GOL'DFARB, R.I.; DANILENKO, P.L.

Determining the raffinose content of molasses by means of paper chromatography. Sakh.prom. 34 no.5:21-23 My '60. (MIRA 14:5)

1. Ukrainskiy nauchno-issledovatel'skiy institut spirtovoy i likero-vodochnoy promyshlennosti.
(Raffinose) (Molasses)
(Paper chromatography)

ROVENSKAYA, T.G.; GOL'DFARB, R.N.; VAS'KOVSKAYA, M.A.

Resistance of dysenteric bacteria and enteropathogenic Escherichia coli to some antimicrobic preparations. Lab.delo 7 no.9:53 S '61. (MIRA 14:10)

1. Sanitarno-epidemiologicheskaya stantsiya Leninskogo rayona Dnepropetrovska.

(ESCHERICHIA COLI) (DYSENTERY)

ACCESSION NR: AP4041363 S/0048/64/028/006/0998/0999

AUTHOR: Ugay, Ya. A.; Averbakh, Ye. M.; Fogel'son, R. L.; Gol'dfarb, V. A.

TITLE: Some properties of thin indium phosphide layers

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 28, no. 6, 1964, 998-999

TOPIC TAGS: indium, indium phosphide, indium phosphide film, indium phosphide property, film property, film electric conductivity

ABSTRACT: The temperature dependence of electric conductivity of indium phosphide twin films and of their limit of absorption in the longwave range have been investigated. Films were produced by a separate vacuum vapor deposition of components, first of indium and, then of phosphorus, under pressure of about 10^{-5} mm Hg at 400C. Electron diffraction patterns of the films corresponded to those of the InP compound. The temperature dependence of electric conductivity of InP films 0.55—0.06 μ thick was determined at 20—500C. One of the two films investigated was first annealed in vacuum at 250C

ACCESSION NR: AP4041363

for 3 hr. As shown in the diagram (see Fig. 1 of the Enclosure), the electric conductivity of the films at high temperature is almost identical. The width of the forbidden zone determined from this diagram is 1.42 ev. The width of the forbidden zone determined from the longwave absorption edge was 1.27 ev. The higher value obtained from the temperature dependence of electric conductivity is explained by partial decomposition of indium phosphide at high temperatures. Orig. art. has: 2 figures.

ASSOCIATION: Voronezhskiy gosudarstveny*y universitet (Voronezh State University)

SUBMITTED: 00 ATD PRESS: 3058 ENCL: 01

SUB CODE: SS, IC NO REF SOV: 002 OTHER: 001

L 5423-66 EWT(1)/ETC/EWG(m)/EPA(w)-2 IJP(c) AT

ACCESSION NR: AP5019764 UR/0051/65/019/002/0284/0285
533.9

AUTHOR: Gol'dfarb, V. M. 44,55

TITLE: A simple technique for determining the temperature and electron density of a one-component plasma 21,44,55

SOURCE: Optika i spektroskopiya, v. 19, no. 2, 1965, 284-285

TOPIC TAGS: plasma temperature, electron density, line spectrum, gas discharge plasma, continuous spectrum, radiation intensity

ABSTRACT: The technique described is based on isolating the intervals in which the intensity of the continuum of a nitrogen or argon plasma is only slightly dependent on the wavelength and exceeds substantially the intensity of the line spectrum. It is then possible to forego the use of a spectrograph and photograph the process through light filters. The measurements were made for the following sources: (a) 25-amp arc strength 100 mm long burning in a stream of argon between tungsten electrodes in a quartz tube, (b) 280-amp pinched arc from an argon welding torch with water-cooled copper anode, (c) 10-amp arc 20 mm long between carbon electrodes in a weak stream of nitrogen. The formula used for the argon plasma was

$$n_e^2 T^{1/2} = 5.9 \times 10^{33} I,$$

Card 1/2

L 5423-66

ACCESSION NR: AP5019764

where n_e is the electron density, T the plasma temperature, and I the intensity of emission ($w/cm^{-3}sr^{-1}A^{-1}$). The formula for nitrogen is

$$I = 3 \times 10^{-35} n_e^2 T^{-1/2} + 8 \times 10^{-17} n_e T^{-1} x,$$

where x is the degree of dissociation of the nitrogen. The results are compared with published data and some of the differences explained. Advantages claimed for the method are the possibility of determining plasma parameters without complicated spectral equipment, higher luminosity, ease of comparison with a standard source, lower errors in the measurement of radial distributions due to plasma displacement, and smallness of reabsorption effect. The electron density and temperature errors are estimated at 25% and 200K, respectively. Orig. art. has: 2 figures and 2 formulas.

ASSOCIATION: none

SUBMITTED: 21Jul64 ENCL: 00 SUB CODE: ME, OP

NR REF SOV: 005 OTHER: 007

Card 2/2

S/124/61/000/012/033/038
D237/D304

AUTHORS: Gol'dfarb, V. M., and Stepanov, A. V.

TITLE: Elastic constants and stress condition of stratiform heterogenous media

PERIODICAL: Referativnyy zhurnal, Mekhanika, no. 12, 1961, 6. abstract 12V33 (V sb. Vopr. dinamiki i prochnosti, no. 5. Riga, AN LatvSSR, 1958, 127-158)

TEXT: A stratiform medium is considered, where each layer consists of a different material. The medium is put under stress in such a manner that mean stresses in each layer are constant. It was shown that the given medium can be considered anisotropic, and the method for determining elastic constants in an anisotropic medium with elastic constants of each layer known was given. As an example, stretching of a stratiform model was considered. Each layer, in this case, is shown to be under a

Card 1/2

Elastic constants and . . S/124/61/000/012/033/038
D237/D304

three-directional stress, and the layers with higher Young s modulus are compressed, while the ones with lower modulus are stretched. Distribution of stresses in separate layers was investigated for the case when dimensions of the layers are comparable with other dimensions of the model under investigation. Experimental determination of moduli of elasticity of some stratiform materials confirmed theoretical calculations. It was found that the distribution of stresses in stratiform media found by photo-elastic methods coincides with the distribution found theoretically. [Abstracter's note: Complete translation]

Card 2/2

S/051/61/011/004/002/004
E202/E592

26.2311

AUTHORS: Gol'dfarb, V.M. and Il'ina, Ye.V.

TITLE: Determination of the mean residence time of atoms and the coefficient of diffusion in an arc discharge plasma

PERIODICAL: Optika i spektroskopiya, v.11, no.4, 1961, 445-451

TEXT: High speed photographic studies of carbon arc discharges, 8 mm long, were carried out by introducing fine needles carrying 0.1 to 0.3 mm diameter beads of $NaNO_3$, $BaCO_3$ and Li_2CO_3. These needles were either stationary, or traversed the plasma channel, at midpoint between the electrodes at a constant velocity of 60 cm/sec. The high speed ciné camera was synchronised with the entry of the beads into the plasma. Background arc luminosity was rejected by suitable cut-off filters. Two independent methods were used to determine the coefficient of diffusion D. The first method was based on plotting the rate of blackening of the film against the time lapse, and thus lead to the evaluation of the mean residence time τ_y of the atoms introduced into the plasma and hence to the determination of the diffusion coefficient D_1. In the second method, the coefficient of diffusion D_2 was determined from the rate of propagation of the luminous front within the plasma,

using a sequence of high speed photographs and plotting, with the help of a microphotometer, a series of curves relating the blackening to the distances from the axis at each particular instance. The results given by these two methods are summarized below:

Table 2

Metal	τ_y (sec)	D_1 (cm^2/sec)	D_2 (cm^2/sec)
Li	0.002(0.0014-0.0027)	28	40
Na	0.003(0.0022-0.0039)	19	21
Ba	0.005(0.0037-0.0060)	11	13

The authors found that the evaporation of the bead starts within a few thousandths of a second after introduction and that the luminous region surrounding the bead grows preferentially in the direction of the cathode where it is retained for 0.01 sec after

the main part of the luminous cloud is diffused. During the decay stage, the highest luminosity was observed not along the axis but along the peripheries of the discharge. There are 8 figures, 2 tables and 9 references: 2 Soviet and 7 non-Soviet. The English-language references read as follows: Ref.1: F. I. Symon. Proc. Roy. Soc., 46, 153, 1925; Ref.2: G. E. Davis. Phys.Rev., 24,283,1924; Ref.3: H. A. Wilson. Phil.Mag., 24, 168, 1912; Ref.5: J.H.Arnold. Ind.Eng.Chem., 22, 1091, 1930.

SUBMITTED: November 19, 1960

S/048/62/026/007/024/030
B125/B104

AUTHORS: Il'ina, Ye. V., and Gol'dfarb, V. M.

TITLE: Determination of the mean duration of the atoms and diffusion coefficient in the plasma of an arc discharge

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya, v. 26, no. 7, 1962, 939-941

TEXT: The mean duration of atoms in the plasma of an arc discharge is estimated for a simple model of an arc discharge: the atoms were excited and emitted in a sphere of constant temperature with radius R. The source of matter with the intensity α is in the center of this sphere. The time dependence of the concentration of matter is determined from the diffusion equation $dN/dt = D\Delta N$. The effect of the electric field and convection are neglected. N is the number of atoms, and D is the diffusion coefficient of the atoms of the substance to be studied. From this diffusion equation, $\tau_y = R^2/2.9\ D_1$ follows for the mean duration of the atoms in the plasma. D_1 and τ_y of Li, Na, and Ba are determined by means

Card 1/2

of a high-speed SKS-1 (SKB-1) camera (500 pictures per second) for a d-c arc (5 a) with carbon electrodes. $NaNO_3$, $BaCO_3$, and Li_2CO_3 were introduced into the arc with a quartz needle. The diffusion coefficient (values D_2 in the table) was also determined by measuring the rate of the boundary displacement of the cloud which had formed around the grain of matter introduced into the plasma.

metal	τ_y, sec	D_1, $cm^2 sec^{-1}$	D_2, $cm^2 sec^{-1}$
Li	0.002(0.0014 ÷ 0.0027)	28	40
Na	0.003(0.0022 ÷ 0.0039)	19	31
Ba	0.005(0.0037 ÷ 0.0060)	11	15

There are 3 figures and 1 table.

IL'INA, Yelena Vital'yevna; GOL'DFARB, Viktor Markovich; [illegible], V.P., red.

[Mutual effect of elements in the spectrum analysis of powder samples in a carbon arc] Vzaimnye vliianiia elementov pri spektral'nom analize poroshkovykh prob v ugol'noi duge. Leningrad, 19[illegible]. 20 p. (Leningradskii dom nauchno-tekhnicheskoi propagandy. Obmen peredovym opytom. Seriia: Metody i sredstva kontrolia, ispytaniia materialov, detalei i mekhanizmov, no.5) (MIRA 17:5)

AID Nr. 986-7 10 June

ELASTIC MECHANICAL PROPERTIES OF LAMINATED INHOMOGENEOUS MEDIA (USSR)

Gol'dfarb, V. M., and A. V. Stepanov. Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 2, Mar-Apr 1963, 100-107.

S/207/63/000/002/011/025

The elastic behavior of inhomogeneous "thin-laminated" media under arbitrary loading is discussed. The term "thin-laminated" means that there are many layers in a volume element in which the state of stress is close to a homogeneous one (pure tension, compression, etc.). The layers are assumed to be isotropic and rigidly interconnected; their thicknesses are small relative to the element's dimensions, and the stress field within each layer is homogeneous. The medium is treated as homogeneous and anisotropic, with symmetry about an axis normal to the planes of the layers, so that the elastic constants of the medium can be determined by using the equations of the generalized Hooke law to connect the averaged values of stresses and strains of the volume element. The stresses in an individual layer are determined in terms of the components of its averaged state of stress. The averaged elastic constants and

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515620018-3"

ELASTIC MECHANICAL PROPERTIES [Cont'd] S/207/63/000/002/011/025

stresses in the case of anisotropic layers are also discussed, and associated formulas which can be used for the stress analysis of polycrystalline media are derived. The formulas give results which are in good agreement with experimental data. The dependence of the elastic constants of a thin-laminated medium on its geometry (i. e., relative thickness of layers) is discussed. Because of the difficulties in investigating this dependence theoretically, a method of using empirical data to obtain corrections for analytical formulas is outlined. [VK]

VAYNBOYM, D.I., insh.; GOL'DFARB, V.M., kand. fiziko-matematicheskikh nauk

Calculating the depth of the fusion zone in plug welding with carbon dioxide. Svar. proizv. no.8:8-13 Ag '63. (MIRA 17:1)

1. Severo-Zapadnyy zaochnyy politekhnicheskiy institut.

L 6929-65 EWT(1)/EWG(k)/EPA(sp)-2/EPA(w)-2/EEC(t)/T/EEC(b)-2/EWA(m)-2 Pe-6/
Po-4/Pab-24/P1-4 IJP(c)/AFETR/ASD(a)-5/AFWL/AEDC(b)/SSD/AEDC(a)/ASD(p)-2/ESD(ga)/
ACCESSION NR: AR4039898 ESD(t)/RAEM(t) S/0058/64/000/004/G015/G015
AT
104

AUTHORS: Gol'dfarb, V. M.; Il'ina, Ye. V.

SOURCE: Ref. zh. Fiz., Abs. 4G97

TITLE: Determination of electron concentration in arc plasmas of different compositions

CITED SOURCE: Sb. tr. Leningr. mekhan. in-ta, no. 33, 1963, 142-149

TOPIC TAGS: discharge plasma, line spectrum, electron density, electron temperature, arc discharge temperature, ionization potential, line broadening

TRANSLATION: The temperature and concentration of the electrons in a DC arc plasma in vapors of Cs, Na, Sr, Al, Sn, Cu, and Cd, for different pressures and at a current of 8 A, are calculated from measured values of the relative intensities of the spectral lines

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ZnI 3072.06 and 3075.90 Å, CaI 4226.73 Å, and CaII 3968.47 Å. The distance between the carbon electrodes was 6 mm. The oxides or salts of the basic metal were placed in the crater of the lower electrode (anode) mixed with coal dust. The zinc oxide was placed on the bottom of a deep hole in the anode. Time sweeps of the spectrum made it possible to choose conditions whereby the atoms of the "influencing" metal, zinc, and calcium entered simultaneously into the discharge channel. The obtained values of the temperature and concentration of the electrons are averages over a 30-second exposure time. The results of the measurements have shown that the plasma temperature decreases with decreasing ionization potential of the metal and with increasing concentration of the metal. The degree of ionization of calcium decreases as the metals are introduced, and the concentration of the electrons increases, in spite of the decrease in temperature. This result has been verified by control measurements based on the method of "external" arc-discharge characteristics and from the broadening of the spectral lines Cs

L 6929-65
ACCESSION NR: AR4039898

7228 and 6213 Å, with quadratic Stark effect. Yu. K[illegible]ev.

