ca(OH)_2$ at 200° yielded 45% 2,5-diethylfuran, b. 105-10°, n_D^{20} 1.4700, d_{20} 0.8800; maleic anhydride adduct m. 118°. Similarly, starting with 2,5-dimethyl-3-acetylfuran hydrazone, 77% 2,5-dimethyl-3-ethylfuran was prepd., b. 130°, n_D^{20} 1.4622, d_{20} 0.8000. Mol. refractions for these furans were detd. and compared with calcd. values. When the increment of 0.755, characteristic of the furan ring was not added to the sum of at. refractions in calcd. values, they agreed closer with exptl. values.

V. S. Mihajlov

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GILLER, S. A

Distr: 4E2c(j)/4E3d 1

Nitration of 2-furyl-β-nitroethylene. S. Hillers and M. Berklava. *Latvijas PSR Zinātņu Akad. Vēstis* 1959, No. 5, 115-19.—The yield of 5-nitro-2-furyl-β-nitroethylene (I) in nitration of 2-furyl-β-nitroethylene by concd. HNO_3 (II) in Ac_2O was max. when the molar ratio of I to II was 1:4. This modified method gave 70-80% yields when dioxane was used for recrystn. V. S. Mihailov

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STRADYN' Ya. [Stradins,J.] (Riga); GILLER, S. [Hillers,S. (Riga); DZENE, A.
(Riga)

Polarographic réduction of some derivatives of 5-nitrofuran, possessing chemotherapeutic activity. Vestis Latv ak no.12:71-78 '59. (EEAI 9:11)

1. Akademiya nauk Latviyskoy SSR, Institut organicheskogo sinteza.
(Polarograph and polarography)
(Nitrofuran)

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5.3100

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AUTHORS: Stradin', Ya., Giller, S., Academician AS LatvSSR, Yur'yev, Yu. SOV/20-129-4-28/68

TITLE: Polarographic Reduction of 2-Nitrofuran Derivatives and 2-Nitroselenophene Derivatives

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 129, Nr 4, pp 816 - 819 (USSR)

ABSTRACT: The authors ascertained the influence exercised by the substituents in the 5th position of the furan- and selenophene cycle on the polarographic reduction process of the nitro groups in the second position. Thus, they completed the data of publications by new examples. The derivatives mentioned in the title may now be compared to the nitro derivatives of the aromatic series. Table 1 gives the derivatives I-XXV investigated in the present paper under vigorous conditions. It was found that the mechanism of polarographic reduction of the mentioned derivatives is the same as that of nitrobenzene- (Ref 7) and of 2-nitrothiophene (Ref 11) derivatives. Also the semiwave potentials $E_{1/2}$ of the nitro derivatives of the mentioned series are closely related. The comparison of these series leads to the conclusion that the nitro group of 2-nitrofuran derivatives is the most easily to be

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reduced. This is more difficult in the case of 2-nitrothiophene- and 2-nitroselenophene (which requires by 20-30 mv more) and still more difficult for nitrobenzene derivatives (by 40 mv more). From the investigation of this series of derivatives the influence exercised by the substituents on the polarographic reduction of the nitro group may be quantitatively estimated on the basis of the $E_{1/2}$ displacement of the substituted compound compared to the non-substituted one. In the series of nitrobenzene and nitrothiophene this displacement may be expressed by the Hammet equation. It may be concluded from the data given by the authors that this holds also for the derivatives mentioned in the title if the same values of σ are assumed for the substituents in the heterocycles as apply for the aromatic series, and if the numerical values of $\Delta E_{1/2}$ and ρ are compared for an equal pH value in a weakly acid medium. The behavior of the 2,5-substituted derivatives of the 5-membered heterocycles corresponds to the behavior of the p-substitutes of the aromatic series. The behavior of the former however strongly differs from that of the m-substitutes. This agrees on the whole with the rules of

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Polarographic Reduction of 2-Nitrofuran Derivatives and 2-Nitroselenophene Derivatives SOV/20-129-4-28/68

orientation found in the study of the reactivity of the substituted furans. However, further polarographic measurements are necessary in this case. The influence exercised by the substituents over an additional group -CH=CH- in the side chain is in general not high. The reduction of 5-nitro furfurol proceeds in a characteristic manner (Scheme). There are 1 table and 16 references, 9 of which are Soviet.

