

VASYUKOV, I.Ye., inzh.

Cantilever crane mounted in a window aperture. Mont. i spets.
rab. v stroi. 24 no.9:30 S '62. (MIRA 15:9)
(Cranes, derricks, etc.)

VASYUKOV, I.Ye., inzh.

Rotator for automatic welding of spherical tanks.
Mont. i spets. rab. v stroi. 24 no.10:20-21 '62. (MIRA 15:10)
(Welding-equipment and supplies)

124-57-2-2062

Translation from: Referativnyy zhurnal Mekhanika 1957 Nr 2 p 83 (USSR)

AUTHOR: Vasyukov K A

TITLE: Analysis of Local Pressure Changes and Cyclogenetic Conditions in the Troposphere (Analiz lokal'nykh izmeneniy davleniya i usloviy tsiklogeneza v tropostere)

PERIODICAL: Tr. Tsentr. in-ta prognozov, 1956, Nr 45 (72), pp 3-58

ABSTRACT: The author employs the equations for a vortex and for the heat advection in the following form

$$\frac{\partial \Omega}{\partial t} + u \frac{\partial \Omega}{\partial x} + v \frac{\partial \Omega}{\partial y} + w \frac{\partial \Omega}{\partial z} = f \left(\frac{\partial u}{\partial x} + \frac{\partial v}{\partial y} \right) \quad (1)$$

$$\frac{\partial T}{\partial t} + u \frac{\partial T}{\partial x} + v \frac{\partial T}{\partial y} + w \frac{\partial T}{\partial z} = -(\gamma_a - \gamma) w \quad (2)$$

Here Ω is the vertical component of the vorticity, x and y are the horizontal coordinates, u and v are the velocity components along these coordinates, w is the vertical velocity component, f is the Coriolis parameter, and γ_a and γ are the dry adiabatic rate of cooling and the vertical lapse rate, respectively. Equations

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Analysis of Local Pressure Changes (cont.)

(1) and (2) are integrated along the vertical coordinate from the ground surface to the upper limit of the atmosphere; the mean values (relative to height) of the meteorological elements are taken out from under the integral sign. The term w is replaced by the plane velocity divergence with the aid of the equation of continuity. The velocity components on the left side of Eqs. (1) and (2) are substituted in accordance with the geostrophic wind equations. Laplace's operator ΔH (H geopotential) is replaced approximately by $H/4$. By means of the equations obtained and the barometric formula expressions are found for the time derivatives of the surface pressure and the geopotential of the 500-mb surface in terms of the derivatives of the meteorological elements relative to their coordinates. In the computations the plane velocity divergence was determined from the given wind-velocity observations. A number of sample computations are adduced. The author concludes that consideration of the component obtained from the plane velocity divergence by means of direct wind observations affords an improvement over the results obtained from a consideration of the vortex translation alone.

1. Atmosphere--Pressure 2. Cyclones--Propagation 3. Mathematics S. A. Mashkovich

Card 2/2

VASYUKOV, K.A.; ZVEREV, N.I.; PED', D.A.

Forecasting synoptic processes for the current natural synoptic
period by the use of analogues. Meteor. i gidrol. no.1:27-33 Ja
'62. (MIRA 15:1)

(Statistical weather forecasting)

VASYUKOV, K.A.; ZVEREV, N.I.; PED', D.A.

Forecasting atmospheric processes by analogues for a natural
synoptic period. Trudy TSIP no.120:3-13 '63. (MIRA 16:6)

(Weather forecasting)

VASYUKOV, K.A.; ZVEREV, N.I.; FED', D.A.

Correlation between the state of atmospheric pressure centers
and the weather in the European part of the U.S.S.R. Trudy
TSIP no.120:14-24 '63. (MIRA 16:6)

(Weather forecasting)

BAGROV, N.A.; VASYUNOV, K.A.; ZVEREV, N.I.; PUD, D.A.

Principle of analogy and its use in scientific work. Izudy TSIP
no.132:43-47 '64. (MIRA 17.10)

VASYUKOV, K.A.; ZVEREV, N.I.; PED', D.A.

Forecasting the anomaly of the average monthly air temperature.
Trudy TSIP no.132:59-63 '64. (MIRA 27:20)

L 04915-6/ ENL(1) JW

ACC NR: AT6028444

SOURCE CODE: UR/2546/66/000/153/0022/0040

AUTHOR: Vasyukov, K. A.; Ped', D. A.

ORG: none*

TITLE: Method of forecasting an anomaly of the mean monthly air temperature with consideration of its intensity in the Northern Hemisphere

SOURCE: Moscow Tsentral'nyy institut prognozov. Trody, no. 153, 1966. Statisticheskiye Metody dolgosrochnogo prognoza pogody (Statistical methods of long-range weather forecasting), 22-40

TOPIC TAGS: long range weather forecasting, air temperature, atmospheric temperature, atmospheric current

ABSTRACT: In this article the authors proceed from the hypothesis that an anomaly of the mean monthly air temperature in the Soviet Union is determined by its anomalous development during preceding months over the entire Northern Hemisphere. The forecasting method must include information from the entire Northern Hemisphere. The gradients of the mean monthly air temperature over the hemisphere which were used as predictors met this condition. The proposed calculation method of forecasting had the form

$$\Delta t = \sum_{i=1}^6 \alpha_i \text{grad}_{i,N} \Delta T_i + \sum_{j=1}^6 \beta_j \text{grad}_N \Delta T_j + \sum_{k=1}^6 \gamma_k \text{grad}_S \Delta T_k + \alpha_0 \Delta T_0, \quad (1)$$

where Δt is the expected anomaly of the mean monthly air temperature at a certain point in the Soviet Union with a one-month predictability; $\alpha_i, \beta_j, \gamma_k$ are coefficients.

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L 04918-67

ACC NR: AT6028444

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ponents of empirical influence functions for corresponding components of the temperature gradients; $grad_{zone} \Delta T_1$ is the zonal gradient of the temperature anomaly between the i-th pair of selected points taken in a south-north direction; $grad_N \Delta T_j$ are meridional gradients of the temperature anomaly for northern regions of the hemisphere taken between the same points in an east-west direction; $grad_S \Delta T_k$ are meridional gradients of the temperature anomaly for southern regions of the hemisphere taken in an east-west direction; $\alpha_0, \Delta T_0$ are analogous values pertaining to the same station for which Δt is found. To compile a forecast by method (1) it is necessary to obtain corresponding data of the mean monthly air temperature at the station level at 12 points of the Northern Hemisphere. For each of these points a table is used to find the monthly temperature anomaly which is then used in the calculations in the form of zonal and meridional differences. Then by means of a table corresponding to a given season for each point of interest in the Soviet Union, the future anomaly of the mean monthly air temperature is found as the sum of 19 paired products of the corresponding weights for each of the indicated differences. The 19th term will be the paired product of the temperature anomaly at a given station ΔT_0 and its weight α_0 . The calculations should be carried out twice to avoid additional errors. The temperature field obtained is the probability forecast of an anomaly of the mean monthly air temperature in the Soviet Union, the deviation of which from the actual for each point will be minimal in the sense of least-squares. The proposed method permits, to a certain extent, taking into account the characteristics of general circulation which appear in the atmosphere of the entire Northern Hemisphere.