SUB CODE: OP ENCL: 00

Card 3/3

ACCESSION NR: AP4043025 S/0051/64/017/002/0302/0304

AUTHORS: Gol'dfarb, V. M.; Il'ina, Ye. V.

TITLE: Cesium line broadening in the plasma of a dc arc

SOURCE: Optika i spektroskopiya, v. 17, no. 2, 1964, 302-304

TOPIC TAGS: arc discharge radiation, dc arc discharge, cesium, line broadening, alkali metal, electron concentration, Stark effect, spectrum analysis

ABSTRACT: The electron concentration n_e of a dc carbon arc was determined from the line broadening of Cs lines, the Stark constants for which were calculated by H. B. Griem (Phys. Rev. v. 128, 515, 1962). The use of cesium was dictated by the insufficient intensity of the customarily used hydrogen lines in weak arcs. Tests with a KS-55 spectrograph were made to check that the line broadening is indeed due to the Stark mechanism. The dependence of n_e on the

ACCESSION NR: AP4043025

amount of metal introduced was also measured and the possibility of determining n_e from the metal concentration was verified. The variation of n_e along the arc was found to follow the variation in the metal density. Deviations occurring on the boundary of the radiating region are explained. It is also pointed out that the variation of line broadening of alkali metals, frequently used as buffers in spectral analysis, can be used to judge the stability of the excitation and ionization conditions. Orig. art. has: 2 figures and 3 tables.

ASSOCIATION: None

SUBMITTED: 09Dec63

ENCL: 00

SUB CODE: OP

NR REF SOV: 006

OTHER: 006

Card 2/2

L 2350-66 EWT(1)/EWT(m)/EPF(c)/ETC/EPF(n)-2/ENG(m)/EPA(w)-2/EWP(t)/EWP(b) IJP(c)
ACCESSION NR: AP5016688 JD/AT UR/0294/65/003/003/0333/0339
533.9.082.5:546.293

AUTHOR: Gol'dfarb, V. M.; Dresvin, S. V.

TITLE: Optical investigation of temperature and electron concentration distributions in argon plasma

SOURCE: Teplofizika vysokikh temperatur, v. 3, no. 3, 1965, 333-339

TOPIC TAGS: high temperature plasma, plasma heating, argon

ABSTRACT: Argon plasma burners (high frequency electrodeless heating of gas at atmospheric pressure) with water-cooled quartz walls of various diameters are studied. The electron temperature and electron density distributions are determined. These results were obtained by observations (with *in situ* carbon arc calibration) of absolute line and continuum intensities and measurement of H_β broadening, relative line to continuum intensity, and continuum photography. The electron density of about 10^{16} cm^{-3} in the burner assured the existence of equilibrium, which is reflected in the small deviation between values obtained by the above methods. It is noted that sometimes when larger diameter tubes were used, the plasma column wanders

Card 1/2

L 2350-66

ACCESSION NR: AP5016688

3

from wall to wall. The temperature profile for such plasma was found to have only slightly lower average temperatures as compared with symmetric discharges. Orig. art. has: 5 figures, 1 formula.

ASSOCIATION: Leningradskiy pedagogicheskiy institut im. A. I. Gertsena (Leningrad Pedagogical Institute)

SUBMITTED: 27Jul64 ENCL: 00 SUB CODE: ME

NO REF SOV: 006 OTHER: 012

Card 2/2

L 5138-66 EWT(l)/EWT(m)/T/EWP(t)/EWP(b)/EWA(c) IJP(c) JD/JH
ACCESSION NR: AP5018723 UR/0070/65/010/004/0539/0546
548.53

AUTHOR: Gol'dfarb, V. M.; Gol'tsman, B. M.; Donskoy, An. V.; Stepanov, A. V.

TITLE: Thermal conditions for the process of crystallization by drawing from a melt

SOURCE: Kristallografiya, v. 10, no. 4, 1965, 539-546

TOPIC TAGS: crystal growing, crystallization, thermodynamic property

ABSTRACT: The crystallization technique dealt with in the article was developed previously by one of the authors (Stepanov, Zh. tekhn. fiz. v. 29, 381 and 394, 1959 and elsewhere). The authors derive relations for the determination of the thickness of the crystal (s) as a function of the drawing rate (v), the melt temperature (T), the heat transfer coefficient (α), the height of the crystallization front(h), which is assumed to be plane, and other thermodynamic characteristics of the crystallizing material. It is assumed that the process is stationary, the crystal is not confined from above, the crystallization takes place at a fixed temperature, the crystal is quite thin, and the thermodynamic characteristics of the material are independent of the temperature. Crystallization parameters, which are a combination of the thermodynamic properties of the material and facilitate comparison of the crystallization conditions of various materials, are introduced

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0901/0868

L 5138-66

ACCESSION NR: AP5018723

and the crystallization behavior of numerous metals is compared. The results of the derived analytic equations are in satisfactory agreement with experiment. Orig. art. has: 4 figures, 19 formulas, and 3 tables.

ASSOCIATION: Leningradskiy gosudarstvennyy pedagogicheskiy institut im. A. I. Gertsena (Leningrad State Pedagogical Institute)

SUBMITTED: 02Sep64 ENCL: 00 SUB CODE: SS

NR REF SOV: 008 OTHER: 001

Card 2/2

L 3609-66 EWT(l)/ETC/EPF(n)-2/EWG(m)/EPA(w)-2 IJP(c) AT

ACCESSION NR: AP5024044 UR/0057/65/035/009/1646/1651
533.9.07

AUTHOR: Dresvin, S. V.; Donskoy, A.V.; Gol'dfarb, V.M.

TITLE: Determination of the conductivity in a high frequency induction discharge in argon by calorimetric and spectrometric methods

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 35, no. 9, 1965, 1646-1651

TOPIC TAGS: discharge plasma, argon, high frequency, plasma conductivity, plasma temperature, optic method, calorimetry

ABSTRACT: The authors have measured the conductivity of a high frequency discharge argon plasma by calorimetric and optical methods in order to compare the two techniques. The plasma was produced in a 3 cm diameter quartz tube with water-cooled walls containing flowing argon at atmospheric pressure and located on the axis of a 4.6 cm diameter 4-turn coil connected to a 26 Mc 10 kW oscillator. The conductivity of the plasma is calculated from the current and voltage in the exciting coil and the heat evolved, with the aid of a rather involved theory, the previous derivation of which by Ye.A.Bamberg and S.V.Dresvin (ZhTF, 33, 68, 1963) contains some errors that are corrected in the present paper. The absolute intensity of the radiation from the arc between 4400 and 4700 Å was determined by photograph-

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L 3609-66

ACCESSION NR: AP5024044

ing the arc through suitable filters, and the absolute intensity of Ar I 4510, the Doppler broadening of H_β, and the intensity of the recombination continuum near 4500 Å were determined with a type ISP-51 spectrometer. With the optical measurements it was possible to estimate the temperature, electron density, and conductivity in different parts of the plasma. The conductivities measured optically were some 800 % greater than those measured calorimetrically. This discrepancy is ascribed to the variation of the conductivity between different parts of the plasma. The conductivity distribution determined optically is discussed at some length, and an "effective" conductivity that one should expect to measure calorimetrically is calculated from the optical measurements. This optically determined effective conductivity is only some 275 % greater than the calorimetrically measured value. The calorimetric method for measuring plasma conductivities is subject to large absolute errors (associated largely with complex and unknown features of the discharge geometry) which can easily exceed 100 %, but it is capable of good accuracy (5 %) in relative measurements. "The authors express their gratitude to P.G.Ratnikov for valuable discussions." Orig. art. has: 14 formulas, 5 figures, and 2 tables.

ASSOCIATION: Leningradskiy politekhnicheskiy institut im. M.I.Kalinina (Leningrad Polytechnic Institute)

Card 2/3

L 3609-66

ACCESSION NR: AP5024044

SUBMITTED: 16Dec64 ENCL: 00 SUB CODE: ME

NR REF SOV: 007 OTHER: 009

Card 3/3

L 40235-66 EWT(m)/EWP(t)/ETI IJP(c) JD

ACC NR: AP6019647 SOURCE CODE: UR/0149/66/000/003/0138/0143

AUTHOR: Gol'dfarb, V. M.; Gol'tsman, B. M.; Donskoy, A. V.; Stepanov, A. V. 44 6

ORG: Leningrad State Teachers Institute (Leningradskiy gosudarstvennyy pedagogicheskiy institut)

TITLE: Production of thin-walled products from a melt with air blowing 14

SOURCE: IVUZ. Tsvetnaya metallurgiya, no. 3, 1966, 138-143

TOPIC TAGS: molten metal, metal blowing, metallurgic process, cooling

ABSTRACT: A method for the uniform cooling of products by blowing with air is examined. A cooler which provides a high value of the heat-transfer coefficient at a small distance from the crystallization front is described. In this device a stream of air is directed through a blowing slot to the surface of the product and is deflected by it upward and partially downward. Downward blowing depends upon the distance and shape of the edge of the blowing slot; it should not be appreciable since a strong air stream deforms the meniscus of the melt and lowers the temperature of the mold. A strip of the product 5—10 mm wide is under the effect of a normal air flow and adjacent parts of the surface are under the effect of a tangential flow. Various types of coolers are used for cooling products of a complex shape. The velocity of the air flow

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at the output from the blowing slot when drawing articles is usually several tens of meters per second. At such velocities and normal incidents of the flow on a narrow section of the surface, high values of the heat-transfer coefficient are achieved. The dependence of the thickness of the product on the cooling conditions was investigated by drawing sheets, tubes, and complex shapes. The main method of increasing the drawing rate is to bring the cooling zone closer to the crystallization front even if this means reducing the heat-transfer coefficient. The presence of a buffer zone increases the dependence of thickness on the drawing rate. Orig. art. has: 1 table, 5 figures, and 4 formulas.

SUB CODE: 11,13/ SUBM DATE: 18May64/ ORIG REF: 005/ OTH REF: 000

L 45056-66 EWT(m)/EWP(m) IJP(c) AW/AT

ACC NR: AP6018454 SOURCE CODE: UR/0051/66/020/006/1085/1086

AUTHOR: Gol'dfarb, V. M.; Il'ina, Ye. V.; Kostygova, I. Ye.; Luk'yanov, G. A.; Silant'yev, V. A.

ORG: none

TITLE: Population density of hydrogen levels in an argon-hydrogen plasma stream

SOURCE: Optika i spektroskopiya, v. 20, no. 6, 1966, 1085-1086

TOPIC TAGS: multicomponent plasma, supersonic nozzle, plasma generator, electron density, plasma electron temperature

ABSTRACT: Spectral emission of the argon plasma generated in the constant current plasmatron and flowing through a supersonic nozzle has been investigated. The electron density range was 10^{12} cm^{-3} to $3 \cdot 10^{15}$ cm^{-3} and electron temperature was 5000 to 2500°K. The spectrum was found to contain the lines of argon, hydrogen, recombination continuum and molecular bands of nitrogen (second positive system). The relative line intensity was determined by using Balmer lines for calibration. The spectrum was studied as a function of the radial position in the stream and the distance from the end of the nozzle. The population density of levels with principal quantum numbers n=4 and 5 increased with increasing distance to the axis and was found inverted at low electron densities. At the same time the n=3 and 4 as well as n=6 levels did not differ from

UDC: 533.9

L 47350-66

ACC NR: AR6029407 SOURCE CODE: UR/0137/66/000/006/D033/D034

AUTHOR: Gol'dfarb, V. M.; Donskoy, A. V.; Stepanov, A. V.

TITLE: Drawing of molten aluminum-manganese alloy into strip

SOURCE: Ref. zh. Metallurgiya, Abs. 6D233

REF SOURCE: Uch. zap. Leningr. gos. ped. in-ta im. A. I. Gertsena, no. 265, 1965, 50-60

TOPIC TAGS: drawing, strip, alloy, alloy strip

ABSTRACT: The results of an investigation of drawing of molten aluminum-manganese alloy into strip and properties of the latter are given. The thickness of strip is determined in relation to the intensity of air blowing (air expenditure), the drawing rate, the melt temperature, and its level with respect to the upper plane of the floating die and the width of the slit of the latter. Both the macro- and microstructures of the material and its mechanical properties are investigated. A diagram of the casting device is given in the original article. N. Yudina. [Translation of abstract] [AM]

Producing strip from molten metal

SUB CODE: 13/

Card 1/1 UDC: 621.771.24:669.71

L 02356-67 EWT(m)/EWP(t)/ETI/EWP(k) IJP(c) JD/WW/RM/JG

ACC NR: AR6029490 SOURCE CODE: UR/0137/66/000/006/D005/D005

AUTHOR: Gol'dfarb, V. M.; Donskoy, A. V.; Stepanov, A. V.

TITLE: Some problems of embossing in direct drawing of articles from a molten mass

SOURCE: Ref. zh. Metallurgiya, Abs. 6D34

REF SOURCE: Uch. zap. Leningr. gos. ped. in-ta im. A. I. Gertsena, no. 265, 1965, 61-74

TOPIC TAGS: embossing, direct drawing, molten mass, pipe, rod

ABSTRACT: Problems of drawing strips, circular cores, circular pipes, and some compound sections and articles using floating-die impression molds with variable slot widths are discussed. Technical recommendations and conclusions are given. [Translation of abstract].

SUB CODE: 13/

Card 1/1

UDC: 621.771.001

ACC NR: AR6035101 SOURCE CODE: UR/0137/66/000/008/G016/G016

AUTHOR: Gol'dfarb, V. M.; Gol'tsman, B. M.; Donskoy, A. V.; Stepanov, A. V.