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ASSOCIATION: Institut organicheskogo sinteza Akademii nauk LatvSSR (Institute of Organic Synthesis of the Academy of Sciences of the Latviyskaya SSR). Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Moscow State University imeni M. V. Lomonosov)

SUBMITTED: July 21, 1959

Card 3/3

Giller, S. A.

PHASE I BOOK EXPLOITATION SOV/4350

Soveshchaniye po khimii, tekhnologii i primeneniyu proizvodnykh piridina i khinolina. Riga, 1957

Khimiya, tekhnologiya i primeneniye proizvodnykh piridina i khinolina; materialy soveshchaniya (Chemistry, Technology and Utilization of Pyridine and Quinoline Derivatives; Materials of the Conference) Riga, Izd-vo AN Latviyskoy SSR, 1960. 299 p. Errata slip inserted. 1,000 copies printed.

Sponsoring Agencies: Akademiya nauk Latviyskoy SSR. Institut khimii; Vsesoyuznoye khimicheskoye obshchestvo.

Ed.: S. Bazhanova; Tech. Ed.: A. Klyavinya; Editorial Board: Yu. A. Bankovskiy, Candidate of Chemistry, E. V. Vanaga, Candidate of Chemistry (Resp. Ed.), L. P. Zalukayev, Doctor of Chemistry, and M. M. Kalnyn'.

PURPOSE: This book is intended for organic chemists and chemical engineers.

COVERAGE: The collection contains 33 articles on methods of synthesizing or producing pyridine, quinoline, and their derivatives from natural sources. No personalities are mentioned. Figures, tables, and references accompany the articles.

III. SYNTHESES BASED ON PYRIDINE AND QUINOLINE

Card 8/10

SHIMANSKAYA, M.(Riga); GILLER, S.[Hillers, S.](Riga)

Effect on the activity of the content of vanadous catalysts in the process of vapor-phase furfurole oxidation. Vestis Latv ak no.9: 93-102 '60. (EEAI 10:9)

1. Akademiya nauk Latviyskoy SSR, Institut organicheskogo sinteza.

(Catalysts) (Vanadium) (Furaldehyde)

BLYUGER, A.F.; GILLER, S.A.; SHENIGSON, B.S.

Studies on the antilamblial effect of nitrofurans and first results of their use in the treatment of human lambliasis. Med. paraz. i paraz.bol. 29 no.6:646-647 '60. (MIRA 14:2)

1. Iz Instituta organicheskogo sinteza Akademii nauk Latviyskoy SSR, Rizhskogo meditsinskogo instituta i Respublikanskoy sanitarno-epidemiologicheskoy stantsii Latviyskoy SSR.
(GIARDIASIS) (FURAN)

SHIMANSKAYA, Mariya Vladislavovna; SLAVINSKAYA, Valentina Aleksandrovna;
GILLER, S.A., akademik, red.; DYMARSKAYA, O., red.; LEMBERGA, A.,
tekhn. red.

[Analysis of furfurole] Analiticheskoe opredelenie furfurola. Riga, Izd-vo Akad. nauk Latviiskoi SSR, 1961. 182 p. (MIRA 14:11)

1. Akademiya nauk Latviyskoy Sotsialisticheskoy Respubliki (for Giller)
(Furaldehyde)

LUKEVITS, E.[Lukevics, E.](Riga); GILLER, S.[Hillers, S.](Riga)

Reaction of triethylsilane with mercury salts. Vestis Latv ak no.4:95-98 '61. (EEAI 10:9)

1. Akademiya nauk Latviyskoy SSR, Institut organicheskogo sinteza.

(Triethylsilane) (Mercury)

5 3700 2209

24115
S/197/61/000/004/003/004
B101/B229

AUTHORS: Lukevits, E., Giller, S.