Orig. art. has: 1 formula, 5 tables, and 1 figure.
 SUB CODE: 04/ SUBM. DATE: none/ ORIG REF: 005/ OTH REF: 005
 Card 2/2

VASYUKOV, K.A., kand. fiz.-matem. nauk; ZVEREV, N.I., kand. fiz.-matem.
nauk; PED', D.A., kand. geograf. nauk

Rhythms in the atmosphere and some methods of evaluating them.
Meteor. i gidrol. no.1:47-49 Ja '65. (MIRA 18:2)

1. Tsentral'nyy institut prognozov.

VASYUKOV, K.A.; ZVEREV, N.I.; PED', D.A.

Statistical method of forecasting the air temperature and the
quantity of precipitation for a month. Trudy 731⁸ no.19:22-28
'65. (MIRA 18:6)

S/169/62/000/007/109/149
D228/D307

AUTHORS: Vasyukov, K. N., Zverev, N. I. and Ped', D. A.

TITLE: Using the principle of analogousness when forecasting synoptic processes and the weather for five days

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 7, 1962, 48, abstract 7B257 (Tr. Tsent. in-ta prognozov, no. 116, 1962, 13-23)

TEXT: The N-500 values for a standard grid of points, located every 4° of latitude and 12° of longitude on the territory, bounded by 36°W, 84°E, 76°N, and 36°W, were taken from the average maps for natural synoptic processes (NSP) in January and February, 1938-1955. After this the signs of the geopotential differences, respectively characterizing the zonal and the meridional flow components, were determined for meridionally and latitudinally neighboring points. The values +1, 0, and -1 were respectively ascribed to positive, zero and negative differences. The resulting magnitudes of the meridional and the zonal wind components for all NSP were

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printed on tape. The analogs of the N-500 averages for the parameters ρ_φ and ρ_λ , characterizing the similarity of fields with respect to their circulatory features, were selected for the first 20 maps by means of the electronic computer "Pogoda". The values of ρ_φ and ρ_λ were calculated from the formulas:

$$\rho_\varphi = \frac{n_{\varphi+} - n_{\varphi-}}{n_{\varphi+} + n_{\varphi-}}, \quad \rho_\lambda = \frac{n_{\lambda+} - n_{\lambda-}}{n_{\lambda+} + n_{\lambda-}}$$

where $n_{\varphi+}$, $n_{\varphi-}$, $n_{\lambda+}$, $n_{\lambda-}$ is the number of cases when the signs of the meridional (n_φ) and the zonal (n_λ) flow components in two comparable N-500 fields of NSP do, or do not, coincide. The comparison of all NSP with the original 20 allowed the distribution of the degree of analogy for the fields of the 500-mb surface's January geopotential to be obtained from the parameters of ρ_φ and ρ_λ . It also

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allowed the natural frequency of analogous processes to be exposed separately according to the development of the meridional and the zonal air-flow components. Utilizing the criterion ρ_{φ} all processes can be divided according to their degree of analogy into three categories: the analog ($\rho_{\varphi} \geq 0.4$), the non-analog ($\rho_{\varphi} = -0.3, +0.4$), and the reverse analog ($\rho_{\varphi} < -0.3$). Utilizing the criterion ρ_{λ} , too, we will obtain the analog $\rho_{\lambda} \geq 0.8$, the non-analog $\rho_{\lambda} = 0.2 + 0.8$, and the reverse analog $\rho_{\lambda} < 0.2$. The criteria are established with a 10% guaranty. In practical work, when classifying all processes into three categories, the degree of guaranty should be established jointly according to both criteria for the analog $\rho_{\varphi} \geq 0.4$ and $\rho_{\lambda} \geq 0.6$, the non-analog $-0.3 < \rho_{\varphi} < 0.4$ and $0.2 < \rho_{\lambda} < 0.6$, and the reverse analog $-\rho_{\varphi} < 0.3$ and $\rho_{\lambda} < 0.2$. Average estimates are given for the analogousness of subsequent pairs of NSP in relation to the degree of analogy of the original pairs of NSP with respect to ρ_{φ} ✓

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and $\rho_{\Sigma} = \rho_{\psi} + \rho_{\lambda}$. As the geometric likeness increases, the analogousness in the development of atmospheric processes in subsequent NSP grows generally. But in a number of examples it is shown, too, that the factor of geometric analogy, though it is of great significance in establishing the analogousness of atmospheric processes, does not always give practically valuable pointers to the future development of processes. In some cases originally similar processes subsequently change into non-analogs. Using modern computers it is possible by means of the analogy parameters of ρ_{ψ} , ρ_{λ} , and $\rho_{\Sigma} = \rho_{\psi} + \rho_{\lambda}$ to take into account objectively the development history of atmospheric processes, to solve problems connected with the choice of analogs, and so forth, which is necessary in order to forecast the weather for 3 - 7 days. [Abstracter's note: Complete translation.]

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S/169/62/000/007/110/149
D228/D307

AUTHORS: Vasyukov, K. N., Zverev, N. I. and Ped', D. A.

TITLE: Application of empirical functions of influence for forecasting mean monthly air temperature anomalies

PERIODICAL: Referativnyy zhurnal Geofizika, no. 7, 1962, 48-49, abstract 7B258 (Tr. Tsentr. in-ta prognozov, no. 116, 1962, 24-33)

TEXT: Particular synchronous and asynchronous (December-January, June-July) factors of correlation between the Moscow air temperature and the temperature (pressure) at a number of points were determined for January and July in order to investigate the influence of centers of atmospheric action (CAA) on the formation of mean monthly air temperature anomalies in the USSR's European territory and in order to derive possible prognostic relations (by preparing the equation of multiple regression). These points were chosen for the characteristic of the intensity of CAA and were located as follows: Ponta Delgada (Azores), Honolulu (Hawaiian Islands), Be-

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Application of empirical ...