TITLE: Thermal conditions for drawing parts from the melt with variuos methods of cooling

SOURCE: Ref. zh. Metallurgiya, Abs. 8G160

REF SOURCE: Uch. zap. Leningr. gos. ped. in-ta im. A. I. Gertsena, no. 265, 1965, 118-143

TOPIC TAGS: metal drawing, cooling, MOLTEN METAL, DRAWN ALUMINUM

ABSTRACT: Test data, diagrams and equations are presented for various conditions of the process of drawing parts from molten aluminum (strips, pipes, and intricate shapes). The prospects are worked out for various methods of cooling while drawing. Orig. art. has: 18 figures and 5 tables. The bibliography contains 22 titles. A. Tseydler. [Translation of abstract] [NT]

SUB CODE: 13/

Card 1/1 UDC: 669.71.04

ACC NR: AP7004636 SOURCE CODE: UR/0288/66/000/003/0073/0080

AUTHOR: Donskoy, A. V.; Dresvin, S. V.; Gol'dfarb, V. M.

ORG: Polytechnic Institute im. M. I. Kalinin, Leningrad (Politekhnicheskiy institut)

TITLE: High-frequency plasma devices

SOURCE: AN SSSR. Sibirskoye otdeleniye. Izvestiya. Seriya tekhnicheskikh nauk, no. 3, 1966, 73-80

TOPIC TAGS: plasma device, plasma discharge, high frequency discharge, electric generator

ABSTRACT: Various devices with high-frequency plasma discharges are discussed from the viewpoint of their energy characteristics, electric parameters, and structural design. In particular, a plasma burner of the capacitive (jet) type and a plasma burner of the inductive type are considered. A high-frequency generator (5—8 Mc and 10^9—10^{10} cps) is used as a power supply source for the capacitive plasma burner. The current of the capacitive discharge may be increased by decreasing its reactance. The plasma discharge is usually surrounded by a grounded metallic cylinder. In order to avoid short-circuiting of the capacitive current on the cylinder, the flame of the jet discharge is enclosed in a quartz tube with a gas stream. When the diameter of the jet discharge channel is ~ 5 mm, the smallest diameter of the outer cylindrical electrode should be 25—30 mm. Such a structure of the burner greatly increases the capacitance between the burner and ground, and decreases by an order of magnitude the

 UDC: 533.9.07

ACC NR: AP7004636

discharge impedance. The inductive plasma burner also uses a high-frequency generator as a power supply source. This type of burner is based on electrodless inductive discharges excited by a variable magnetic field of the inductor. A comparison of the two plasma burner types has shown that the energy transfer to plasma is much more efficient in the inductive burner. Orig. art. has: 8 figures.

SUB CODE: 20/10/ SUBM DATE: none/ ORIG REF: 007/ OTH REF: 004

Card 2/2

L 15970-66 EWT(l)/EWT(m)/T/EWP(t)/EWP(k)/EWP(b) IJP(c) JD/WW/HW/RS/TG

ACC NR: AT6002272 (N) SOURCE CODE: UR/2564/65/006/000/0360/0364

AUTHOR: Gol'dfarb, V. N.; Donskoy, A. V.; Stepanov, A. V.

ORG: none

TITLE: Some problems of shaping during crystallization by pulling from a melt. (Paper presented at the Third Conference on Crystal Growing held in Moscow from 18 to 25 November, 1963.)

SOURCE: AN SSSR. Institut kristallografii. Rost kristallov, v. 6, 1965, 360-364

TOPIC TAGS: metal crystallization, crystal growing, aluminum alloy, metal tube

ABSTRACT: Among the relationships between the characteristics of the process of pulling thin crystals from melts, an important one is the relationship between the geometry of the shaper slit, height of the crystallization front, and geometry of the crystal being pulled. The following rules were established for the pulling of tubes of aluminum alloys: (1) The more the shape of the sample deviates from the shape of the slit, the higher the crystallization front; (2) The decrease in thickness in sections with small radii of curvature is slower; (3) As the height of the crystallization front rises, the dependence of the thickness of the sample on the slit width decreases, and the dependence on the cooling and pulling

Card 1/2

L 15970-66

ACC NR: AT6002272

rate increases; (4) A rise of the melt level causes an increase in the thickness of the tube. To determine the dependence of the thickness of the crystal on the pulling rate v, cooling rate (heat transfer coefficient α), overheating of the melt ΔT, and shaper slit width, results of a solution of the thermal and capillary problem were used. The calculations were compared with measurements of the thickness of ribbons pulled with local cooling, and the agreement was considered satisfactory. The method of calculation is applicable not only to ribbons, but to crystals of other shapes as well. Orig. art. has: 6 figures.

SUB CODE: 11, 20 / SUBM DATE: none / ORIG REF: 006 / OTH REF: 001

pulling tubes from molten metals
18, 44, 55

b☆
Card 2/2

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515620018-3"

GOLD [illegible]

Rubber compositions for coating cables. Ya. D. Goldfarb, G. I. Go[illegible], G. I. D[illegible], [illegible] and V. B. Van[illegible]. U.S.S.R. [illegible] 1957. Into rubber compds. used for covering cables, 0.5–5 parts by wt. of an [illegible] compd. of the thiophene series, e.g. [illegible]methyl-2-thenylidene-[illegible], [illegible] of [illegible]-thenylidene-[illegible], [illegible]. These additives have an antiseptic action and increase the heat resistance of the rubber.

M. Hosch

4 [illegible] (8)

2 [illegible]

KLEBANOV, G. Ya.; ABEL'SKIY, A. M.; BEYDER, A. V.; VAYNER, S. V.; VLASIK, V. S.; GOL'DFEDER, Ya. M.; DUDKINA, D. F.; ZHURAVLEVA, L. D.; KANE, D. B.; KUBALNOV, M. L.; KOLODEZNAYA, T. B.; KUTASNIKOV, V. Ya.; SOLODOVNIKOV, B. M.; STROYMAN, L. A.; SHUMKOVA, N. S.

Results of dispensary treatment of occupational dermatoses in the clinics of Leningrad. Vest. derm. i ven. 36 no.6:58-62 Je '62. (MIRA 15:6)

1. Iz kozhno-venerologicheskikh dispanserov No. 1, 2, 3, 5, 8, 10, 11, 12, 13, 14, 15, 17, 18, 19, 22 (nauchnyy rukovoditel' - chlen-korrespondent AMN SSSR prof. P. V. Kozhevnikov)

(LENINGRAD--OCCUPATIONAL DISEASES)
(SKIN--DISEASES)

1930 - 1932

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515620018-3"

CA

10

Syntheses in the thiophene series with the aid of stannic chloride. Ya. L. Goldfarb. *J. Russ. Phys. Chem. Soc.* **62**, 1073-82(1930).—The yield obtained in the acylation of thiophene (I) in the presence of $SnCl_4$ depends upon the solvent used. In benzine (b. 120-40°) soln., crude C_4H_3SAc (b. 209-214.5°) was obtained in 76% yield; in PhH it was 86% using 1 mol. I, 1 mol. AcCl and 1 or 0.5 mol. $SnCl_4$. With 0.25 mol. $SnCl_4$ the yield was cut to 48.6%. BzCl, I and $SnCl_4$ in PhH gave 82.5% of C_4H_3SBz (m. 55°). As indicated above I is more reactive than PhH with regard to acylation in the presence of $SnCl_4$. Condensation with ethers also occurs more rapidly with I than with PhH. $(Ph_2CH)_2O$ (II) gives in the cold in CS_2 or PhH soln. *2,5-benzohydrylthiophene*, $C_4H_2S(Ph_2CH)_2$ (III), lemon yellow, m. 85-86°. One mol. III upon oxidation with CrO_3 gave 2 mols. BzPh. III is sol. in PhH, Et_2O, AcMe and warm AcOH, difficultly sol. in EtOH. It is very photosensitive, deepening in color upon exposure. By recrystn. in the dark nearly colorless crystals are obtained. III reacts energetically with HNO_3, dissolves upon gentle heating in H_2SO_4 and gives a reddish violet color with isatin and H_2SO_4. III is also obtained, in 60% yield, by substituting Ph_2CHOH (IV) for II. AcCl with III and $SnCl_4$ in PhH gave $C_4HAcS(Ph_2CH)_2$, m. 162°. II reacts with PhH only at higher temps. and only the mono deriv. is produced. IV with PhH and $SnCl_4$ gives principally Ph_3CH; a cryst. product, m. 165°, was also obtained. The exact structure of III was not detd.

Lewis W. Butz

2-Naphthyl nicotinate and its halogen alkyl derivatives. Ya. L. Gol'dfarb. Russ. 44,554, Oct. 31, 1935. 2-$C_{10}H_7OH$ is treated with nicotinyl chloride in the presence or absence of an inert solvent and the ester obtained is heated in the presence of solvents with alkyl halide or dialkyl sulfate. The ester and its halogen derivs. have therapeutic value.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

10

Reactions of the etherates of tin and titanium tetrachlorides. II. Ya. L. Goldfarb and L. M. Smorgonskii. *Bull. acad. sci. U. R. S. S., Classe sci. math. nat., Sér. chim.*, **1936**, 553–61 (in German 561); cf. *C. A.* **30**, 4813⁹. The reaction $ROR + SOCl_2 \rightarrow 2RCl + SO_2$ is catalyzed by $SnCl_4$ and $TiCl_4$. In agreement with the proposed reaction mechanism in which alkyl chlorosulfites (I) are intermediates, the decompn of I to RCl and SO_2 was studied in the presence of $SnCl_4$, $TiCl_4$, $ZnCl_2$ and $AlCl_3$. The reaction was catalyzed by all of these metal halides. Some isomerization from *n*- to iso-Pr or to sec- and *tert*-Bu occurred.

W. F. Bruce

CA

10

Synthesis of furan isologs of cocaine (methyl ether of 2-furoylecgonine). M. M. Katsnel'son and I. L. Gol'dfarb. *Compt. rend. acad. sci. U. R. S. S.* [N. S.] 4, 413-16 (1936) (in French). — The prepn. of the furan isolog of cocaine, *2-furoylecgonine Me ether* (I), was made with a view to comparing its pharmacol. properties with those of cocaine and thiophene-cocaine. Although I was obtained from the Me ether of ecgonine (II) or its HCl salt and pyromucyl chloride, the yields were poor. Improved yields were obtained by using II and pyromucic anhydride (III). The latter was prepd. with a 75% yield by refluxing for 8 hrs. a mixt. of 30 parts pyromucic acid, 60 parts of Ac_2O and 80 parts of PhMe, followed by evapn. of the HOAc, Ac_2O and PhMe and fractionation at reduced pressures; II b_{11} 196-200°, m. 73° from ligroin. Heating 3.1 g. II and 3.1 g. III on a water bath gave 3.2 g. 66% of I, m. 142.3° from ligroin; *HCl salt*, m. 184.5°; *chloroplatinate*, darkens at 227°, m. 241° decompn.; *picrate*, m. 167.9°. John F. Loutt

8(and 6)-(1-methyl-2-pyrrolidyl)-2-phenylimidazo[1,2-a]pyridine. Ya. L. Gol'dfarb and M. V. Andrienchuk. Russ. 51,041, May 31, 1937. α- or α'-Ammonicotine is heated in the presence of a solvent with α-bromoacetophenone. Cf. C. A. 32, 1760.

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515620018-3"

Alkyl chlorides [illegible] Russ. 51,419, July 31, 1937. Alkyl chlorosulfates are decomposed in the presence of $ZnCl_2$, $AlCl_3$, $FeCl_3$ or $SbCl_3$ as catalysts.

A S M - S L A METALLURGICAL LITERATURE CLASSIFICATION

Esters of nicotinic acid. J. L. GOLDFARB (J. Appl. Chem. Russ., 1937, **10**, 513—520).—The following esters have been prepared from nicotinyl chloride and the appropriate alcohol: *benzyl*, b.p. 179°/9 mm. (*methiodide*, m.p. 159—160°; *hydrochloride*, m.p. 72—74°; *picrate*, m.p. 156—157°), *furfuryl*, b.p. 152°/6 mm., m.p. 32—34° (*methiodide*, m.p. 137°; *hydrochloride*, m.p. 130°; *picrate*, m.p. 128°), *β-naphthyl*, b.p. 197—199°/1 mm., m.p. 100° (*methiodide*, m.p. 191—194°; *hydrochloride*, m.p. 191—194°; *picrate*, m.p. 177·5—178·5°), and *cyclohexyl*, b.p. 159°/7 mm. (*methiodide*, m.p. 114·5—115·5°; *hydrochloride*, m.p. 120°; *picrate*, m.p. 116°), *nicotinate*.

R. T.

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

BC

B-II-5

Chemistry of spinning solutions for cuprammonium fibre. II. Influence of salts on the preparation and properties of cuprammonium cellulose solutions. S. DANILOV, J. GOLDFARB, A. TSCHERNIAEVA, and N. GORBUNOVA (J. Appl. Chem. Russ., 1937, 10, 1457—1467).—$Cu(OH)_2$ dissolves more readily in aq. NH_3 when Na_2SO_4 or $(NH_4)_2SO_4$ is present. The coagulative action of a series of cations and anions falls in the order $NH_4 > Li > Na > K$; $\frac{1}{2}C_2O_4'' > \frac{1}{2}SO_4'' = Cl' > NO_3' > CNS' > HCO_3'$.

R. T.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

BC

A-3

Condensation of 2-aminonicotine with α-bromoacetophenone. J. L. GOLDFARB and M. V. ANDRIANTSEVE (Compt. rend. Acad. Sci. U.R.S.S. 1937, **16**, 473—477).—2-Aminonicotine and $COPh\cdot CH_2Br$ in EtOH yield a mixture of *7-(N-methylpyrrolidyl)-2-phenylpyriminazole* (*picrate*, m.p. 209·5—211°; *dihydrobromide*, m.p. 272—274°; *platinichloride*, m.p. 250—253°) and *α-phenacylaminonicotine* (*picrate*, m.p. 186·5°). J. D. R.