TITLE: Syntheses in the series of furan-containing organosilicon compounds. Information I. Reduction of furyl-, phenyl-, and thienyl mercury chloride by means of triethyl silane

PERIODICAL: Izvestiya Akademii nauk Latviyskoy SSR, no. 4, 1961, 99-102

TEXT: The purpose of the present work was to investigate the interaction between organomercury furan derivatives and silanes to obtain furyl silanes. The tests showed that furyl mercury chloride neither reacts with SiF$_4$, SiCl$_4$ in benzene, nor with $(C_2H_5)_3SiCl$ dissolved in o-xylene. A reaction was not achieved, neither after 24 hr nor at 145°C. If, however, triethyl silane was used instead of halogen silane, furyl mercury chloride was reduced with separation of mercury. Triethyl silane showed the same reducing effect with thienyl mercury chloride and phenyl mercury chloride. The reaction is accelerated if it is achieved in a solvent (dioxane, alcohol, or pyridine). In anhydrous pyridine the rate of reduction increases in the

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Syntheses in the series ... S/197/61/000/004/003/004
B101/B229

order: phenyl mercury chloride < furyl mercury chloride < thienyl mercury chloride. If a reaction is achieved without a solvent, or in dioxane, triethyl silane changes to triethyl-chlorosilane. If ethanol is used as solvent, triethyl silane changes to triethyl ethoxy silane. In pyridine a complex is formed from triethyl chlorosilane and pyridine. After decomposition of the reaction mixture by means of water, and extraction by means of ether, the ether extract contains only triethyl silanol and the corresponding hydrocarbon: benzene (identified as m-dinitro benzene), thiophene (identified as thienyl mercury chloride), or furan (proved by qualitative reactions). From this the following reaction may be assumed:

$RHgCl + (C_2H_5)_3SiH \longrightarrow RH + Hg + (C_2H_5)_3SiCl$; R = furyl-, thienyl-, or phenyl radical. Difuryl mercury, dissolved in pyridine, could not be reduced by triethyl silane. For the reaction of triethyl silane with phenyl mercury chloride, it is indicated: to 15.7 g phenyl mercury chloride, 4 g pyridine and 5.8 g triethyl silane were added, the solution was boiled for 4hr. After cooling off, 9.6 g Hg (=96%) were filtered off. The fraction distilled off at 80-81°C was nitrified. By crystallization from ethanol the m-dinitro benzene was obtained. At 146 - 148°C triethyl chlorosilane distilled over. If water was added to the solution filtered off from Hg,

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Syntheses in the series ...

extracted with ether, the triethyl silanol distilled over from the extract at 153 - 154°C. The reaction with other mercury compounds was carried out in the same way. The results are shown in Table 2:

Hg compounds,	mole	$(C_2H_5)_3SiH$, mole	solvents	duration of reaction, hr	obtained Hg, %
Phenyl mercury chloride	0.05	0.05	without	55	12.6
ditto	0.1	0.1	dioxane	36	80
furyl mercury chloride	0.05	0.05	ethanol	4	98
phenyl mercury chloride	0.1	0.1	pyridine	2	78.4
furyl mercury chloride	0.1	0.1	pyridine	2	86.25
thienyl mercury chloride	0.1	0.1	pyridine	2	98

X

A paper by Z. M. Manulkin (Ref.10: ZhOKh, 1946, 16, 235) is mentioned.

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Syntheses in the series ...

S/197/61/000/004/003/004
B101/B229

There are 2 tables and 14 references: 5 Soviet-bloc and 9 non-Soviet-bloc. The most important reference to English-language publication reads as follows: R. Benkeser, D. Hoke, R. Hickner, J. Am. Chem. Soc., 1958, 80, 5294.

ASSOCIATION: Institut organicheskogo sinteza AN Latv. SSR (Institute of Organic Synthesis, AS Latviyskaya SSR)

SUBMITTED: January 13, 1961

X

Card 4/4

A

VENTER, K.[Venters, K.]; GILLER, S.[Hillers, S.]; LAZDYN'SH, A.[Lazdins, A.]

Synthesis in the series of 5-nitro-2-furylpolyalkenyls and 5-nitro-2-furylpolyalkenes. Report 4. Nitration of β-(furyl)-acrolein and synthesis of certain unsaturated furan aldehydes and ketones. Vestis Latv ak no.5:87-97 '61.