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rufurdur (Iceland), Irkutsk, Tashkent, and Petropavlovsk na Kamchatka. The correlative connections between the elements under consideration (all instances of air temperature and pressure anomalies over 50 years were taken into account) are small. The highest stability (for synchronous relations) is observed between the advection of the Azores anticyclone and the mean monthly temperature anomaly at Moscow. The relations obtained appear more distinctly in cases of greater temperature or pressure deviations at CAA, selected from all the 50-year data. Magnitudes are given for synchronous and asynchronous relations between the mean monthly air temperature anomalies at Moscow and the CAA, and between the mean monthly air temperature anomalies at Moscow and the mean monthly pressure anomalies at the CAA; values are cited, too, for the synchronous relations of the mean monthly Moscow air-temperature anomalies to the pressure anomaly differences between the main CAA. When allowance is made for the state at two CAA, the asynchronous relations between the mean monthly air temperature anomalies at Moscow and the pressure at the CAA are somewhat better than if just one CAA is taken into account. Allowance is made for the sim-

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ultaneous influence of all CAA by means of empirical functions of influence. The problem is simplified by finding the asynchronous relations (with a month's displacement) between the state of some CAA, expressed by fluctuations in the mean monthly air temperature anomaly at Ponta Delgada, Beruferdur, Honolulu, Irkutsk, and Tashkent, and the mean monthly air temperature anomaly on the USSR's European territory according to the data of 11 stations for 1900-1940 (Arkhangel'sk, Leningrad, Syktyvkar, Riga, Moscow, Yelabuga, Orenburg, Zemetchino, Volgograd, Rostov-on-Don, Odessa). Allowance for the influence of CAA on the temperature conditions of the USSR's European territory was made by dividing all the original data into warm (April -September) and cold (October-March) periods, whose empirical functions of influence were determined separately. Coefficients of the empirical functions of influence are cited for each of the 11 points on the USSR's European territory; they were obtained on the grounds of the data's climatic processing. The values of the mean monthly air temperature anomaly (Δt) predictable for each point and month are calculated from the multiple regression equation : $\Delta t = \alpha_0 \Delta t_0 + \alpha_1 \Delta t_1 + \alpha_2 \Delta t_2 + \alpha_3 \Delta t_3 + \alpha_4 \Delta t_4$.

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Application of empirical ...

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Here $\alpha_0, \alpha_1, \alpha_2, \alpha_3, \alpha_4$ are the respective coefficients of the empirical functions of influence for a given station on the USSR's European territory and for the stations of each of the four CAA: the Azores and Honolulu highs, the Iceland low [Abstracter's note: It is assumed that 'nelandskoy' should read 'islandskoy'], the Siberian high for the cold season, and the Mid-Asiatic low for the warm season. $\Delta t_0, \Delta t_1, \Delta t_2, \Delta t_3, \Delta t_4$ are the respective mean monthly air temperature anomalies at the same points for the preceding month. 18 out of 22 of the forecasts for the mean monthly air temperature anomaly were proved to be correct. 23 references. [Abstracter's note: Complete translation.]

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SOV/137-59-4-9021

Translation from: Referativnyy zhurnal, Metallurgiya, 1959, Nr 4, p 246 (USSR)

AUTHOR: Vasyukov, M.I.

TITLE: Wider Use of Advanced Methods in the Manufacture of Bearing Races¹⁷

PERIODICAL: V sb.: Materialy Soveshchaniya glavn. metallurgov z-dov i in-tov avtomob. prom-sti, Nr 4, Moscow, 1958, pp 101 -103

ABSTRACT: The manufacture of bearing races out of pipes on a press presents a number of advantages; this method deserves to be brought into wide use. Equipment and technological processes designed for this purpose need to be developed. Preparational operations are a bottleneck in this field. The preparation of blanks by the method of cold breaking should be developed. Horizontal forging machines which are being used at present are of the universal type; they are operating at excessively high strokes. The use of special machines is recommended.

Yu.M.

Card 1/1

VASYUKOV, N.

Urgent tasks in large-panel housing construction in the Ukraine.
Zhil.stroi. no.5:2-5 My '61. (MIRA 14:6)

1. Nauchal'nik Upravleniya zhilishchno-grazhdanskogo stroitel'stva
Gosstroya USSR.
(Ukraine—Precast concrete construction)

LOPAKSIN, V.; RYABKOVA, S.; PAVLOV, V.; VASYUKOV, N., mekhanik

The communist labor movement. Den.i kred. 21 no.2:51-56 P '63.
(MIRA 16:2)

1. Predsedatel' mestnogo komiteta Saratovskoy kontory Gosbanka (for Lopaksin).
2. Zamestitel' upravleyayushchego Nizhne-Tagil'skim otdeleniyem Gosbanka (for Ryabkova).
3. Starshiy inzhn. Cherkasskoy oblastnoy kontory Gosbanka (for Pavlov).
4. Cherkasskaya oblastnaya kontor Gosbanka (for Vasyukov).
(Banks and banking) (Socialist competition)

VASYUKOV, N.

Italian economists in the U.S.S.R. Vop.ekon. no.9:160
S '61. (MIRA 14:8)
(Russia--Relations (General) with Italy)

BORZUNOVA, Aleksandra Stepanovna; BIRYUKOV, Dmitriy Andreyevich;
VASYUKOV, Nikolay Mikhaylovich; VASIL'YEVA, Z.A., red.;
KHARASH, G.A., tekhn. red.

[Theoretical fundamentals of medical expertise on the
capacity for work] O teoreticheskikh osnovakh vrachebno-
trudovoi ekspertizy. Leningrad, Medgiz, 1963. 185 p.
(MIRA 17:1)

TERZIBASH'YAN, G. G.; VASYUKOV, V. A.; PESOTSKAYA, M. S.

Methods for stand testing of intake and exhaust silencers for
automobile engines. Avt. prom. 29 no.5:28-29 My '63.
(MIRA 16:4)

1. Gosudarstvennyy soyuznyy ordena Trudovogo Krasnogo Znameni
nauchno-issledovatel'skiy avtomobil'nyy i avtomotorny institut.

(Automobiles—Engines)

L. G. Bly-67 1M1(1) SGTB 10/68
ACC NRI A16036077

SOURCE CODES: UR/0000/66/000/000/0372/0373

AUTHOR: Fedorov, V. L.; Vasyukov, V. G. 28

ORG: none

TITLE: Changes in the elastoplastic properties of human muscle under conditions of hypokinesia. Paper presented at the Conference on Problems of Space Medicine held in Moscow from 24-27 May 1966.

SOURCE: Konferentsiya po problemam kosmicheskoy meditsiny, 1966. Problemy kosmicheskoy meditsiny. (Problems of space medicine); materialy konferentsii, Moscow, 1966, 372-373

TOPIC TAGS: hypodynamia, myology, human physiology, orthostatic test, muscle tonus, space physiology

ABSTRACT:

In investigating the effect of multiday hypokinesia on human skeletal muscles, a seismotonographic, tonographic, and tonometric study was made of several postural and phase muscles. The seismotonography method made it possible to record mechanical observations evoked by precisely measured blows on the muscle.

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L 08843-67

ACC NR: A16036677

Sirman and Uflyand' s system of tonometers was used for the tonometric study. 0

The elasto-plastic properties of muscles were determined by the following indices:

- 1) frequency of distinct muscle oscillation;
- 2) logarithmic decrement of damping of distinct muscle oscillations; and
- 3) Sirman and Uflyand' s tonometer indices.