Reactions of etherates of tin and titanium tetrachlorides III. Reactions of dioxane and tetrahydrofuran with organic acid chlorides in the presence of tin and titanium tetrachlorides. Ya. I. Gol'dfarb and L. M. Smorgonskii. *Izv. Akad. Nauk SSSR, Otdel. Khim. Nauk* (U.S.S.R. Acad. Sci., Bull. Chem. Sci.) **1938**, 1516-22 (in English, 1522-30); cf. *C.A.* **31**, 6615. Condensation of dioxane (I) and tetrahydrofuran (II) and an org. acid chloride with $SnCl_4$ and $TiCl_4$ leads to ring rupture of I and II and the formation of 3- and 1,4-dichloroethers, esters, resp., as the main products. The reaction of 1 mol. each of I and BzCl with 2 mols. $TiCl_4$ at 150-80° for 10 hrs., decompn. with ice and HCl, extn. with Et_2O, washing of the ext. with cold dil. NH_4OH and H_2O, removal of the Et_2O and fractionation of the residue afforded 50% $BzO(CH_2)_4Cl$ (III), b$_{10}$ 125-30°, b$_{760}$ 134°. If $SnCl_4$ is used, 68% III and 4.7 g. $BzO(CH_2)_2O(CH_2)_2Cl$ (IV) are formed. Heating III alone or with $SnCl_4$ at 180-200° for 25 hrs. gave IV. While I and AcCl do not react in the presence of $TiCl_4$, the reaction with $SnCl_4$ and heating 30 hrs. give 16% $AcO(CH_2)_4Cl$, b. 145°, and a considerable amt. of a high-boiling nonsaponifiable Cl product. Refluxing I and BzCl with $TiCl_4$ or $SnCl_4$ in C_6H_6 on a water bath for 16 hrs. yielded 70.5% $BzO(CH_2)_4Cl$, b$_4$ 144.5°, d_4^{20} 1.159, n_D^{20} 1.5218, MR 55.83, and a little $BzO(CH_2)_2OBz$ (V), m. 80.5°. Under the same conditions 5 g. I, 5.6 g. AcCl and 9.4 g. $SnCl_4$ in 25 ml. C_6H_6 gave $AcO(CH_2)_4Cl$, b. 187-90°. The possible scheme of the formation of IV and V is: $2\,BzO(CH_2)_4Cl \rightarrow BzO(CH_2)_4OBz + Cl(CH_2)_4Cl$. C. B.

A54 V1A METALLURGICAL LITERATURE CLASSIFICATION

Synthesis of ketones in the furan series. N. I. Gol'dfarb and L. M. Smorgonskii. *J. Gen. Chem.* (U. S. S. R.) **8**, 1523-6 (1938); cf. C. A. **25**, 2719.—In the prepn. of *aryl* and *alkyl 2-furyl ketones* from furan and acid chlorides with $SnCl_4$ in C_6H_6 (cf. Reichstein, C. A. **24**, 3781), the yields can be increased from about 15 to 45% by working in a large excess of solvent and the reversed addn. of $SnCl_4$ to the mixt. of furan and acid chloride. In this way, the exothermic reaction of acid chloride with 2-furylstannic chloride and its polymerization products with the resulting excessive formation of decompn. products can be avoided. If an acid anhydride instead of chloride is used, the yields of ketones are increased up to 70%. To a mixt. of 1 mol. of acid chloride or anhydride and furan in 175-200 ml. of dry C_6H_6 is added dropwise, with cooling, 1 mol. $SnCl_4$ in C_6H_6, and the mixt. is shaken for 30 min. and allowed to stand at room temp. 12-18 hrs. After decompn. with acid water, the reaction mixt. is steam-distd., the distillate and the black residue are extd. with Et_2O, the ext. is washed with 10% NaOH and water and, after drying with Na_2SO_4 and expelling the Et_2O, the residue is fractionated. *Me 2-furyl ketone*, m. 29°, b. 174.5°, prepd. from Ac_2O in 64% yield; *Et*, b_{16} 74.5°, 51% from $(EtCO)_2O$; *Pr*, [illegible] 88°, 70% from $(PrCO)_2O$; *Pa*, [illegible] 116.7°, 49%, from [illegible]. Satisfactory results can be obtained by the use of $AlCl_3$ instead of $SnCl_4$. Chas. Blanc

A S M - S L A METALLURGICAL LITERATURE CLASSIFICATION

The synthesis of carbazi-condensed systems from α- and α'-aminonicotines. III. The action of bromopyruvic ester on α- and α'-aminonicotines. Ya. L. Gol'dfarb and M. S. Kondakova. *J. Gen. Chem.* (U. S. S. R.) 10, 1058–68(1940); cf. *C. A.* 32, 1760⁸; 35, 2140⁹. α-Aminonicotine (I) and BrCH$_2$COCO$_2$Et (II) react in H$_2$O or EtOH to form a compd. which loses H$_2$O on standing or gentle warming to cyclize to *7-(1-methyl-2-pyrrolidyl)-2-oxo-3-carbethoxypyrimidazole* (III), b$_{10}$ 233–4°, b$_{11}$ 248–50°, m. 96.7°. *HBr salt*, decomps. 220.2°; *picrate*, m. 177.8°. When III is heated with HCl, it saponifies to *7-(1-methyl-2-pyrrolidyl)-2-oxo-3-carboxypyrimidazole* (IV), *di-HCl salt*, decomps. 242.7°; *mono-HCl salt*, m. 198–201°; *picrate*, m. 114–16°. Free IV is very hygroscopic and decomps. over a wide temp. range when heated. When III is treated with strong NH$_3$, it gives the *amide* of IV, m. 225° (*HCl salt*, m. 214.54°). When IV is heated at 225–35°, it loses CO$_2$ to form *7-(1-methyl-2-pyrrolidyl)-2-oxopyrimidazole* (V), b$_{11}$ 150°, m. 41.7° (*HCl salt*, decomps. 257°; *picrate*, m. 240°). Oxidation of V by CrO$_3$ gives I, which proves that the new ring is formed on the 2 N atoms. Nitration of IV gives a *nitro deriv.* (VI), m. 98.7°. Nitration of III gives a *nitro deriv.* (VII), m. 111.12°, which loses CO$_2$ when heated with 50% H$_2$SO$_4$ and forms VI. Oxidation of VII by CrO$_3$ or heating it with KOH in EtOH gives I. These reactions show that the NO$_2$ group is on the C atom next to the CO$_2$Et group in the imidazole ring, and this also defines the structure of VI. α'-Aminonicotine and II give *7-(1-methyl-2-pyrrolidyl)-2-oxo-3-carbethoxypyrimidazole*, b$_{11}$ 245.5°, m. 154°. (*picrate*, decomps. 225°). When this is boiled with strong HCl it gives the HCl salt of the corresponding acid as an amorphous, hygroscopic mass. This loses CO$_2$ when heated and gives *1-methyl-2-pyrrolidyl-2-pyrimidazone*, b$_{11}$ 150°, (*picrate* m. 234.5°).

IV. Condensation of α-aminonicotine with acetoacetic ester. M. S. Kondakova and Ya. L. Gol'dfarb. *Ibid.* 1068–8. When α-aminonicotine (I) and a slight excess of AcCH$_2$CO$_2$Et are heated at 170–85° and the residual mass in vacuum distd., a compd. (II) is obtained, m. 112°. (*picrate*, m. 208°, *HCl salt*, decomps. 244.7°). Hydrolysis of II by either HCl or KOH gives I. Thus a pyrimidine ring has formed on the 2 N atoms of I. However, it is not certain whether II is 3,2'-(1-methyl-2-pyrrolidyl)-dioxytetrahydro-6-methyl-4-pyrimidone, or the corresponding 4-methyl-6-pyrimidone isomer. Nitration of II gives a *nitro compd.*, m. 124°. I, but when this is heated with KOH, no NH$_3$ is formed and only I is regenerated. II and MeI form a *methiodide*, decomps. 258–60°. When this is hydrolyzed with 20% HCl, it forms a different methiodide, m. 228°. This shows that the MeI united with the N of the pyrrolidine ring.

H. M. Leicester

KONDAKOVA, T. N., GOL'DFARB, Ya. L.

"Syntheses of Carbazole Condensed Systems From Aminonicotines -- IV. Condensation of Aminonicotines With Acetoacetic ester." Zhur. Obshch. Khim., 24, No. 12, 1954. Inst. of Heterocyclic Compounds, Inst. of Organic Chemistry Academy of Sciences USSR. Received 2 January 1954.

Report U-1422, 11 January 1955.

The action of acid halides on tetrahydrofuran, and some derivatives of 4-diethylamino-1-butanol *I. M. Sinegorskii and Ya. L. Gol'dfarb. J. Gen. Chem. (U. S. S. R.) 10, 1119 (1940).* *p*-$NO_2C_6H_4COCl$ (I) and tetrahydrofuran (II) in the presence of $SnCl_4$ give 4-chlorobutyl *p*-nitrobenzoate, b$_5$ 205°. II and AcBr give 85% 4-bromobutyl acetate, b$_{11}$ 95.6°, d_4^{20} 1.4771, n_D^{20} 1.4628, *MR* calcd. 39.33, found 39.17. This reacts with Et_2NH (III) to give 57% *4-diethylaminobutyl acetate* (IV), b$_{10}$ 110.13°, d_4^{20} 0.9040, n_D^{20} 1.4322, *MR* calcd 48.97, found 48.67. The same reaction in MePh gives an 85% yield. When IV is heated with 10% KOH, it gives 82% 4-diethylamino-1-butanol (V), b$_5$ 87.90° (picrolonate m. 65.6°). *p*-$NO_2C_6H_4COBr$ and II give 84% *4-bromobutyl p-nitrobenzoate*, b$_5$ 191.4°, m. 45.6°, which reacts with III to give *4-diethylaminobutyl p-nitrobenzoate*, isolated as the *HCl salt* (VI), m. 138.6° (*picrate* m. 151.2°). The free base is very hygroscopic. VI is also obtained in 91% yield from I and V. Reduction of VI with HCl and $SnCl_2$ at 20–40° gives *4-diethylaminobutyl p-aminobenzoate HCl*, m. 171°, a homolog of procaine. Reactions involving these Bu compds. must be run at low temp., since, in boiling solns., cyclizations to pyrrolidone derivs. occur easily.

H. M. Leicester

Lab. of Heterocyclic Compounds, Inst. Organic Chem., Acad. Sci. USSR

CA

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The action of chloroacetone on α- and γ-aminoacotine. Ya. L. Gol'dfarb and D. A. Kattenko. *Compt. rend. acad. sci. U. R. S. S.* 27, 623 (1940) (in German); cf. C. A. 32, 1704. — Bromoacetone and α-aminonicotine react readily to give a product which can be sepd. by fractional crystn. of the picrate into two portions: (1) a base, m. 62.4°, contg. 18.55% N, the picrate of which m. 245.7°, and (2) a base (probably [illegible]-N-methyl-α-pyrrolidyl)-2(or 3)-methylpyrimidazole, m. 80.2°, the picrate of which m. 216.19°. For further work chloroacetone was used instead of bromoacetone in order to lessen the difficulty of purification of the product. Chloroacetone ([illegible] g.) was added dropwise to 10 g. α-aminonicotine in 25 cc. abs. alc. and the mixt. heated 3 hrs. on the water bath; after removal of the alc. by distn., the residue was dissolved in water and [illegible] g. of α-aminonicotine recovered by ether extn. The aq. layer was satd. with K_2CO_3 and extd. with ether, the ether soln. was dried over BaO and distd. under 9 mm. pressure, yielding (1) 0.9 g. crystals, b_9 160-170°, from which α-aminonicotine was obtained by recrystn. from hexane, and (2) 7.4 g. crystals, m. 70-80°, b_9 170-180°, from which was obtained 5.2 g. of [illegible] methyl-α-pyrrolidyl-2(or 3)-methylpyrimidazole (I), m. 85.6°, b_{12} 178-81°; picrate, shows change at 214° and decomp. 217.19°; the orange-colored chloroplatinate shows change at 2[illegible], blackens at 274° and then shows no further change to 300°. I is more sol. in cold than in hot water; it is unchanged upon heating with concd. HCl or upon heating with [illegible] on the water bath, but gives a green color with HNO_3. In a similar expt. with [illegible] g. α'-aminonicotine, [illegible] chloroacetone and [illegible] cc. abs. alc., [illegible] 0.0 g. of an oil, b_1 145-160°, was obtained; the oil was dissolved in abs. ether and treated with [illegible] g. [illegible]. After evapn. of the ether, the residue was heated 2 hrs. on the steam bath, treated with cold dil. HCl and extd. with ether, after which the HCl soln. was satd. with K_2CO_3 and then shaken with ether. Upon fractional distn. the ether soln. yielded (1) 2.7 g. of a product b_6 181-200° and (2) [illegible] g. of a product b_6 200-[illegible]°. Further fractionation of the product b_6 181-200° gave [illegible] material, b_6 185 [illegible], which after purification through the picrate gave [illegible]-N-methyl-α-pyrrolidyl-2(or 3)-methylpyrimidazole, [illegible] picrate, m. 211 [illegible]; chloroplatinate, orange crystals, blackens at approx. 250° and is not changed further up to [illegible]. [illegible] Akers

Inst. [illegible] Chem.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515620018-3"

GOL'DFARB, Ya. L.

"Benzylation of Amines by Means of Benzyl Alcohol Esters," Zhur. Obshch. Khim., 12, No. 5-6, 1942.

Inst. Org. Chem. AS SSSR.