1. Akademiya nauk Latviyskoy SSR, Institut organicheskogo sinteza.

LUKEVITS, E.[Lukevics, E.]; GILLER, S.[Hillers, S.]

Interaction of triethylsilane with mercury salts. Izv.AN Latv. SSR no.4:95-98 '61. (MIRA 16:1)

1. Institut organicheskogo sinteza AN Latviyskoy SSR.

(Silane) (Mercury salts)

LIDAK, M.[Lidaks, M.]; GILLER, S.[Hillers, S.]

Some reactions of ethylenimine. I. Reaction of ethylenimine with aliphatic and carbocyclic aldehydes and ketones. Vestis Latv ak no.5: 99-108 '61.

1. Akademiya nauk Latviyskoy SSR, Institut organicheskogo sinteza.

LIDAK, M. [Lidaks, M.]; GILLER, S.[Hillers, S.]

Some reactions of ethylenimine. II. Reaction of ethylenimine with benzaldehyde, furfural and their derivatives. Vestis Latv ak no.7: 49-58 '61.

1. Akademiya nauk Latviyskoy SSR, Institut organicheskogo sinteza.

(Ethylenimine) (Belzaldehyde) (Furaldehyde)

5 3700

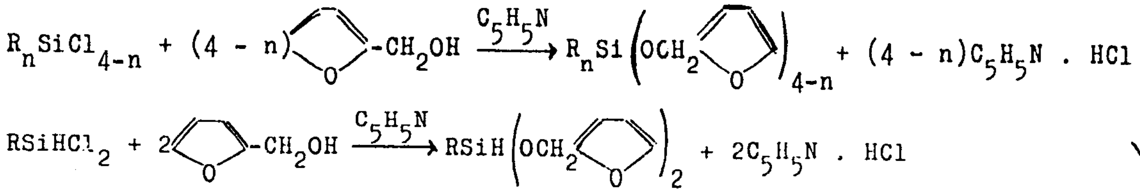
S/197/61/000/007/002/002
B117/B101

AUTHORS: Lukevits, E., Romadan, Yu., Giller, S.

TITLE: Syntheses in the series of furan-containing organosilicon compounds, synthesis of furfuryloxy silanes

PERIODICAL: Izvestiya Akademii nauk Latveyskoy SSR, no. 7 (168), 1961, 59-61

TEXT: The authors employed three methods for producing furfuryloxy silanes. Most of these compounds were prepared by the interaction of alkylchlorosilanes R_nSiCl_{4-n} and alkyldichlorosilanes $RSiHCl_2$ with furfuryl alcohol in the presence of pyridine (method A):



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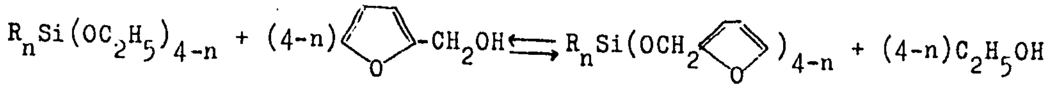
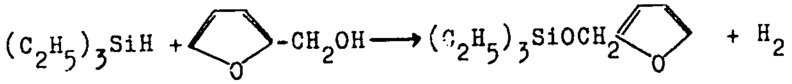
The reactions were made in a three-necked flask with mechanical stirrer, dropping funnel, and reflux cooler with calcium chloride tube. In the case of $C_2H_5SiHCl_2$ not only ethyl difurfuryloxy silane but also ethyl trifurfuryloxy silane were isolated. This indicates that the reaction partially proceeds via the Si-H bond. Re-esterification of ethoxy silanes with furfuryl alcohol (method Б) is simpler from the experimental point of view:



In some cases, however, the reaction proceeds slowly and the separation of the main product is rendered difficult by the impurities of the partially substituted esters. The best results could be obtained when using sodium furfurylate as a catalyst. The reactions were made in a distilling flask with dephlegmator in oil bath. For the production of trialkyl furfuryloxy silanes dehydrocondensation of hydride silanes with alcohols in the presence of metallic sodium (Ref. 11: B. N. Dolgov, N. P. Kharitonov, M. G. Voronkov, ZhOKh, 24, 1178, (1954)) was successfully employed (method В).