The phase muscles studied were the rectus femoralis and the biceps. The postural muscles were represented by extensors of the lumbar portions of the spinal column (right and left longissimus dorsi).

Each subject was examined before, during, and after hypokinesia. Both relaxed and tensed muscles were studied. The subjects were top-rated athletes specializing in non-cyclic (Group I) and cyclic (Group II) types of sport. More than 250 seismotonograms and 160 tonometer readings were analyzed.

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ACC. NO. A16036677

Analysis of the data obtained showed that:

- 1) Following hypokinesia, the frequency of characteristic oscillations of relaxed phase muscles decreased and the logarithmic damping decrement increased in both Group I and Group II subjects;
- 2) Following hypokinesia the logarithmic damping decrement increased in tensed phase muscles on both Group I and Group II subjects;
- 3) Following hypokinesia, the frequency of characteristic oscillations of phase muscles increased sharply in Group I subjects; in Group II subjects this frequency remained at the initial level;
- 4) Following hypokinesia, Group I subjects showed a decrease in the frequency of characteristic oscillations and an increase in the logarithmic damping decrement in postural muscles; no well-defined changes in these indices were noted in Group II subjects;
- 5) In the middle of the hypokinesia period (usually on the 4th or 5th day) a sharp increase in the frequency of characteristic oscillations of postural muscles...was recorded; this was true of both Group I and Group II subjects;

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ACC NR: A18036677

6) Tonometry data revealed no statistically reliable changes in muscle tone following hypokinesia, confirming the inadequacy of the tonometry method, which has several times been mentioned in the literature.

Thus, the study showed changes in the functional properties of phase and postural muscles due to multi-day hypokinesia. The clearest change was an increase in the plasticity (logarithmic damping decrement) and a decrease in the resilience, elasticity (frequency of characteristic oscillation) of skeletal muscles. [W. A. No. 22; ATD Report 66-116]

SUB CODE: 06 / SUBM DATE: 00May66

Card 4/4

VASYUKOV, V.I., inzhener; LEVINZON, A.L., inzhener.

Shortcomings in the construction of certain building machines.
Mekh.stroi. 13 no.10:24-25 0 '56. (MLRA 9:11)
(Building machinery)

VASYUKOV, V.I., inzh.

Uncoiling cables of tackle blocks of cranes. Mekh. stroi. 19
no.6:11-13 Je '62. (MIRA 17:2)

VASYUKOV, V.I., inzh.

Stability of the block and tackle of construction cranes. Stroi.
i dor. mash. 8 no.11:6-8 N '63. (MIRA 17:1)

SOURCE: Ref. zh. Metallurgiya, Abs. 1E130

B

AUTHOR: Gusev, A. I.; Gusevskaya, T. S.; Vasyukov, V. N.

TITLE: Arc and electroslog welding of austenite-ferrite steel

CITED SOURCE: Tr. Leningr. metal. z-da, v. 11, 1964, 167-188

TOPIC TAGS: metallurgy, ferrous metals, welding, electroslog welding

TRANSLATION: Problems of arc and electroslog welding of austenite-ferrite steel were considered. It was concluded that austenite-ferrite steel may be welded using an arc or electroslog process. Austenite-ferrite steel is best welded in a rather high welding rate. After normalization the steel is welded without water phase separation.

using a... After

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L 52053-65

A. H. H. H. H. H.

electroslag welding of normalized 10K20N3 20 steel, normalization is not required.

SUB CODE: MM, IE

ENCL: 00

ml
Card 2/2

ACCESSION NR: AP4039009

8/0136/64/000/005/0086/0088

AUTHOR: Volkovich, A. V.; Komlev, G. A.; Vasyukova, A. A.; Kopy*tov, S. A.

TITLE: Cadmium Refining by Vacuum Distillation

SOURCE: Tsvetny*ye metally*, no. 5, 1964, 86-88

TOPIC TAGS: cadmium, refining, extraction, vacuum distillation, impurity, cadmium refining

ABSTRACT: This study relates to cadmium refining by vacuum distillation. Good experimental results obtained by the authors in continuous vacuum distillation of Cd accounted for the construction of a pilot plant at the Chelyabinsk Zinc Plant. The temperatures of the evaporator unit and of the feed tube are 430-460 C, condenser and outflow tube temperatures are 335-350 C, and residual gas pressure is 0.5 to 1 mm Hg. The chemical composition of Cd was (%): 0.0027-0.0036 Ni; 0.002 Zn; 0.005 Tl; 0.02 Pb; 0.004-0.0074 Cu; 0.0004 Fe. Cd extraction amounted to 95-96%. The distillation of secondary sponge with a 60-62% Cd content was carried out by compressing the specimens until moisture content was 5 to 7% and preheating them to 70-80 C. The impurities in the molten metal were (in%):

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ACCESSION NR: AP4039009

0.3-0.32 Ni; 0.002 Zn; 0.017-0.02 Tl; 0.08-0.1 Pb; 0.6-0.7 Cu; 0.014-0.017 Fe.
The metal met the State Standards for "KD-O" type Cd. The extraction of Cd from
the compact at major plants using a combined method of production varies between
70 and 77% as against 89% obtained by direct extraction from the compact.

ASSOCIATION: None

SUBMITTED: 00

DATE ACQ: 04Jun64

ENCL: 00

SUB CODE: GC, MM

NO REF SOV: 009

OTHER: 003

Card 2/2

VASYUKOVA, A.N.

Amendments of the technical specifications and standards for paint
industry products. Lakokras.mat. i ikh prim. no.2:73-74 '64.
(MIRA 17:4)

LIVSHITS, M.L.; ZHUKOVA, A.D.; VASYUKOVA, A.N.

Standards and specifications. Lakokras. mat. i ikh prim. no.5:
71-81 '63. (MIRA 16:11)

VASYUKOVA, A.N.; DUBOVSKAYA, Z.A.; ZHUKOVA, A.D., otv. red.;
URYVALOVA, N.I., red.

[Technical specifications for paint materials in two
volumes] Tekhnicheskie uslovia na lakokrasochrye ma-
terialy [v dvukh tomakh]. Moskva, Khimiia, 1965. 2 v.
(MIRA 18:12)

BATALIN, A.M.; VASYUKOVA, N.G.

Calculating the heat balance of the Sea of Okhotsk. Trudy Okean.
kom. 7:37-51 '60. (MIRA 13:7)

1. Dal'nevostochnyy nauchno-issledovatel'skiy gidrometeorolo-
gicheskiy institut.
(Okhotsk, Sea of—Temperature)

VASYUKOVA, N.G.