BC

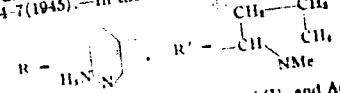
A-3

Synthesis of [illegible] from α- and α'-amino[illegible] [illegible] and its [illegible] [illegible]. [illegible] and [illegible] Kondakova (J. Appl. Chem. Russ., 1948, 18, [illegible]; [illegible] 1949, A, II, [illegible]).—2-Aminopyridine (I) and CHPhBr·CO·CO_2H in aq. $NaHCO_3$ yield, besides COPh·CH_2·OH and $CH_2Ph·CO_2H$, 3-phenylpyrimidazole-2-carboxylic acid, m.p. [illegible] (decomp.) (hydrochloride, m.p. [illegible]; hydrobromide, m.p. [illegible]; platinichloride, m.p. 245—247°; picrate, m.p. [illegible]) [illegible] at [illegible]—220° gives 3-phenylpyrimidazole, m.p. [illegible] (hydrobromide, m.p. 190°; platinichloride [illegible] to [illegible]; picrate, m.p. [illegible]), giving with [illegible] H_2O a Br additive product. 2-Amino[illegible] CO·CO_2H in aq. $NaHCO_3$ give 3-[illegible]-2-carboxylic acid, which [illegible] picrate, m.p. 21[illegible]—211° (decomp.), and [illegible] 1-(N-methylpyrrolidyl)-3-phenylpyrimidazole, m.p. [illegible]—[illegible]° [picrate, m.p. [illegible]° (decomp.)], which is oxidised by CrO_3 to (II).

J. J. B.

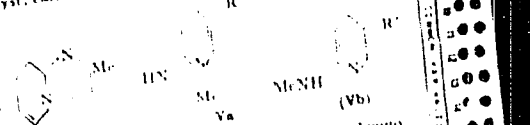
Action of alkyl halides on amino derivatives of nicotine.

Ya. L. Gol'dfarb and M. S. Kondakova (Inst. Org. Chem. Acad. Sci. U.S.S.R.). *Compt. rend. acad. sci. U.R.S.S.* 48, 484–7(1945).—In the formulas below



The HCl salt of α′-aminonicotine, RR′ (I), and $AcCH_2Cl$ (II) give a much better yield of *b*-(*N*-methyl-α-pyrrolidyl)-2-methylpyrimidazole (Ia) (cf. Gol'dfarb and Kaminka, C.A. 35, 2149) than I and II, supporting the assumption that cyclic products are formed in the reaction of α-halocarbonyl compds. with aminonicotines, particularly I. I in cooled, cmcd. MeOH soln. is treated with 1 mole MeI, the mixt. heated for several mins., and Et_2O is added to give less than 20% of a base and about 85% of an oil (Et_2O-sol.) which eventually crystallizes, m. 140–180° (when heated slowly), after 2 crystns. from alc. On the basis of its stability to alkalies and analysis, it is assigned the structure $[RCH_2CH_2CH_2CH_2NMe_2]I\cdot 0.5H_2O$ (III).

Picrate, m. 217° (decompn.); m. 114°. III and AgO, followed by distn. in micro, give $RCH_2CHCH_2CH_2NMe_2$ (IV), from CaH_2-gasoline, m. 186°. IV, in acetaldehyde, decolorizes KMnO4 and forms with MeI an isolute, m. 210°, which is stable toward alkalies and appears to be $[RCH_2CHCH_2CH_2NMe_2]I$. I III and MeI yield a base (Va or Vb), b$_{14}$ 165°, which forms, on standing, crystals that deteriorate rapidly in air. With CO_2 it gives a cryst. carbonate. Thus I and MeI give Va or Vb only



when the pyrrolidine N is said beforehand. α-Aminonicotine (VI) and MeI give (1) unchanged VI, (2) 25–29% of a base, b$_{14}$ 98–9° (cf. Kondakova and Gol'dfarb, C.A. 35, 1021[1]) designated, according to Hofmann, to a base, m. 88°), another m. 205°, and (3) about 30% of a base, b$_{14}$ 4° (after purification by cryst. as salt with $HClO_4$), whose structure is probably VIIa (colored vapors) but could be VIIb (no NH_3 is formed on boiling with alkalies). VI and EtI give 60% of the *Et* deriv. (VIII), b$_{14}$ 152–4°, sepd. from VI by HNO_3 treatment.

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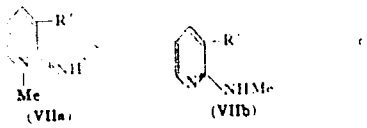


picrate, m. 103.4°. VIII gives no nitrosamine, indicating a structure corresponding to VIIa. No alkohalide is formed. Likewise VI and PrI give only this type of substitution product. I with BuI or PrI also shows this phenomenon, but the decrease in the ability of the pyrrolidine N to form alkohalides is here not so pronounced.

F. L. May

PROCESSES AND PROPERTIES INDEX

Benzylation of amino derivatives of nicotine. [illegible] Gol'dfarb and M. S. Kondakova. *Compt. rend. acad. sci. U.R.S.S.* **49**, 421-3 (1945); cf. C. A. **40**, 4762. PhCH$_2$I reacts with 6'-aminonicotine (I) in ethanol or acetone to form only the *benzyl iodide*, m. 190°. To eliminate the influence of the pyrrolidine N on the process, the HCl salt (II) was used instead of the free base. II and PhCH$_2$I gave a *monobenzyl deriv.* (III), m. 126°; *picrate* m. 203.5°. I heated with BzH and HCO$_2$H gave III also. III and HNO$_2$ form a *nitroso compd.*, m. 96°. The latter heated with dil. HCl gives III again. So it is believed that III must have a structure of type **Vb** rather than **Va** (see above reference for the structural formulas). A compd. of structure **Va** is pptd. by CO$_2$ from ether as a cryst. ppt., while the isomer of structure **Vb** remains in soln. The carbonate forms a base, a monobenzyl deriv., which gives a colored vapor and absorbs CO$_2$ from the air. It is supposed that the alkylated pyridonimine structure as given in **Va** is prone to combine with CO$_2$ to form salts, whereas the isomer of type **Vb** does not. Thus N-methylpyridonimine and N-benzylpyridonimine are pptd. from ether by CO$_2$, but benzylaminopyridine is not. PhCH$_2$I and [illegible] aminonicotine (IV) form with difficulty the *benzyl iodide* of IV, m. 141°. PhCH$_2$Cl and IV react smoothly in EtOH to form a base, b. 216-18° (picrate, m. 204°) of the pyridonimine type. No isomer of the aminopyridine type was found. IV reacts with BzH and HCO$_2$H to give a [illegible] *benzyl deriv.*, b. 177-8° (*picrate*, m. 186°). This does not react with HNO$_2$ to form the nitrosamine as does III, so cannot be ascribed a similar structure. [illegible]

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515620018-3"

Synthesis of carbazo condensed systems from α- and α'-aminonicotines. VI. Product of the reaction of α-aminonicotine with α-bromoacetoacetic ester. M. S. Kondakova and Ya. L. Gol'dfarb. *Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* **1940**, 523-8 (in Russian); cf. *C.A.* **37**, 2380. α-Aminonicotine (20 g.) and 25 g. $AcCHBrCO_2Et$ in 85 ml. abs. EtOH were allowed to stand overnight, then heated 2 hrs. on a steam bath, after which the EtOH was removed and the residue, taken up in H_2O, was freed of excess starting material by extn. with Et_2O. The aq. soln. was made alk. and extd. with Et_2O; distn. of the dried ext. gave 19.7 g. *7-(1-methyl-2-pyrrolidyl)-2-methyl-3-carbethoxypyrimidazole* (I), m. 83.4° (from aq. Me_2CO), b. 185-95°; *HCl salt*, small crystals (from EtOH-Et_2O); *picrate*, m. 198° (from Me_2CO-EtOH). The substance is an effective stimulant of respiration (in cats, dogs, rabbits). Heating the ester (4.5 g.) with 15 ml. concd. HCl 16 hrs. at 135-45° in a sealed tube, evapn. to dryness, treatment with KOH, and extn. with Et_2O gave 2.7 g. pure *7-(1-methyl-2-pyrrolidyl)-2-methylpyrimidazole*, m. 86.7°, b_5 162.3° (II); *picrate*, m. 219-20° (from aq. Me_2CO). II (0.8 g.), 2 ml. concd. H_2SO_4, and 19 ml. H_2O, treated with 0.8 g. Cr oxide in 11 ml. H_2O and boiled 8 hrs., gave 0.5 g. α-aminonicotine, m. 125°. Nitration of I by fuming HNO_3-H_2SO_4 in the cold failed to take place. II, on the other hand, readily gave a *nitro deriv.*, m. 121° (from hexane), which on treatment with hot alc. KOH readily gave α-aminonicotine; the NO_2 group probably is in the 3-position. G. M. Kosolapoff

3-Chloro-6-methoxy-8-nitroquinoline. Harry L. Yale (Squibb Inst. for Med. Research, New Brunswick, N.J.). *J. Am. Chem. Soc.* **70**, 1982(1948). 3,4-$O_2N(H_2N)$-C_6H_3OMe (50.4 g.), 82.5 g. H_3AsO_4, and 300 ml. concd. HCl at 100°, treated (1 hr.) with 30 g. CH_2:CClCHO and heated in a sealed tube at 100°, gave ... g. ... C. J. West

Inst. of Organic Chemistry, AS USSR.

CA

Resolution of α-aminonicotine into antipodes. [illegible] Goodfarb and L. M. Smorgonskii. *[illegible]* Akad. Nauk 1946, [illegible] nicotine (12 g.) was converted to the *d*-tartrate, which was resolved by fractional crystn. (solvent not stated); liberation of the free base gave 12 g. of the *d*-form, [illegible] (H₂O, c 0.5), while the mother liquors gave the *l*-form, [α] 56.05°. The HCl salt of the *d*-form is optically inactive. Similar resolution was made by means of camphoric acid, in which case *d*-camphoric acid gives the less sol. salt with the *l*-base (i.e., reverse from the above). Acetylation of both antipodes of the base by Ac₂O gave the Ac deriv. of the *d*-form, m. [illegible]; Ac deriv. of the *l*-base m. [illegible]. The pharmacodynamic action of the *l*-base is greater than that of the *d*-base.

G. M. Kosolapoff

A S M - S L A METALLURGICAL LITERATURE CLASSIFICATION

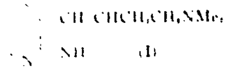
APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515620018-3"

GOL'DFARB, Ya. L.

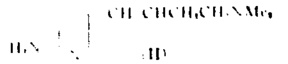
"The 'Ensemble' and 'Aggravation' Principles in Catalysis," Dok AN, 29, No. 2, Vol. 21, 1946.

Dept. of Physical Chem., Lab. of Catalysis and Electrochemistry of Gases, Moscow State U.

Amino derivatives of 1-(2-pyridyl)-1,3-butadiene. V. I. Gol'dfarb and M. S. Kondakova. *Compt. rend. acad. sci. U.R.S.S.* 55, 613-15(1947); cf. C.A. 40, 4732[a]. By a Hofmann degradation of the methiodides 2-(I) and 6-aminonicotine (II), m. 96°, were obtained. II gave a

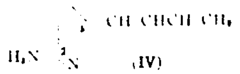


(I)



(II)

methiodide (III), m. 210°, which when refluxed with alkali decompd. to give Me_3N and a compd. which analysis showed to be (IV), m. 125-6°. IV was also obtained by evapg.



(IV)

a soln. of III with Ag_2O on a steam bath. IV polymerizes on standing. Similarly the 2,5-isomer (V) of IV, m. 71°, was obtained, along with a compd., m. 136°, believed to be 1,2-dihydro-2-methyl-1,8-naphthyridine. W. S. P.

Preparation of cyclic thioamides. J. Procharka (Research Institute of the Bata Foundation at Zlin). *Collection Czechoslov. Chem. Communs.* 12, 305-310(1947).—CS_2 with 1.5-70% P_2S_5 is used at 50-140 atm. to convert cyclic lactams to cyclic thioamides by a process of "thionation." ε-*Caprolactam* (150 g.) in 400 cc. CS_2 (washed with 2% Na_2CO_3 and dried over $CaCl_2$) was heated at 240-50° at 80 atm. 14 hrs. On cooling the pressure dropped to 15 atm. and COS and H_2S were removed from the autoclave. ε-*Thiocaprolactam* (II), obtained in 42 g. yield, b_{12} 188-90°, m. 105-5.5° (from C_6H_6-PrMe). The colorless ether-insol. crystals gradually turn yellow. 76 g. of a polymer of II was also obtained. When 1.5 g. P_2S_5 was added to the CS_2 above, II was obtained in 90-g. yield along with 35 g. of a polymer of II. CS_2 and I do not react in 2 hrs. at 260° and 35 atm., nor in 14 hrs. under reflux. When 1 g. II was warmed with 0.05 g. ε-aminocaproic acid and 0.02 cc. N HCl at 220-240° 25 hrs., a brown thermoplastic polymer and H_2S were formed. 2-*Thiopiperidone*, obtained in 0.5-g. yield from 2.5 g. 2-piperidone (b_{14} 146-6.5°), 6 g. CS_2, and 0.1 g. P_2S_5 at 235-40° 6.5 hrs., b_{11} 141-65°. N-(?) *Methyl-ε-thiocaprolactam* (III), obtained in 24-g. yield from 45 g. methyl-ε-caprolactam (*C.A.* 15, 3156), 100 g. CS_2 and 1.5 g. P_2S_5 at 245° 6 hrs. at 105 atm., b_{10} 160-70°, m. 49-52° (from anhyd. EtOH and washed with Et_2O); the odor of V produces bad headaches. Attempts to polymerize V as with IV failed; only decompn. occurred. No polymer was noticed in the prepn. of V; instead an 11-g. fraction b_{10} 80-105° was obtained. John W. Green

Inst. Organic Chem., AS USSR

A S M - S L A METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515620018-3"

GOL'DFARB, Ya. L.

USSR/Chemistry - Nicotine Jan 1[illegible]
Chemistry - Amino Derivatives

"Amino Derivatives of Metanicotine," Ya. L. Gol'dfarb, Ye. V. Kuz'mina, Inst of Org Chem., Acad Sci USSR, Moscow, 2½ pp

"Zhur Obshch Khim" Vol XVIII (LXXX), No [illegible]

Mole for mole acetylation of alpha-aminometanicotine with acetic anhydride results in acetyl produced alpha-aminoacetanicotine. Although when acting upon iodomethyl alpha-aminometanicotine, produces trimethyl ani alpha-amino-(beta-butadienyl)-pyridine. When alpha-aminometanicotine is hydrated in the presence of Pt/PtO2 according to Adam's method, one mole of hydrogen is absorbed rapidly; in other [illegible] dihydrometanicotine.