In this case the highest yields were obtained:



Using these three methods the entire series of methyl furfuryloxy silanes and ethyl furfuryloxy silanes as well as methyl ethyl difurfuryloxy silane, ethyl dipropyl furfuryloxy silane, trifurfuryloxy silane and tetrafurfuryloxy silane were obtained (Table 1). Most of the furfuryloxy silanes are colorless liquids with a characteristic smell and turning yellow on standing. At temperatures of 145°C and higher, the furfuryloxy silanes distilled in the vacuum are yellowish. The furfuryloxy silanes are soluble in ether, ethanol, benzene, and toluene, and insoluble in water. On heating they are gradually polymerized while forming brown non-distillable, highly viscous substances. All frequencies characteristic of the disubstituted furans can be observed in the infrared spectrum (Table 2) There are 2 tables and 17 references: 8 Soviet-bloc and 9 non-Soviet-bloc. The three most important references to English-language publications read as follows: Ref. 15: A. Cross, S. Stevens, T. Watts. J. Appl. Chem., 7, 562 (1957); Ref. 16: N. Wright, M. Hunter. J. Amer. Chem. Soc., 69, 803 (1947); Ref. 17: A. Katritzky, I. Lagovski. J. Chem. Soc., 1959, 657.

ASSOCIATION: Institut organicheskogo sinteza AN Latv. SSR (Institute of Organic Synthesis AS Latviyskaya SSR)

SUBMITTED: May 6, 1961

Table 1: constants of furfuryloxy silanes.

Legend: 1) furfuryloxy silane; 2) synthesis method; 3) boiling temperature, °C; 4) pressure, mm Hg; 5) found; 6) calculated; 7) yield %.

Table 2: infrared absorption spectra of furfuryloxy silanes.

Legend: 1) compound; 2) valence vibrations of the furan ring; 3) pulsation of the ring; 4) deformation vibrations of the C-H bond; 5) planar; 6) extraplanar; 7) references; 8) vibrations of the Si-x bond; 9) deformation vibrations; 10) other frequencies.

SLAVINSKAYA, B.A.; SHIMANSKAYA, M.V.; GILLER, S.A.; IOFFE, I.I.

Kinetics of the vapor-phase contract oxidation of furfurole.
Kin. i kat. 2 no.2:252-257 Mr-Ap '61. (MIRA 14:6)

1. Institut organicheskogo sinteza AN Latviyskoy SSR, Riga i Nauchno-issledovatel'skiy institut organicheskikh poluproduktov i krasiteley imeni K. Ye. Voroshilova.
(Furaldehyde) (Oxidation)

ZAYEVA, S.P.; GILLER, S.A.; GERMANE, S.K.; STRADYN', [Stradin, J.P.]; ALEKSEYEVA, L.N.; KRUZMETRA, L.V.; AL'BERTE, M.A.; AYZPURIETE, I.F.[Aizpuriete, I.F.]; KALNBERG, R.Yu. [Kalnberg, R.J.]

Experimental study of furazolin (F-150), a new preparation of the nitrofuran series. Zhur.mikrobiol., epid. i immun. 32 no.10: 17-20 O '61. (MIRA 14:10)

1. Iz Instituta organicheskogo sinteza AN Latviyskoy SSR.
(FURAN)

VENTER, K.K.; GILLER, S.A., akademik

Nitration of some α,β-unsaturated aldehydes and ketones of the furan series. Dokl. AN SSSR 137 no. 1:83-86 Mr-Ap '61.
(MIRA 14:2)

1. Institut organicheskogo sinteza AN Latviyskoy SSR. 2. AN Latviyskoy SSR (for Giller).
(Aldehydes) (Ketones) (Nitration)

VENTER, K.K.; GILLER, S.A., akademik; KUCHEROV, V.F.; TSIRULE, V.V.
[Cirule, V.]; KARKLINYA, A.M. [Karklina, A.];