Turbulence coefficient of the temperature conductivity of the
Sea of Japan. Izv. AN SSSR. Ser. geofiz. no.8:1259-1269 Ag
'63. (MIRA 16:9)

1. Dal'nevostochnyy gosudarstvennyy universitet. Predstavleno
chlenom redaktsionnoy kollegii Izvestiy AN SSSR, Seriya
geofizicheskaya, S.V.Dobroklonskim.
(Japan Sea--Ocean temperature)

VASYUKOVA, N.G.

Temperature balance of surface waters in some fishery areas of
the Bering Sea. Trudy VNIRO 49:77-92 '64.

(MIRA 18:5)

1. Kafedra fiziki morya Dal'nevostochnogo gosudarstvennogo uvi-
versiteta.

SOKOLOVA, V.Ye.; VASYUKOVA, N.I.

Role of the peripheral layer in the development of necrosis on
potato tubers infected with *Phytophthora infestans*. Dokl. AN
SSSR 160 no.3:724-727 Ja '65. (MIRA 18:3)

1. Institut biokhimi im. A.N. Bakha AN SSSR. Submitted May 22,
1964.

OZEREYSKOVSKAYA, O.L.; VASYUKOVA, N.I.

New formation of phenols in injured tissues of potato tubers.
Dokl. AN SSSR 161 no.4:968-970 Ap '65. (MIRA 18:5)

1. Institut biokhimii im. A.N.Bakha AN SSSR. Submitted July 21,
1964.

VASYUKOVA, Ye. A.

Present concept of pathogenesis of hypophyseal diseases. Klin.
med., Moskva 30 no.3:19-26 Mar 1952. (GMLL 22:2)

1. Professor. 2. Of the Clinical Department, All-Union Institute
of Experimental Endocrinology. 3. Relation of nervous system to
endocrine glands and hypophysis.

VASYUKOVA, Ye.A., professor; KHAVIN, I.B., professor (Moskva)

Thyrotoxicosis and working capacity. Probl. endokr. i gorm. 1
no.4:3-8 J1-Ag '55. (MLRA 8:10)

1. Iz kliniki Vsesoyuznogo instituta eksperimental'noy endokri-
nologii (dir.--prof. Ye.A. Vasyukova)
(HYPERTHYROIDISM, physiology,
working capacity in)
(WORK,
capacity in hyperthyroidism)

1
VASYUKOVA, Ye.A., prof. (Moskva)

Development of endocrinology in the U.S.S.R. during the past 40 years.
Probl.endok. i gorm. 3 no.5:3-11 S-0 '57. (MIRA 11:1)
(ENDOCRINOLOGY,
in Russia (Rus))

VASYUKOVA, Ye.A., prof.; KHAVIN, I.B., prof. (Moskva)

Soviet clinical endocrinology during the past 40 years. Probl.
endok. i gorm. 3 no.5:49-56 S-0 '57. (MIRA 11:1)
(ENDOCRINOLOGY,
clin. aspects, progr. in Russia (Rus))

VASYUKOVA, Ye.A., professor

~~Longevity. Zdorov'e 3 no.6:14-15 Je '57.~~
(LONGEVITY)

(MIRA 10:7)

VASYUKOVOY, Ye. A.

[Manual of clinical endocrinology] Rukovodstvo po klinicheskoj
endokrinologii. Moskva, Medgiz, 1958. 319 p. illus. (MIRA 11:11)
(ENDOCRINOLOGY)

VASYUKOVA, YE. A., VASIL'YEVA, A. G., PLYASETSKIY, N. R.

"The Condition of the Cardio-Vascular System in Itsenko Cushing Disease."

Theses of the Proceedings of the Annual Scientific Sessions 23-26 March 1959
(All-Union Institute of Experimental Endocrinology)

From the clinical department of the All-Union Institute of Experimental
Endocrinology (Director--Professor Ye. A. Vasyukova)

VASYUKOVA, Ye.A.

[Cerebral and hypophyseal diseases] TSerebral'no-giروفizarnye
zabolevaniia. Moskva, Medgiz, 1952. 174 p. (MIRA 13:8)
(PITUITARY BODY--DISEASES)

VASYUKOVA, Ye.A., prof.; VASIL'YEVA, A.G., starshiy nauchnyy sotrudnik;
PYASETSKIY, N.R., starshiy nauchnyy sotrudnik (Moskva)

Cardiovascular disorders in the Itsenko-Cushing disease. Probl.
endok.i gorm. 5 no.6:63-76 N-D '59. (MIRA 13:5)

1. Iz kliniki Vsesoyuznogo instituta eksperimental'noy endokrinologii (dir. - prof. Ye.A. Vasyukova).
(CUSHING SYNDROME compl.)
(CARDIOVASCULAR DISEASES etiol.)

VASYUKOVA, Ye. A., prof., red.; GRODZENSKIY, D. E., red.; ZUYEVA, N. K.,
tekhn. red.

[Present-day problems in endocrinology] Sovremennyye voprosy
endokrinologii. Moskva, Medgiz, 1960. 282 p. (MIRA 14:10)
(ENDOCRINOLOGY)

TIMAKOV, V.D., otv. red.; AGAYEV, B.M., red.; ALIYEV, A.I., prof., (Baku),
GUSEYNOV, D.Yu., red.; VASYUKOVA, Ye.A., prof., red.; ZHUKOVSKIY,
M.A., starshiy nauchnyy sotr., red.; POSPELOVA, G.N., dotsent,
red.; POD"YAPOL'SKAYA, prof. (Moskva), red.; PASHAYEV, T.G., prof.
(Baku), red.; POGOSKINA, M.V., tekhn. red.

[Transactions of an out-of-town session of the Academy of Medical
Sciences of the U.S.S.R. in Baku] Trudy Vyezdnoi sessii Akademii
meditsinskikh nauk SSSR v Baku. Moskva, Gos. izd-vo med. lit-ry,
Medgiz, 1961. 335 p. (MIRA 14:8)

1. Akademiya meditsinskikh nauk SSSR, Moscow. 2. Vitse-prezident
AMN SSSR (for Timakov). 3. Ministr zdravookhraneniya Azerbayd-
zhanskoy SSR (for Agayev). 4. Chlen-korrespondent AN Azerbaidzhan-
skoy SSR (for Guseynov). 5. Chlen-korrespondent AMN SSSR (for Pod"ya-
pol'skaya)
- (GOITER) (WORMS, INTESTINAL AND PARASITIC)
(HEALTH RESORTS, WATERING PLACES, ETC.)
(PETROLEUM WORKERS—DISEASES AND HYGIENE)

~~VASYUKOVA, Ye. A.~~, prof., red.; GRODZENSKIY, D. E., red.; KOKIN,
N. M., tekhn. red.

[Contemporary problems of endocrinology] Sovremennye voprosy
endokrinologii. Moskva, Medgiz. No. 2. 1963. 309 p.
(MIRA 16:5)

(ENDOCRINOLOGY)

VASYUKOVA, Yekaterina Alekseyevna, prof.; LAGUTINA, Ye.V., red.;
RAKITIN, I.T., tekhn.red.