Submitted 13 Dec 1945

Ultraviolet absorption spectra of some derivatives of pyridine and nicotine. I. Ya. L. Gol'dfarb, O. N. Setkina, and Ya. L. Danyushevskii. *Zhur. Obshchei Khim.* (J. Gen. Chem.) 18, 124-31(1948).—The spectrum of 1-methyl-2-pyridonimine (I) in C_6H_{14} soln. shows max. at 3400 and at 2550 A.; these are preserved in concd. (2 mg./l.) soln. in EtOH, but in dil. soln. (0.01 mg./l.), the max. are shifted to 3000 and 2300 A.; the cause of this deviation from Beer's law in alc. soln. is not clear. In dil. soln. in EtOH, 2-aminopyridine (II) shows a band with max. at 2030 A., log E = 3.6, i.e. the same band as in C_6H_{14} (Spiers and Wibaut, *C.A.* 31, 5272[9]); relative to C_5H_5N, the band is shifted to longer waves by about 400 A. The shift is not to be attributed to tautomerism, because α-dimethylaminopyridine (III), which is not capable of tautomerism, shows, in alc. soln., a further shift to max. 3120 A., log E 3.8, the spectrum drawing closer to that of I. The shifts are interpreted by an increased wt. of polar structures in the 1st excited state of II, as a result of which the double-bond character of C:N is enhanced; this effect is increased by substitution on the NH_2 group with Me_2. Substitution with the electronophilic groups Ph or Ac, gives rise to a shift in the opposite direction; 2-diphenylaminopyridine (IV) has a max. at 2470 A., log E 3.4, and 2-acetamidopyridine (V) has max. 2470 A., log E 3.8. In 2-dimethylaminopyridine methiodide (VI), in which the N atom of the NMe_2 group cannot participate in resonance with the ring, there are 3 close max. at 2600, 2550, and 2480 A., log E 3.8, 3.75, and 3.65, resp., i.e. close to the spectrum of C_5H_5N (max. at 2520 A.), as expected. In I.HI (VII), where the NH_2 group is free to take part in resonance with the ring, the max. lies at 2980 A., log E 3.9, i.e. only slightly shifted relative to II. 2-Benzylaminopyridine (VIII) and 1-benzyl-2-pyridonimine (IX), resp., have max. at 3010 and 3030 A., log E 3.7 and 3.8. I carbonate at 3000 A., log E 3.8, the carbonate of IX at 3030 A., log E 3.8, its hydrochloride at 3000 A., log E 3.8, almost identical with the corresponding bases. II. O. N. Setkina, Yu. L. Danyushevskii, and Ya. L. Gol'dfarb. *Ibid.* 132-41.—Absorption spectra of the following compds. are given in graphs and in a table giving the wave length of the max. in A. (log E): α-Aminonicotine (I') 2980 (3.2); α'-aminonicotine (II') 2960 (3.8); *N*-methylnicotine (III') 3025 (3.8); 1-methyl-2-imino-1,2-dihydronicotine (IV') 3010 (4.26); 1-methyl-6-imino-1,6-dihydronicotine (V') 2960 (3.98); 1-propyl-6-imino-1,6-dihydronicotine (VI') 3030 (3.48); benzyl-α'-aminonicotine (VII') 3045 (4.0); 1-benzyl-6-imino-1,6-dihydronicotine (VIII') 3010 (3.74); 1-benzyl-2-imino-1,2-dihydronicotine (IX') 3010 (3.7); α-aminonicotine methiodide (X') 3080 (3.75); α'-aminonicotine methiodide (XI') 2920 (3.76); α'-aminonicotine propiodide (XII') 2970 (3.4); α'-aminonicotine benzoiodide (XIII') 2930 (3.25); carbonate of IV' (XIV') 3050 (3.9); carbonate of V' (XV') 3020 (3.9); carbonate of VI' (XVI') 3060 (3.6); dihydrochloride of II' (XVII') 3050 (3.9); nicotine isomethiodide (XVIII') 2930 (3.88). The shifts in I' and II' relative to nicotine are the same as the shifts in aminopyridines relative to pyridine. By analogy, these shifts are detd. by resonance forms. That alkylation of I' and II' results in substitution at the ring N atom is evident

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from the fact that, in IV', V', and VI', the max. is shifted to the visible. VII', VIII', and IX' have absorption curves of the same type. Absorption curves of the carbonates XIV', XV', and XVI' (more stable than the free bases) are very nearly identical with those of the corresponding bases. Spectra of X', XI', XII', and XIII' are very close to those of I' and II'. The exceptional 150-A. shift in X' (relative to I') seems to be linked to the spatial closeness of the pyrryl and NH_2 groups. N. Thon

z/z Ya. L. Goldfarb,
O. N. Sakharova
Ye. L. Danyushevskii

GOL'DFARB, YA. L.

Jan 1943

USSR/Chemistry - Nicotine and Derivatives
Chemistry - Spectra, Absorption

"Absorption Spectrum in Ultraviolet of Some Derivatives of Pyridine and Nicotine, II," C. N. Detkina, Ya. L. Danyushevskiy, Ya. L. Gol'dfarb, 10 pp

"Zhur Obshch Khim" Vol XVIII (LXX), No 1

No basic absorption lines were observed when beta-hydrogen atom was introduced into molecule of alpha-ethylpyridine. Problem of the structure of alpha- and beta-benzylnicotine salts can be determined from the absorption spectrum of these salts. Absorption spectrum of benzyl- and beta-benzylnicotine is very similar to that of alpha-phenethyl-, dihydronicotine.

Submitted 15 Jan 1947

PA 64T44

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515620018-3"

Action of alkyl halides on α- and σ- aminonicotines
Ya. L. Gol'dfarb and M. S. Kondrikova (Inst. Org. Chem., Moscow). *Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* **1949**, 636-47. MeI (12.5 g.) and 15 g. *α-aminonicotine* (I) in 20 ml. MeOH after standing 1 hr. and refluxing 15 min. gave the *methiodide*, m. 140-50° (from EtOH), contg. 0.5 H_2O, with the MeI at the pyrrole N atom, as it is unchanged by concd. alkali; its HCl salt, m. 179-80°. Reaction of MeI with I·2HI in MeOH, followed by treatment of the cryst. product with hot 50% NaOH, gave *1-methyl-3-(1-methyl-2-pyrrolidyl)-2-HI-pyridonimine*, b_{11} 171°, *picrate*, m. 170° (from Me_2CO-EtOH); the sepn. of this material from I may be done by carbonation, as I does not form a carbonate. I·HCl with MeI gave a similar result. α-Aminonicotine (II) (21.4 g.) and 18.4 g. MeI in 90 ml. MeOH refluxed 3 hrs. gave 8.9 g. *methiodide*, m. 224.7° (from MeOH), contg. MeI at the pyrrole N; it regenerates the starting material on heating with CaO. Addn. of Et_2O to the mother liquor from the above methiodide, followed by alkali, gave a mixt. of methylation products, b_{11} 143.5°, from which was isolated 12 g. of a base, $C_{11}H_{17}N_3$, b_{11} 151.2°, identified as *1-methyl-3-(1-methyl-2-pyrrolidyl)-2-HI-pyridonimine*, which yields a cryst. *carbonate* and *dipicrolonate*, *dipicrate*, m. 221°. An Et_2O-insol. portion of the reaction mixt. after alkali treatment consists of a very complex mixt. from which were isolated 3 compds.: a methiodide with MeI at the pyridine N, m. 174-6°, a methiodide, m. 198°, of monomethylated II of unknown structure, and a dimethiodide of II, m. 225°. II·HBr salts are almost unaffected by MeI. Cf. *C. A.* **42**, 5711e. G. M. Kosolapoff

Inst. Org. Chem. AS.

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PROCESSES AND PROPERTIES INDEX

CA

10

Amino aldehydes of the pyridine series. Ya. L. Gol'dfarb and E. N. Karaulova. *Doklady Akad. Nauk S.S.S.R.* **65**, 843-5(1949); cf. C.A. **42**, 5024. Among the products of the reaction of Ac_2O with α- and β-amino-nicotines are products of ring-opening, which are assigned the structures *2,3-$C_5H_3N(NH_2)CH:CHCH_2CH_2NHMe$* and *2,5-$C_5H_3N(NH_2)CH:CHCH_2CH_2NHMe$*, resp. The structures are confirmed by ozonization. Ozonization of the Ac deriv., 2,3-$C_5H_3N(NH_2)CH:CHCH_2CH_2NMeAc$, in 15% HCl gave *2,3-$C_5H_3N(NH_2)CHO$*, m. 99° (from C_6H_6); *HCl salt*, m. 169-70.5° (from EtOH); *phenylhydrazone*, m. 212-3° (from EtOH); *semicarbazone*, decomp. 216°; *oxime*, m. 163.5° (from water). This aldehyde with Ac_2O gives a *mono-Ac deriv.*, m. 121.5-4° (from C_6H_6). Ozonization of α'-aminometanicotine in 15% HCl gave *2,5-$C_5H_3N(NH_2)CHO$*, m. 164° (on preheated block; on slow heating the product does not m. even at 450°); *HCl salt*, decomp. 215-16° (from EtOH); *phenylhydrazone*, decomp. 232° (from EtOH); *oxime*, m. 217-18°; *semicarbazone*, decomp. 230° (from water). G. M. Kosolapoff

Inst. Org. Chem., AS.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

Action of alkyl halides on α- and α'-aminonicotines. M. S. Kondakova and Ya. L. Gol'dfarb. *Doklady Akad. Nauk S.S.S.R.* **68**, 647-50(1949); cf. G. and K., *C.A.* **40**, 4732⁸.—Oxidation of the methylation product of α-aminonicotine by CrO_3 in dil. H_2SO_4 by 3 days' boiling gives a low yield of *1-methyl-2-imino-3-carboxy-1,2-dihydropyridine* (I), m. 278-80° (from dil. EtOH). This heated with 20% NaOH, gives *1-methyl-2(1H)-pyridone-3-carboxylic acid* (II), m. 181° (from EtOH). Some II was isolated from the residual liquid obtained by treating the crude oxidation product with concd. HCl, as well as I. *HCl*, needles without definite m.p. I gives a *picrate*, m. 104-5° (from EtOH), and, on decarboxylation by heating to 280°, forms *1-methyl-2(1H)-pyridonimine*, isolated as the *picrate*, m. 201°, and *chloroplatinate*, m. 209-10°. Hence, the methylation product of α-aminonicotine is 1-methyl-3-(1-methyl-2-pyrrolidyl)-2(1*H*)-pyridonimine; the product from α'-aminonicotine is probably analogous.

G. M. Kosolapoff

Inst. Org. Chem., Auburn.

Benzylation of amino derivatives of nicotine. Ya. I. Gol'dfarb and M. S. Ludchikova. *Acad. Sci. U.S.S.R. Moscow). Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1950, 253–67; *cf. C.A.* **44**, 3992e. Refluxing 10 g. α′-aminomicotine, 15 g. of its di-HCl salt, 15 g. $PhCH_2Cl$ and 70 ml. abs. EtOH for 1 day yielded after concn., washing with dil. HCl, and extn. with C_6H_6, 4.3 g. *1-benzyl-3-(1-methyl-2-pyrrolidyl)-2-pyridonimine* (**I**), b$_6$ 213–14°, *dipicrate*, m. 208°, and 2.3 g. *benzyl-α-aminomicotine* (**V**), m. 125° from EtOH. Boiling 15 g. α′-aminomicotine with 24 g. BzH and 100 ml. 85% HCO_2H 20 hrs., followed by concn. *in vacuo*, gave 30 g. **I** *dipicrate*, m. 204.5° (from EtOH-Me_2CO). **I** (5 g.) with 1.4 g. $NaNO_2$ in 20% HCl gave 4 g. *nitroso deriv.-HCl*, decomp. 173° (from EtOH); *free nitroso deriv.*, yellow, m. 90° (from EtOH), is stable to hot alkali but decomp. in acid solns., yielding **I**. Refluxing 9 g. α′-aminomicotine with 6.5 g. $PhCH_2Cl$ in EtOH, followed by concn., treatment with dil. HCl, and extn. with C_6H_6 gave 6.8 g. poorly distillable oil, b$_4$ 190–200°; no **I** was isolated directly and treatment of the product with $NaNO_2$ in HCl failed to give any nitroso deriv. (see above), but heating the reaction mixt. (after $NaNO_2$ treatment) with HCl, neutralization, and extn. with Et_2O–C_6H_6 gave an unstated yield of **I**. A similar reaction with α-aminomicotine (18 g.) gave 3.1 g. unreacted base and 15.3 g. *1-benzyl-3-(1-methyl-2-pyrrolidyl)-2-pyridonimine*, b$_6$ 201–1.5°; *dipicrate*, m. 207–8° (decompn.; from EtOH-Me_2CO); *perchlorate*, yellow crystals; *di-HCl salt*, solid (from EtOH). Refluxing 30 g. α-aminomicotine, 70 ml. 90% HCO_2H, and 16 g. BzH 3 days gave 2.4 g. *monobenzyl deriv.*, $C_{17}H_{18}N_2$, b$_6$ 177.8° *dipicrate*, m. 180°); the structure of the product is unknown but the product does not form a nitroso deriv. *PhCH$_2$I* and α-aminomicotine in EtOH give after standing overnight a high yield of the *corresponding quaternary salt*, m. 190° from dil. EtOH; similar reaction with α-aminomicotine yielded a complex mixt. of *α-aminomicotine-2PhCH$_2$I*, m. 200–2° from EtOH, decomp. 194.5° (after drying *in vacuo*), which with hot KOH soln. gave green-yellow *1-benzyl-3-(1-methyl-2-pyrrolidyl)-2-pyridonimine PhCH$_2$I* (**II**), m. 173.4° (**III**), and α-aminomicotine-*PhCH$_2$I* (**IV**), m. 176° (from EtOH-Et_2O), the latter with KOH yields *1-benzyl-3-(1-methyl-2-pyrrolidyl)-2-pyridonimine*, identified by formation of a *solid carbonate* and *dipicrate*, the *dipicrate* of the *addn. salt* m. 208.5° (from EtOH-Me_2CO). Heating 1-benzyl-3-(1-methyl-2-pyrrolidyl)-2-pyridonimine with $PhCH_2I$ in MeOH 12 hr. gave the corresponding *iodobenzylate*, (**II**), m. 174°. Heating α-aminomicotine-$PhCH_2I$ with $PhCH_2I$ in MeOH gave **III** after treatment with KOH; and the **III** salt of the *starting material* m. 207°. Heating α-aminomicotine **III** a mixt. of free base and di-**III** salt) with $PhCH_2I$ in EtOH, gave an **III** *salt*, m. 206.7°, which with cold 50% KOH gave α-*aminomicotine-PhCH$_2$I*, m. 156°, identical with that described above; its **III** *salt*, m. 206.7°, is also obtainable from 1-benzyl-3-(1-methyl-2-pyrrolidyl)-2-pyridonimine carbonate and **III**. The sepn. of pyridonimine derivs. from isomeric aminomicotine derivs. is best performed by treatment with CO_2, which yields an insol. carbonate from the former class. Substitution of $PhCH_2Cl$ for $PhCH_2I$ leads to a higher degree of substitution on the pyrrolidyl N atom.