Syntheses in the domain of 5-nitrofuryl-2-polyalkenals and 5-nitrofuryl-2-polyalkenones. Reaction of carbethoxymethylene-triphenylphosphorane and acetylmethylene-triphenylphosphorane with $\alpha\beta$-unsaturated and polyene aldehydes of the 5-nitrofuran series. Dokl. AN SSSR 140 no.5:1073-1075 0 '61.
(MIRA 15:2)

1. Institut organicheskogo sinteza AN Latviyskoy SSR.
2. AN Latviyskoy SSR (for Giller).

(Phosphorane)
(Furan)
(Aldehydes)

EYDUS, Ya.A. [Eiduss, J.]; VENTER, K.K.; GILLER, S.A., akademik

Effect of terminal substituents in 5-nitrofurylpolyene derivatives on their electron spectra. Dokl. AN SSSR 141 no.3:655-658 N '61. (MIRA 14:11)

1. Institut organicheskogo sinteza AN Latviyskoy SSR i Latviyskiy gosudarstvennyy universitet im. P. Stuchki.
2. AN Latviyskoy SSR (for Giller).

(Olefins—Spectra)

STRADYEV, YA.P. AND GILLER, S.A.

"Die polarographische untersuchung einiger chemotherapeutika der nitrofuranreihe."

Report submitted to the Oscillopolarography Course and Polarography Symp.
Jena, GDR 10-15 Sep 1962

GILLER, S.A., otv. red.; BLYUGER, A.F., red.; SHIMANSKAYA, M.V., red.;
DYMARSKAYA, O., red.; LEMBERGA, A., tekhn. red.

[Furazolidone]Furazolidon. Riga, Izd-vo Akad. nauk Latviiskoi
SSR, 1962. 145 p. (MIRA 15:12)

1. Latvijas Padomju Socialistiskas Republikas Zinatnu Akademija. Organiskas sintezes institut. 2. Direktor Instituta organicheskogo sinteza Akademii nauk Latviyskoy SSR (for Giller). 3. Institut organicheskogo sinteza Akademii nauk Latviyskoy SSR (for Shimanskaya). 4. Kafedra infektsionnykh bolezney Rizhskogo meditsinskogo instituta (for Blyuger).

(OXAZOLIDINONE)

SLAVINSKAYA, V.A.; GULEVSKIY, E.K.; SHIMANSKAYA, M.V.; GILLER, S.A.;
IOFFE, I.I.

Kinetics of furfurole catalytic oxidation. Kin.i kat. 3 no.2:276-281 Mr-Ap '62. (MIRA 15:11)

1. Institut organicheskogo sinteza AN Latviyskoy SSR, Riga i Nauchno-issledovatel'skiy institut organicheskikh poluproduktov i krasiteley imeni K.Ye.Voroshilova, Moskva.
(Furaldehyde) (Maleic anhydride) (Catalysts)

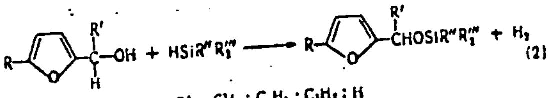
S/020/62/145/004/017/024
B110/B144

AUTHORS: Lukevits, E. Ya., Romadan, Yu. P., Giller, S. A., Academician AS LatSSR, and Voronkov, M. G.

TITLE: Organosilicon compounds of the furan series. Organosilicon derivatives of furyl carbinols and 5-substituted furfuryl alcohols

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 145, no. 4, 1962, 806 - 808

TEXT: Furfuryl oxysilanes were produced: (1) by reaction of trialkyl chlorosilanes with furyl alkyl and furyl aryl carbinols, (2) by reaction of silanes with furfuryl alcohol, 5-methyl furfuryl alcohol, and furyl alkyl carbinols



где $R = CH_3$; H $R' = CH_3$; C_2H_5 ; C_3H_7 ; H
$R'' = CH_3$; C_2H_5 ; C_2H_5O ; $(C_2H_5)_2SiOH$ $R''' = C_2H_5$; C_3H_7 ; C_2H_5O

using 10^{-5} moles of H_2PtCl_6 per 1 mole of isopropyl alcohol as catalyst at

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