[Living laboratories; about the endocrine glands] Zhivye
laboratorii; o zhelezakh vnutrennei sekretsii. Moskva,
Izd-vo "Znanie," 1964. 31 p. (Narodnyi universitet kul'-
tury: Fakul'tet zdorov'ia, no.6) (MIRA 17:3)

*

VASYUKOVA, Ye.A. (Moskva); ZAYRAT'YANTS, V.B. (Moskva)

Clinical and anatomical study of the state of the interstitial-hypophysial space in Itsenko-Cushing's disease under the effect of radiotherapy. Trudy TSentr. nauch.-issl. inst. rentg. i rad. 11 no.1:23-27 '64. (MIRA 18:11)

NIKITIN, I.K.; VASYUKOVICH, V.G. [Vasiukovych, V.H.]

New layout for a cooling pond with an ejector pump arrangement
and the use of hydraulic and thermal models to study it.
Visti Inst. hidrol. i hidr. AN URSS 21:8-13 '62. (MIRA 16:4)

(Hydraulics)

NIKITIN, I.K.; VASYUKOVICH, V.G. [Vasiukovych, V.H.]

Effect of agitation of flow on the cooling capacity of reservoirs.
Vistl Inst. hidrol. i hidr. AN URSS 23:44-46 '63. (MIRA 17:12)

VASYULINA, Ye.D.; OKSNER, A.N.

"Atlas of the descriptive morphology of higher plants" by Al.A. Fedorov, M.E. Kirpichnikov, and Z.T. Artiushenko. Reviewed by E.D. Vasiulina and A.N. Oksner. Bot.zhur. 42 no.3:484-485 Mr '57. (MLRA 10:5)

1. Botanicheskiy institut Akademii nauk Ukrainskoy SSR, Kiyev.
(Leaves--Morphology)

(Fedorov, Al.A.) (Kirpichnikov, M.F.) (Artiushenko, Z.T.)

VASYUNIN, S.V.; SIPILIN, P.M.

Principal trends in and outlook for overall mechanization of
hull construction. Sudostroenie no.11:63-65 N '65
(MIRA 19:1)

BAL'CHUK, G.A., kand. tekhn. nauk; VASYUNIN, S.V., inzh.

Planned and actual dimensions of welded angle joints in
hull structures. Sudostroenie 25 no.6:40-42 Je '59.
(MIRA 12:9)

(Hulls (Naval architecture)--Welding))

GRIGOR'YEV, A.A., kandidat tekhnicheskikh nauk; VASYUNIN, S.V., inzhener.

Conference devoted to problems of tolerances in the construction of
ship hulls. Sudostreemie 22 no.6:47 Je '56. (MIRA 9:9)
(Hulls (Naval architecture)) (Shipbuilding)

VASYUNIN, S.V.

GRIGOR'YEV, A.A., kandidat tekhnicheskikh nauk; VASYUNIN, S.V., inzhener.

Measures for reducing the number of fitting operations in building ship hulls. Sudostroenie 22 no.12:24-26 D '56. (MLRA 10:2)
(Hulls (Naval architecture))

VASYUNINA, A.D.

Fractionation of the nitrogenous substances of tobacco dependent
dried by various methods. Izv.vys.ucheb.zav.; pishch.tekh.
no.3:37-41 '62. (MIRA 15:7)

1. Krasnodarskiy institut pishchevoy promyshlennosti, kafedra
tekhologii tabaka.
(Tobacco—Drying) (Nitrogen compounds)

VASYUNINA, A. D.

Investigating the water-insoluble fraction of the nitrous substances of tobacco during the period of fermentation. Izv. vys. ucheb. zav.: pishch. tekhn. no.5:47-51 '62. (MIRA 15:10)

1. Krasnodarskiy institut pishchevoy promyshlennosti, kafedra tekhnologii tabaka.

(Tobacco—Curing)

VASYUNINA, A.D.

Studying the qualitative composition of water insoluble nitrogen compounds of tobacco dried by various methods. Izv.vys.ucheb.zav.; pishch.tekh. no.1:38-41 '63. (MIRA 16:3)

1. Krasnodarskiy institut pishchevoy promyshlennosti, kafedra tekhnologii tabaka.

(Tobacco--Analysis and chemistry)

28027
S/081/61/000/015/062/139
B117/B101

17.1150

AUTHOR: Vasyunina, G. V.

TITLE: Freezing out of carbon dioxide and water vapors in tubular heat exchangers

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 15, 1961, 292 - 293, abstract 15443 (Sb. "Dostizh. i zadachi v proiz-ve i primenenii kholoda v narodn. kh-ve SSSR". M., 1960, 261 - 269)

TEXT: The authors studied the process of freezing moisture and CO₂ out of the air contained in tubular heat exchangers. Moisture was frozen out in two models: (1) at atmospheric pressure in a heat exchanger consisting of 2 coaxial tubes: an inner 9-0.5 mm copper tube and an outer glass tube with vacuum jacket; (2) at a pressure of up to 7 atm in a heat exchanger consisting of several series-connected coaxial tubes. The experiments were made at different temperatures and different initial moisture contents. It was found that at a temperature difference of $< 30^{\circ}\text{C}$ neither snow nor oversaturated vapors are formed in the volume. Due to the formation of a

Card 1/2

X

Freezing out of carbon dioxide...

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frost layer the heat transfer number between gas and wall decreases to a different extent within a certain period of time, however by not more than half the original value, after which it remains constant. CO₂ was frozen out of the air taken from the interior of regenerators, in the tubes as well as in the space between the tubes of the apparatus. The latter were made of 8.1 mm-tubes in intervals of 13 mm. It was found that with increasing velocity which is due to the switching over of the regenerators, the frost is torn off the walls. [Abstracter's note: Complete translation.]

X

Card 2/2

VASYUNINA, G. V. and AKSEL'ROD, L. S.