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tion gave AcOH and CO_2H_2, thus the primary chloride must have the structure I. *Santene* (from Siberian pine

I (II)

oil, 211.5 g., b_{11} 65.7°, d_4^{20} 0.8640, n_D^{20} 1.46699, gave under similar conditions of chlorination 102 g. satd. *dichloride*, $C_9H_{16}Cl_2$, m. 88-92°, and 37 g. monochloride, $C_9H_{15}Cl$, b_{11} 107-8°, b_{760} 105-7° (decompn.), m. 56-8°, contg. 20.1% allylic Cl, which on oxidation with $KMnO_4$ gave HCO_2H and the *keto acid*, $C_8H_{12}O_3$, previously described by Semmler (C. 1. 2, 1130), while ozonolysis gave CH_2O. Hence the primary chlorination product has the structure II. Thus in both monochlorides the double bond had been transposed, which confirms the theoretical considerations given in Part I. V. Reaction of chlorine with Δ³-carene. D. Itshchenko and A. Khovanskaya. *Ibid.* 1933. 7. Carene isolated from turpentine, b_{11} 74°, d_4^{20} 0.8628, n_D^{20} 1.4735 (*nitrosite*, m. 146°), was chlorinated as described previously with ice cooling; room at 1.5-2 mm. some decompn. took place on distn. of the products, but at 0.65 mm. distn. was satisfactory. The primary product (main reaction occurring to the extent of 80-5%) is a *monochloride* with transposed double bond, *1-chloro-3-carene*, b_{11} 72°, d_4^{20} 1.0095, n_D^{20} 1.5032, and 10-15% of the *satd. dichloride*, which could not be satisfactorily distd. or isolated in pure state, but the product was liquid, contrary to the assumption of crystallinity of all such substances. The monochloride contains 21.2% mobile, allylic Cl, and on ozonolysis gives a chloroketo aldehyde, $C_9H_{13}O_2Cl$, b. 97° (bath temp.) in a mol. still, d_4^{20} 1.1173, n_D^{20} 1.4695, while oxidation with $KMnO_4$ gave *cis-carone acid*, m. 174.5° (isolated as the *Ag salt*, $AgH_{13}O_3$), also obtained from the original carene. The crude dichloride with Cl_2 gave, on treatment with H_2O, an unstated amt. of fairly pure *dichloride*, b. 97-101°, and analyzing satisfactorily for $C_9H_{16}Cl_2$. The results again confirm the theory advanced in Part I (*loc. cit.*). G. M. K.

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Action of alkyl halides on [illegible] and [illegible] **aminonicotines** II. Ya. L. Gol'dfarb and M. S. Kondakova. *Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* **1950**, 495-[illegible]; cf. C.A. **44**, 3992*c*. α-Aminonicotine (I) with EtI and PrI in EtOH or Me_2CO yield almost exclusively the substitution products in the pyridine part of the mol., while α'-aminonicotine (II) yields the alkiodides to the major degree. The pptn. of the substitution products by CO_2 serves to show their identity as *N*-alkylnicotinamines. The different behavior of the I and II is [illegible] the internal H bond between the 2 N atoms in α-aminonicotine. Refluxing 17 g. I with 16 g. EtI in Me_2CO [illegible] hr. gave [illegible] g. bases, b_1 125-32°, [illegible] distn. gave 11.5 g. [illegible], which on diazotization in 20% H_2SO_4 gave [illegible] *pyridoxinine*, b_1 152-[illegible] [illegible] CO_2 whose [illegible] 194[illegible] from EtOH. PrI gave [illegible], III, b_1 145-6°, *dipicrate*, m. 186-[illegible] from EtOH. Heating 10.5 g. α-aminonicotine with 10.5 g. PrI in abs. EtOH 2 days, followed by concn., addn. of aq. NaOH, diln. with Et_2O and C_6H_6, and heating 1 hr. gave [illegible] g. [illegible], b_1 106-78°, which formed a [illegible] (2.2 g.), giving on dry distn. the [illegible] IV of III, green oil, b_1 165°, while the Et_2O-C_6H_6 insol. portion yielded (after removal of the insol. carbonate) on extn. with hot EtOH 5 g. *α-aminonicotine PrI*, m. 186-1° (from EtOH). EtI reacted similarly in 5 hrs. in EtOH and gave the [illegible] *homolog* of **IV** *pyridoxinine*, b_1 148-9°, whose *dipicrate*, m. 76-80°, contains 1 mole EtOAc, from which it [illegible]. G. M. Kosolapoff

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Some derivatives of pyridonimine. Ya. L. Danyushevskiĭ and Ya. L. Gol'dfarb. *Doklady Akad. Nauk S.S.S.R.* 72, 899-902(1950).—1-Phenyl-2(1*H*)-pyridone ([illegible] g.) and 7 g. $(COCl)_2$ refluxed in Et_2O 16 hrs. gave 8.[illegible] g. hygroscopic *2,2-dichloro-1-phenyl-1,2-dihydropyridine*; this cryst. solid (4 g.) added to liquid NH_3 gave, after evapn. and extn. with Et_2O, 1.85 g. *2-anilinopyridine*, m. 107.5-8.5° (from EtOH); *picrate*, m. 221.5-2.0°; [illegible] *product*, m. 101.5-2.5°. If the di-Cl deriv. is added with cooling to an excess of an amine and the mixt. treated with Et_2O, a series of *N*-substituted pyridonimines results; the following *2-alkylimino-1,2-dihydro-1-phenylpyridines* were obtained (alkyl given): *Et*, b[illegible] 141.0° (*picrate*, m. 151.5°; *chloroplatinate*, decomp. 196.8°); *Pr*, b[illegible] 162.8° (*picrate*, m. 151.5-2.5°); *Pr[illegible]*, b[illegible] 202.8° (decompn.) (*picrate*, m. 159.60°); *Pr*, m. 129.5° (*picrate*, m. 168.9°). Heating 2-anilinopyridine in a sealed tube 15 hrs. at 100° with EtI gave the iodide $C_{13}H_{15}N_2I$, m. 144.0°, which with alkali gave the base, b[illegible] 146.8°, identified as *1-ethyl-1,2-dihydro-2-phenyliminopyridine* through the *picrate*, m. [illegible], identical with the product from $PhNH_2$ with 1-ethyl-2,2-dichloro-1,2-dihydropyridine. Similarly $PhCH_2Cl$ and 2-anilinopyridine gave the *1-benzyl analog*, m. 92.5-3.5° (from EtOH), *picrate*, m. 94.5°. Heating 12.9 g. 1,2-dihydro-2-imino-1-methylpyridine and 13 g. $PhCH_2Cl$ 6 hrs. in EtOH gave *2-benzylimino-1,2-dihydro-1-methylpyridine*, b[illegible] 170.8°, yielding an insol. *carbonate*. *HCl salt*, m. 260-2° (from EtOH), *picrate*, m. 123.5-4.5° (from EtOH). The same product is obtained from 2-benzylaminopyridine and MeI. G. M. Kosolapoff

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Reaction of ethylene oxide on 2-aminopyridine and 1-alkyl-2(1*H*)-pyridonimines. Ya. L. Gol'dfarb and M. A. Pryanishnikova. *Izvest. Akad. Nauk S.S.S.R., Otdel Khim. Nauk* 1951, 457-8; cf. Kennyants, *Doklady Akad. Nauk S.S.S.R.* 1, 301(1935). —Ethylene oxide (I) with aq. 2-aminopyridine (II) at room temp. in aq. dioxane yields no detectable amts. of 1-(2-hydroxyethyl)-2(1*H*)-pyridonimine; in aq. Me_2CO the same result is obtained, but in dry Me_2CO a trace of the above product can be found. Hence H_2O is necessary for the interaction of I with aminopyridine, probably first forming an adduct to the ring N of pyridine in the form of a quaternary pyridinium hydroxide, which isomerizes to the final product. 1-Alkyl-2(1*H*)-pyridonimines react with I at moderate temp. Likewise, 1-methyl-2(1*H*)-pyridonimine yields 1-methyl-2(1*H*)-pyridonimine with 2-cyanoethyl group on the imino N. Distn. of the reaction products of I with 2-aminopyridine yields high-boiling oils possibly disubstituted 2(1*H*)-pyridonimines.

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USSR/Chemistry - Alkaloids Sep/Oct 51

"Cyclization of Metanicotine Derivatives," Ya. L. Gol'dfarb, M. S. Kondakova, Inst of Org Chem, Acad Sci USSR

"Iz Ak Nauk SSSR, Otdel Khim Nauk" No 5, pp 610-619

In study of intramol ring-closing of aminometanicotine derivs, prepd 5-bromo-2-aminonicotine (I). Action of N-bromosuccinimide on I yielded 5-bromo-2-amino-3-(γ-bromo-δ-methylamino-α-butenyl)-pyridine (II). Action of alkali on II yielded isomeric mixt of 6-bromo-2-methylaminomethyl-1, 2-dihydro-1,8-naphthyridine (III) and base (IV) with

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USSR/Chemistry - Alkaloids (Contd) Sep/Oct 51

bromodihydronicotyrine structure. Action of MeI on III yielded 6-bromo-2-dimethylaminomethyl-1, 2-dihydro-1, 8-naphthyridine (IV). With 2d mol of MeI. IV formed iodomethylate (V). With Hofmann fission V yielded trimethylamine and 2-methyl-6-bromo-1, 8-naphthyridine.

195T22

GOL'DFARB, Ya. L.

PA 195T22

[Problems and exercises in chemistry for the secondary school] Zadachi i uprazhneniia po khimii dlia srednei shkoly. Izd. 13. Moskva, Gos. uchebno-pedagog. izd-vo, 1952. 167 p.

(MLRA 6:5)

(Chemistry - Problems, exercises, etc.)

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GOL'DFARB, YA. L.

12.

Chemical Abst.
Vol. 47 No. 9
May 10, 1954
Electronic Phenomena
and Spectra

GOL'DFARB, Ya. L.

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Chemical Abst.
Vol. 48 No. 3
Feb. 10, 1954
Organic Chemistry

Structure and some properties of bis(diphenylmethyl)thiophene. Ya. L. Gol'dfarb and M. S. Klenkova. *Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1952, 1131–3.—Formation of a sulfone from 2,5-*bis*(*diphenylmethyl*)*thiophene* (I) inhibits halogen or acyl substitution in the 3- and 4-positions, and the sulfone is devoid of diene properties (maleic anhydride test). Refluxing 6 g. I in MePh with 25 g. Raney Ni 4 hrs. gave 2.4 g. $(Ph_2CHCH_2CH_2)_2$ (II), m. 122–3°, and a smaller amt. of a product, m. 85–107°. II was readily obtained by heating 0.5 g. $(COCH_2CHPh_2)_2$ with 0.2 g. Na, 7.25 ml. EtOH and 1.5 g. 50% N_2H_4 29 hrs. at 190–200° in an autoclave; the pure II m. 125–4.5°. I (4.16 g.) in 25 ml. AcOH treated at room temp. with 8 g. 28% H_2O_2, then warmed to 104–5° 25 min. gave 4.5 g. crude, or 2.2 g. pure I *sulfone*, m. 172–3° (from EtOH), insol. in alkalies, not reduced by Zn in hot HCl-AcOH. I with 2 moles Br in $CHCl_3$ gave the *mono-Br deriv.*, m. 127–8° (from EtOH), oxidized with CrO_3 in AcOH to Ph_2CO. Heating I sulfone with Raney Ni in MePh gave II, as above. I *sulfone* treated with Br in $CHCl_3$ for 6 days. gave a *di-Br deriv.*, m. 191–1.5° (from MePh-heptane), which appears to be an *addn.* rather than a substitution *product*; boiled with Zn in AcOH-HCl it gave I sulfone.

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GOL'DFARB, Ya. I.

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Organic Chem.

Action of diphenylbromomethane on 2-aminopyridine. Ya. L. Gol'dfarb and Ya. L. Danyushevskii. *Doklady Akad. Nauk S.S.S.R.* 87, 223–6(1952).—The HBr salt of the condensation product of Ph_2CHBr (I) with 2-aminopyridine (II) prepd. according to Hall and Burckhalter (*C.A.* 46, 8655e(1951)), m. 189–91°, is not a single compd. With alkali under Et_2O it yields a base whose Et_2O soln. with CO_2 forms an air-stable carbonate, a property common among substituted 2-pyridonimines. The compn. of this carbonate and the free *base* isolated from it, m. 115–16° (absorption max. 3550 A.) agree with structure of *N-(diphenylmethyl)-2-pyridonimine* (III). Evapn. of the Et_2O mother liquor gave some 2.5 times as much of the *2nd reaction product*, the free *base* of which, m. 101–2°, absorption max. 3000 A. This material is authentic *2-(diphenylmethylamino)pyridine* (IV), identical with a prepn. from PhMgBr and 2-(benzylydineamino)pyridine. The *HBr salts* of the 2 reaction products m. 199–200° and 198–200°, resp.; mixed m.p. 189–93°. If I and II mixed at room temp. in C_6H_6 deposited a quantity of solid, which with a base gave much more IV than III, and in addn. the *(diphenylmethylimino) deriv.* of III, m. 153–4° (absorption max. 3750 A.), also formed by heating III or IV with I. Heating I and II at 200–20° gave, after the usual treatment, *2-[bis(diphenylmethyl)amino]pyridine*, m. 181–2°, absorption max. 2980 A.; HBr salt, m. 257–62° (cf. Sokov, *C.A.* 35, 2510[3]). Thus at low temps. there is tendency to form the pyridonimine derivs. while at higher temp. aminopyridine derivs. are obtained. Heating the HBr salts of the former substances gives low yields of the latter. The formation of pyridonimine derivs. is caused probably by polarization of II during the reaction in such a way as to increase the electron concn. at the nuclear N.