"Determination of the longevity of performance of the freezers of"

Report presented at the 1st All-Union Conference on Heat- and Mass- Exchange,
Minsk, BSSR, 5-9 June 1961

42908

S/800/61/000/004/002/002

A061/A126

26.1160

AUTHORS: Vasyunina, G.V., Engineer, Aksel'rod, L.S., Doctor of Technical Sciences

TITLE: The freezing-out of moisture and carbon dioxide in tubular heat exchangers

SOURCE: Vsesoyuznyy nauchno-issledovatel'skiy institut kislородnogo mashinostroyeniya. Trudy. No. 4. Moscow, 1961. Apparaty i mashiny kislородnykh ustanovok, 184 - 207

TEXT: The principal problems related to the freezing-out of moisture and carbon dioxide in air-fractionating apparatus were studied experimentally. Two testing devices were used to investigate the effect of the temperature difference between the gas to be cooled and the cooling wall on the freezing-out process at atmospheric pressure and at pressures of up to 7 atm. The device used for experiments at atmospheric pressure featured a central copper tube, through which the cooling air was passed. The air to be cooled was passed through a glass tube being concentric with the copper tube. The two tubes were placed inside a glass

Card 1/3

The freezing-out of moisture and carbon dioxide

S/800/61/000/004/002/002
A061/A126

vacuum tube. The steam was frozen out on the external wall of the copper tube, the cooling air having been previously reduced to the desired temperature by means of liquid air. The other device, intended for experiments with 7 atm, was similar in design, its tubes being of copper. In low-pressure experiments the temperature of the air to be cooled ranged between 12 and 13°C at the entrance, and between +2.0 and -51.1°C at the exit. The air speeds were between 3.15 and 0.84 m/sec. The Reynolds number ranged between 3,620 and 12,820. The temperature differences between gas and cold wall ranged between 18 and 145°C at the hot end, and between 13 and 115°C at the cold end of the apparatus. The dew points ranged between +3 and -18.6°C at the entrance, and between -6.2 and -31°C at the exit. In high-pressure experiments the air temperatures ranged between 3.6 and 10.3°C at the entrance, and between -22.0 and -29.4°C at the exit. Air speeds and Reynolds numbers were about the same as in low-pressure experiments. The temperature differences between gas and cold wall ranged between 23.8 and 37°C at the hot end, and between 19 and 40.2°C at the cold end of the apparatus. The dew points ranged between -4.6 and -32.1°C at the entrance, and between -28.4 and -34.2°C at the exit. No crystal formation could be expected in the case of temperature differences of less than 30°C between gas and cold wall. Crystals were

X

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The freezing-out of moisture and carbon dioxide

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A061/A126

found to form in the beginning of the experiment in case of higher temperature differences. To prevent hoar frost from stripping off, the air speed at low pressure must not exceed 3 m/sec. Fog formation had to be expected in all mixtures in case of large temperature differences and laminar flow of the air. The fog formation depended on the physical properties of the mixture in case of small temperature differences and low initial steam concentrations. There are 13 figures and 4 tables.

Card 3/3

X

VASYUNINA, G V

L16473-65 ENG(j)/EIT(m)/EPP(e)/EPP(n)-2/EPR/EAP(t)/EIP(b) Pr-4/Ps-4/Pu-4
IJP(a)/RPL/Pa-4/ESD(ES)/AEDC(a)/ASB(a)-5/ASD(p)-2/AFCTR/AFTC(a) JD/NN/JN

13

ACCESSION NR AM4049552

BOOK EXPLOITATION

S/

B+1

Yapifanova, V. I. (Candidate of Technical Sciences); Aknel'rod, L. S. (Doctor of Technical Sciences); Gorokhov, V. S. (Engineer); Dy'khno N. M. (Candidate of Chemical Sciences); Cherny'shev, B. A. (Engineer); Grushevskiy, V. M. (Engineer); Antipenkov, V. M. (Engineer); Gil'man, I. I. (Engineer); Mironlavskaya, YU. A. (Engineer); Sergeyev, S. I. (Candidate of Technical Sciences); Denishchuk, B. V. (Engineer); Kagner, M. G. (Candidate of Technical Sciences); Vasyunina, G. V. (Candidate of Technical Sciences); Glebova, L. I. (Candidate of Technical Sciences); Denisenko, G. F. (Candidate of Technical Sciences); Katina, N. F. (Candidate of Technical Sciences); Morozov, A. I. (Candidate of Technical Sciences); Martyushov, B. I. (Engineer)

Purifying air by deep cooling; technology and apparatus, in two volumes. V. 2: Industrial plants, machinery and accessory equipment (Razdeleniye vozdukh metodom glubokogo okhlazhdeniya; tekhnologiya i oborudovaniye, v dvukh tomakh. t. 2: Promy'shlennyye ustanovki, mashinnoye i vspomogatel'noye oborudovaniye), Moscow, Izd-vo "Mashinostroyeniye", 1964, 591 p. illus., biblio., index. Errata slip inserted. 3,000 copies printed.

TOPIC TAGS: oxygen generation, argon, crypton, neon, xenon, centrifugal
Card 1/3

L 16473-65
ACCESSION NR AM4049552

compressor, pump, liquid oxygen, liquid nitrogen, air purification

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SUB CODE:0C

SUBMITTED: 08Feb64

NR REF SOV: 060

OTHER: 029

Card 3/3

AKSEL'ROD, L.S., doktor tekhn.nauk; VASYUNINA, G.V., kand.tekhn.nauk

Tubular freezers of oxygen plants. Khim. i neft. mashinostr.
no.1:20-24 Ja '65. (MIRA 18:3)

VASYUNINA, G.V., kand. tekhn. nauk; MAYZEL'S, I.N., inzh.

Freezing-out of carbon dioxide in the regenerator and freeze-out apparatus of the ER-6 plant developed by the All-Union Scientific Research Institute of Industrial Oxygen Apparatus Construction.
Trudy VNIKIMASH no.9:56-74 '65. (MIRA 18:6)

3160 VASYUNINA, L. I.

Khristofor Kolumb I/E60 Otkrytye. Tashkent. Ob'yedin. izd. "Kzyl Uzbekistan,"
"Pravda Vostoka" i "Vzbekistoni surkh" 1954.16 s 20 sm (Besedy o Nauke. No 30)
45.782 ekz. 40 k. Ma uzbek. Ya. (54-50656 91 (092 Kolumb) + 91(7)04

PROCESSING AND PROPERTIES INDEX

10

Oxidation of nicotine to nicotinic acid. N. A. Vasyunina, A. A. Beer and N. A. Probrashenskii. *J. Applied Chem. (U. S. S. R.)* 16, 200-10(1943)(French summary).
 —The authors conducted a series of expts. on the oxidation of nicotine to nicotinic acid; the best conditions are shown below. Nicotine (5 g.) in 25 cc. 37% HNO₃ was added slowly to 100 cc. 37% HNO₃ at 98°; after further heating for 3 hrs. at 98°, the soln. was concd., neutralised, acidified to Congo with HCl, treated with Na₂HPO₄, evapd. to dryness and the nicotinic acid extd. with boiling BuOH; yield 70%, m. 228°. Nicotine (5 g.) in 20 cc. water was slowly added to 20 g. KMnO₄ in 80 cc. water at 70°, the soln. was cooled to 50°, the rest of the KMnO₄ (as required by theory) was added in solid form, and the mixt. was heated to 80-8° until colorless; after filtration, the isolation as above gave 80% nicotinic acid. Use of MnO₂ in a 35% H₂SO₄ soln. of nicotine at 100-5° gave a 75% yield.
 O. M. Kosolapoff

A.S.M.-S.L.A. METALLURGICAL LITERATURE CLASSIFICATION

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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VASYUNINA, N. A.