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The Committee on Stalin Prizes (of the Council of Ministers USSR) in the fields of science and inventions announces that the following scientific works, popular scientific books, and textbooks have been submitted for competition for Stalin Prizes for the years 1952 and 1953. (Sovetskaya Kultura, Moscow, No. 2240, 20 Feb - 3 Apr 1954)

Name	Title of Work	Nominated by

SO: W-30604, 7 July 1954

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GOL'DFARB, Ya. L.

Relative basicities of atoms of nitrogen in compounds of the type of 2-aminopyridine and N-alkyl-2-pyridonimine. Ya. L. Gol'dfarb, M. A. Pryanishnikova, and K. A. Zhdanova. Bull. Acad. Sci. U.S.S.R., Div. Chem. Sci. 1953, 129-35 (Engl. translation).—See C.A. 48, 3388f.

H. L. H.

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Goldfarb, Ya. L.

Relation between the structure of some organic compounds and their ability to form products of addition with carbon dioxide. II. Pyridine derivatives. Ya. L. Goldfarb and Ya. I. Danyushevskii. *Bull. Acad. Sci. U.S.S.R., Div. Chem. Sci.* 1953, 137-43(Engl. translation).—See *C.A.* 48, 3360d. H. L. H.

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GOL'DFARB, YA. L.

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Chemical Abst.
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Organic Chemistry

Relative basicity of atoms of nitrogen in compounds of the type of 2-aminopyridine and of the type of *N*-alkyl-2-pyridonimine. Ya. L. Gol'dfarb, M. A. Pryanishnikova, and K. A. Zhukova. *Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1953, [illegible].—Spectrometric methods showed that the salt-forming centers in the above types of *N*-derivs. are, resp.: the nuclear N atom in the 2-aminopyridine type, and the extranuclear N atom in the pyridonimine type. The latter in dil. acids form structures of aminopyridinium salts. The following absorption max. (mμ) and log E were obtained: 2-aminopyridine, in heptane 290 (3.4) and 234 (4), in dioxane 290 (3.6) and 238 (4.1), in aq. dioxane 295 (3.7) and 238 (4.1), in EtOH 293 (3.[illegible]) and —, in 0.04*N* HCl 301 (3.7) and 233 (3.[illegible]); 2-(methylamino)pyridine, in heptane 298 (3.4) and 2[illegible] (4), in dioxane 303 (3.5) and 245 (4.2), in aq. dioxane [illegible] (3.3) and 240 (4.2), in EtOH 303 (3.3) and —, in 0.04*N* HCl 306 (3.[illegible]) and —, in H_2O 305 (3.4) and 238 (4); 2-(benzylamino)pyridine, in dioxane 306 (3.4) and 247 (4), in aq. dioxane 307 (3.5) and 243 (4), in 0.04*N* HCl 309 (3.7) and 238 (4.1); *N*-methyl-2-pyridonimine, in heptane 34[illegible] ([illegible].8) and [illegible] (3.8), in dioxane 345 (3.3) and 253 (4.1), in aq. dioxane 343 ([illegible].3), 250 (3.8), and 302 (3.4), in 0.04*N* HCl 299 (3.6) and —; in EtOH 30[illegible] (3.9) and —; *N*-benzyl-2-pyridonimine, in heptane 350 (3.4) and 255 (3.7), in dioxane 3[illegible] (3.5) and 2[illegible]7 (3.8), in aq. dioxane 306 (3.6) and 237 (3.[illegible]), in 0.04*N* HCl 300 (3.7) and —; *N*-β-hydroxyethyl-2-pyridonimine, in dioxane 350 (3.5) and 258 (4), in aq. dioxane 305 (3.6) and 238 (3.7), in EtOH 305 (3.6) and 23[illegible] (3.7), in 0.04*N* HCl 302 (3.7) and —, in H_2O 303 (3.6) and [illegible] (3.6). 1-Methyl-3-(1-methyl-2-pyrrolidyl)-2-pyridonimine, in heptane 3[illegible] (3.5) and 256 (4), in dioxane 350 (3.6) and [illegible] (4), in aq. dioxane 306 (3.7) and 240 (3.7), in 0.04*N* HCl [illegible] (3.7) and 235 (3.8), in H_2O 308 (3.7) and 23[illegible] (3.7). The actual curves are reproduced.

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GOL'DFARB, YA. L.

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Organic Chemistry

Relation between the structure of some organic compounds and their ability to form products of addition with carbon dioxide. II. Pyridine derivatives. Ya. L. Gol'dfarb and Ya. [illegible]. Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk 1953, 454-12; cf. C.A. 46, 8107g.—Some substituted 2-pyridonimines are ppted. at room temp. by CO_2 from EtOH or MeOH solns. as carbonate salts of the bases, stable at room temp. Derivs. of 2-aminopyridine are not ppted. by CO_2. Introduction of a Ph or Ac radical into the amidine structure of N-methyl (or benzyl)-2-pyridonimine does not cause a loss of precipitability by CO_2. The following adducts (carbonates) were obtained (temp. needed for pptn. and stability of the salt given): 2-aminopyridine, −50°, unstable; 2-methylaminopyridine, −35°, unstable; N-methyl-2-pyridonimine, room temp., stable; 2-benzylaminopyridine, no adduct; N-benzyl-2-pyridonimine, room, stable; 2-dimethylaminopyridine, no adduct; N,N'-dimethyl-2-pyridonimine, room temp., stable; N-methyl-N'-benzyl-2-pyridonimine, room temp., stable; N-(2-hydroxyethyl)-2-pyridonimine, room temp., stable; 2-(N-methylbenzamido)pyridine, no adduct; 2-anilinopyridine, no adduct; N-methyl-N'-ethyl-2-pyridonimine, −45°, unstable; N-methyl-2-pyridone, no adduct; N-phenyl-N'-ethyl-2-pyridonimine, −10°, unstable; N-ethyl-N'-phenyl-2-pyridonimine, −35°, unstable; N-methyl-N'-phenyl-2-pyridonimine, −40°, stable; 1-phenyl-N-propyl-2-pyridonimine, room, oil; N-benzyl-N'-phenyl-2-pyridonimine, no adduct; N-phenyl-N'-benzyl-2-pyridonimine, room temp, oil; N,N'-diphenyl-2-pyridonimine, no adduct.

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GOL'DFARB, Ya.L., professor.

Some reaction mechanisms of organic substances. Khim. v shkole no.5:19-23 S-O '53. (MLRA 6:9)
(Chemical reaction--Mechanism)

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Action of tert-butyl chloride on thiophene and 2-bromothiophene. Ya. L. Gol'dfarb and Z. S. Kaminskaya. *Doklady Akad. Nauk S.S.S.R.* 89, 301-3(1953). —Thiophene with Me_3CCl in the presence of $FeCl_3$ gave *di-tert-butylthiophene* (I), b. 201–2°, n_D^{20} 1.4823, which corresponds to the 2,5-deriv. described by Cuisiat (*C.A.* 41, 1385b). However, the Ac deriv. of the present product is different, indicating that the 2 thiophenes are not identical. Me_3CCl with 3,4-dibromothiophene in CS_2 at room temp. with $FeCl_3$ gave 3,4-dibromodi-*tert*-butylthiophene, m. 63°, also formed on bromination of I in CS_2. Heating 1 mole 2-bromothiophene with 2 moles Me_3CCl and 0.04 mole $FeCl_3$ in heptane gave a fraction, b$_{15}$ 132–4°, of di-*tert*-butylbromothiophene, which on bromination gave the di-Br deriv., m. 63–4°, identical with the above. This showed that the fraction b$_{15}$ 132° (above) was not *2-bromo-3,5-di-tert-butylthiophene*, but a *3-Br isomer* formed by displacement of Br from the 2-position. In the alkylation of 2-bromothiophene, after the initial vigorous evolution of HCl, there appears an evolution of HBr. The evolved Br apparently attacks the debromination product. Some impure 2,5-di-*tert*-butylthiophene was actually isolated from the lower-boiling fractions of this reaction; this was isolated as the sulfone, m. 136–7°. The *Ac deriv.* of I m. 77°. O. M. Nodzu-Apoll

Products of addition of bromine to some sulfones of the thiophene series. V. I. Goldfarb and N. P. Kuznetsova (*Doklady Akad. Nauk S.S.S.R.*, 48, 1330(1945); Meikes, *C.A.* 47, 1953).—The addn. products of Br and thiophene sulfones are substances with Br in the α-positions or possibly in the α,β-positions. Refluxing 0.6 g. 3,4-dibromo-2,5-di-*tert*-butylthiophene and 2 ml. 28% H_2O_2 in 20 ml. AcOH 1 hr. and concn. *in vacuo* gave 75% corresponding 1,1-dioxide, m. 91° (from dil. EtOH). This refluxed with Zn dust in AcOH 6 hrs. gave *3,4-di-tert-butylthiophene 1,1-dioxide* (I), m. 137°. *3,4-Dibromo-2,5-di-tert-butylthiophene 1,1-dioxide* (3.8 g.) refluxed 13 hrs. with 2.5 g. Br in 10 ml. CS_2 and after concn. gave 54% $C_{12}H_{18}Br_2O_2S$ (II), m. 132–2.5° (from AcOH and EtOH). Keeping 2 g. I with 3.8 g. Br in $CHCl_3$ 8 days gave 88% *product* (III), m. 90°, not identical with the 3,4-di-Br deriv., which also m. 91°. III heated with 70% EtOH 12 hrs. gave I. Similarly II slowly yields the 3,4-di-Br diriv. on boiling with aq. EtOH, and more rapidly with EtONa in abs. EtOH. II with alc. $N_2H_4.H_2O$ gave N and I. II in AcOH with aq. KI and a little H_2SO_4 gave nearly 20% active Br. The absorption spectra were also examd.: III gave no absorption bands near 300 mμ. II gave a band near 290 mμ. The original 1,1-dioxides showed absorption max. at 300 mμ and 310 mμ, resp.

C. M. Kosolapoff

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KORZHEV, P.P.; PARMENOV, K.Ya.; DAVYDOV, S.D.; GOL'DFARB, Ya.L.; NEYDING, A.B.; DMITRIYENKO, G.V., redaktor; SHTEYN, S.F., tekhnicheskiy redaktor

[Chemistry handbook for teachers of secondary schools] Spravochnik po khimii dlia uchitelei srednei shkoly. Izd. 3-e, perer. Moskva, Gos. uchebno-pedagog. izd-vo Ministerstva prosveshcheniia RSFSR, 1954. 370 p. (MLRA 7:11)
(Chemistry)

GOL'DFARB, Ya. L.

USSR/Chemistry Synthesis

Card : 1/1

Authors : Gol'dfarb, Ya. L., and Korsakova, I. S.

Title : Synthesis and certain properties of thiophene derivatives containing the third butyl group

Periodical : Izv. AN SSSR, Otd. Khim. Nauk. 3, 564 - 569, May - June 1954

Abstract : The conditions favoring the alkylation with tertiary butyl chloride of 3-methylthiophene, 2-ethylthiophene, 2,5-dimethylthiophene and 2,5-diethylthiophene, which results in the formation of various thiophene derivatives, are described. The structure of the obtained tertiary butyl thiophene substitutes was determined by acetylation of the latter in the presence of stannic chloride. The properties of thiophene derivatives are described in tables. Ten references: 8 USA and 2 USSR.

Institution : Acad. of Sc. USSR, The N. D. Zelinskiy Institute of Org. Chemistry

Submitted : December 31, 1953

GOL'DFARB, Ia.L.; SMORGONSKIY, L.M.

Methods for the numerical solution of chemical problems. Khim.v shkole 9 no.3:31-36 My-Je '54. (MLRA 7:6)
(Chemistry--Problems, exercises, etc.)

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GOL'DFARB, YA. I.
USSR/Chemistry

Card 1/1

Authors : Gol'dfarb, Ya. L., and Korsakova, I. S.

Title : Condensation of certain carbinols with thiophene in the presence stannic chloride

Periodical : Dokl. AN SSSR, 96, Ed. 2, 283 - 286, May 1954

Abstract : Experiments on the condensation of thiophenes with carbinols in the presence of a thiophene surplus and in the presence of 1 mole $SnCl_4$ showed that two hydrogen atoms of the thiophene ring become displaced in positions 2 and 5. Using the "hydrogenolysis" method the authors obtained 2,5-bis(α α -dimethylbenzyl)-thiophene with a yield of 35% and 2,5-bis(α -methylbenzhydril)-thiophene with hield of approximately 60%. Thiophene does not react with triphenylcarbinol in the presence of $SnCl_4$. Thirteen references; 3 USSR since 1950. Table.

Institution : Acad of Scs. USSR, The N. D. Zelinskiy Institute of Organic Chemistry

Presented by : Academician B. A. Kazanskiy, March 4, 1954

GOL'DF'RB, Ya. L.

4890. GOL'DF'RB, Ya. L. i S.ORGONSKIY, L. M. Zadachi i uprazhneniya po khimii. Dlya sred. Shkoly. 5-ye IZD., S15-go rus. Ashkhabad, Turkmenuchpedgiz, 1955. 191 s. s Ill. 21sm. 9.000 EKZ. 1r. 85k. V per.--Na turkm. yaz.-- (54-58119) 54(076)

SO: Knizhnaya Letopis', Vol. 1, 1955