USSR/Chemistry - Amines
Chemistry - Dehydrogenation

Mar 1948

"Catalytic Dehydrogenation of Amines and Its Kinetics. I. The Dehydrogenation of 1-Diethyl Amino-4-Amino-pentane," A. A. Balandin, N. A. Vasyunina, Chair of Org Catalysts, Chem Faculty, Moscow State U, 9 pp

"Zhur Obshch Khim" Vol XVIII (LXXX), No 3

On basis of 1-diethylamino-4-aminopentane (I) as an example authors determined that primary amines which correspond to secondary alcohols, adapt themselves to catalytic dehydration. Studies of kinetics of dehydration of I at 245 to 325°. Deposits were observed on copper. Submitted 26 Feb 1947.

PA 69T19

1. 1. 1.

ARYENIA, N. A. -- "Catalytic Dehydrogenation of Aliphatic Aldehydes."
Sub 2 May 52, Moscow: Order of Lenin State University. (Dissertation for the degree of Candidate in Chemical Sciences).

SO: Vechernaya Moskva January-December 1952

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VASYINTNA N D

[Faint, illegible text, possibly a stamp or signature]

CHEPIGO, S.V.; VASYUNINA, N.A.

Production of polyatomic alcohols from nonedible vegetable raw materials. Gidroz. i lesokhin. prom. 9 no.6:3-6 '56.(MLRA 9:10)

1.Vsesoyuznyy nauchno-issledovatel'skiy institut gidroliznoy i sul'fitno-spirovoy promyshlennosti (for Chepigo). 2.Institut organicheskoy khimii Akademii nauk SSSR.
(Alcohols) (Raw materials)

VASYUNINA, N.A.

CHEPIGO, S.V., kand.tekhn.nauk; BALANDIN, A.A., akademik; VASYUNINA, N.A.,
kand.khim.nauk; SERGEEV, A.P.

Preparing polyatomic alcohols by means of catalytic conversion
of polysaccharides of vegetable origin. Khim.nauka i prom. 2
no.4:416-424 '57. (MIRA 10:11)

(Alcohol)

(Polysaccharides)

BALANDIN, A.A.; VASYUNINA, N.A.; BARYSHEVA, G.S.; CHEPIGO, S.V.

Catalysts for hydrogenation of polysaccharides. Izv. AN SSSR. Otd.
khim. nauk no. 3:392 '57. (MLRA 10:5)

1. Institut organicheskoy khimii im. N.D. Zelinskogo Akademii nauk
SSSR i Vsesoyuznyy nauchno-issledovatel'skiy institut gidroliznoy
promyshlennosti.

(Catalysts) (Hydrogenation)
(Polysaccharides)

Vasyunina, N. A.

AUTHORS: Balandin, A. A., Academician, and
Vasyunina, N. A.

20-1-22/42

TITLE: Note on the Selective Hydration of Monosaccharides and
Polyatomic Alcohols (Izbitatel'noye gidrirovaniye
monosakharidov i mnogoatomnykh spirtov).

PERIODICAL: Doklady AN SSSR, Vol. 117, Nr 1, pp. 84-87 (USSR) - ~~1956~~ 1957

ABSTRACT: I. According to scientific and patent publications
(reference 1) the following reactions take place above
nickel catalysators in an aqueous solution at a hydrogen
pressure of 150-300 atm. 1) Monosaccharides are hydrated
almost entirely to polyatomic alcohols at a temperature of
120-130°C (xylose to "xylite", glucose to sorbitol) 2) At
a temperature rise, the hydroxyl groups of the alcohols are
split off, primarily the end groups. In this way 1,2
propylene glykol is produced from glycerine, and isopropyle
alcohol from this substance. Alcohols of higher order do
not loose their hydroxyl groups as easily as the alcohols
of lower order. 3. The production of uric acids from
monosaccharides (in quantities not exceeding a few per-
cents mills) at a lack of hydrogen is even more difficult

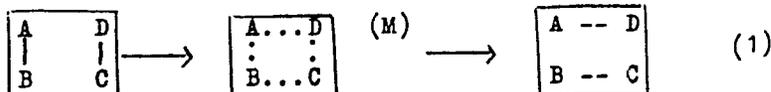
Card 1/4

Note on the Selective Hydration of Monosaccharides and Polyatomic Alcohols

20-1-22/42

which acids cause an acid milieu-reaction. 4) The decomposition reactions of the C - C combination, occurring mostly in the center of the molecule, to a certain extent compete with this reactions, in general, however, they take place at even higher temperatures (220-230°C). In this way propylene glykol and glycerine is produced from sorbitol. II. It appears from the references 3 and 4, that at an hydrolysis of hydrocarbons the cracking of the C - C combination occurs in the position 3,4. The explanation of this phenomenon given by Shmidt is refuted by the authors, just as the opinion by Natta, Rigamonti and Beata (reference 4). III. Subsequently, the multiplett-theory of catalysis is applied to the reactions (reference 5). It furnishes the correct sequence of hydration and hydrolysis of various compounds, comprising furane derivates, "tripticene" and of organic peroxydes. This theory separates the reacting atoms within the molecule into index-, doublet groups

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Note on the Selective Hydration of Monosaccharides and
Polyatomic Alcohols

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These atoms are in contact with the catalyst (but not necessarily at the same time). The reaction velocity is the higher, the better the structural and energetic correspondence is complied with. This correspondence is the more perfect, the lower the energetic threshold ($-E$), or, the greater the value $E = -Q_{AB} - Q_{CD} + (Q_{AK} + Q_{BK} + Q_{CK} + Q_{DK})$ (2)

If the indices of the reactions concerned are taken and the values of Q are introduced into equation (2), the results of table 1 for a nickel catalyser are obtained. IV. The influence of structure on the velocity of the reaction of one special type is effected by the substituents, which are posed outside the bounds ("zaramochnyye zamestiteli"). In this way the introduction of a substituent, i.g. at the atom A in formula (1) influence the quantity Q_{AB} and Q_{AK} in formula

(2). From this results a modification of E (reference 11) and subsequently the reaction velocity is modified. From the further equations (3) it follows, that by means of the introduction of a substituent at A $\delta E = -\delta \Delta F - (T\delta \Delta S - \delta Q_{AD} + \delta Q_{AK})$ (4). From this the equation $\Delta E \approx -\delta \Delta F$.

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is deduced. From this it follows, that the reaction proceeds the faster, the more the free energy of the reaction $\delta \Delta F$ is reduced by the process of substituting. The values of $\delta \Delta F$ are given in table 2 and 3 for the compounds under investigation here. The sequence of reactions computed from the tables are in accordance with the experimental results. It follows, therefore, that the application of the multiplet theory in the field of the hydration of monosaccharides and of polyatomic alcohols possesses good prospects. There are 3 tables and 12 references, 9 of which are Slavic.

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