ZYCZKOWSKI, M.

Computation of the "exertion" of material in subcritical states.
Bul Ac Pol tech 10 no.6:[327]-[336] '62.

1. Department of Technical Mechanics, Technical University, Krakow.
Presented by W.Olszak.

ZIĘZKOWSKI, M. (Kraków)

Integrals with respect to the modulus of squared complete elliptic integrals. Zastos mat 6 no. 1:65-78 '61.

ZYCZKOWSKI, Michal

Border surfaces in the theory of exertion. Rozpr inż PAN 9 no.4:609-637 '61.

1. Katedra Mechaniki Technicznej, Politechnika, Krakow.

ZYCZKOWSKI, Michal

Computation of the "effort" of material in subcritical states.
Rozpr inz PAN 10 no.2:279-305 '62.

1. Politechnika, Krakow.

P/006/62/010/003/004/006
D237/D306

AUTHORS: Mrowiec, Mieczysław and Życzkowski, Michał

TITLE: The elastic load carrying capacity of a thick-walled pipe-line

PERIODICAL: Rozprawy inżynierskie, v. 10, no. 3, 1962, 517-530

TEXT: This is a generalization of M. Mrowiec's earlier work dealing with a thin-walled pipe. Three cases are considered: freely supported pipe, end-clamped pipe and a cylinder closed at both ends, and all are treated collectively by introducing $\varphi = 0$, ν, $\frac{1}{2}$ respectively into the expression for the axial stress. The upper bound of the equivalent stress δ_o is found assuming the Huber-Mises-Hencky hypothesis and it is shown that it can be reached at the inner or outer radius only. The limit curves are elliptical arcs in the Mv.p coordinate system where M = bending moment, p = internal pressure. The dependence of the limit curves on the wall thickness and on the parameter φ is shown graphically as well as an example of the pattern of equal δ_o in a cross-section of the

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The elastic load ...

pipe. There are 4 figures and 2 tables.

ASSOCIATION: Politechnika Krakowska (Cracow Polytechnic)

SUBMITTED: December 11, 1961

ZYCZKOWSKI, M. (Krakow)

Integrals with respect to the modulus of squared complete elliptic integrals.
Zastos mat 6 no.1:65-78 '61

PIECHNIK, Stefan (Krakow); ZYCZKOWSKI, Michal (Krakow)

Plastic interaction curve for bending and torsion of a circular bar. Archiw medh 13 no.5:669-626 '61.

1. Technical University of Krakow.

ZYCZKOWSKI, Michal (Krakow)

Creep buckling of bars with discontinuous transverse non-homogeneity. Archiw bud masz 8 no.3:299-316 '61.

P/006/62/010/002/001/001
D286/D308

AUTHOR: Życzkowski, Michał

TITLE: Computing the exertion of material in subcritical states

PERIODICAL: Rozprawy inżynierskie, v. 10, no. 2, 1962, 279 - 304

TEXT: This is a continuation of the author's previous papers (Rozprawy inżynierskie, v. 4, no. 8, 1960, and v. 4, no. 9, 1961) and contains general methods of calculating the degree to which the physical state of material approaches a dangerous point. Solutions are obtained for the surface integrals used in the formulas for the measure of material exertion in sub-critical states. Two-dimensional space of exertion factors is considered by analyzing the limit curves composed of rectilinear segments and for which closed-form solutions are obtained using geometrical and analytical methods, thus enabling the solution of problems of plane stress or of one principal stress variable together with a change of temperature or humidity. Similar solutions are also given for the limit curve in the form of an ellipse and a parabola for computing cases where stresses and

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temperature act simultaneously. The influence of the distribution of probability density assumed on the results is studied and analyzed from graphs and tabulated results. There are 11 figures and 7 tables.

ASSOCIATION: Politechnika Krakowska (Cracow Polytechnic Institute)

SUBMITTED: September 17, 1961

ZYCZKOWSKI, Michal (Krakow)

Discussing the needs of supplementing the Polish PN-56/B-03200 standard specification of compressed bar design. Archiw inż lad 6 no.3:383-393 '60.

ZYCZKOWSKI, Michal (Cracow)

Creep buckling of continuously longitudinally non-homogeneous and non-prismatic bars. Archiw mech 13 no.2:213-237 '61.

1. Department of Mechanics of Continuous Media, Institute of Basic Technical Problems, Polish Academy of Sciences, Warsaw.

ZYCZKOWSKI, Michal (Cracow)

Geometrically non-linear creep buckling of bars. Archiw mech 12 no.3:379-411 '60.

1. Department of Mechanics of Continuous Media, Institute of Basic Technical Problems, Polish Academy of Sciences, Warsaw.

ZYCZKOWSKI, Michal (Krakow)

Creep buckling of bars with discontinuous non-homogeneity. Archiw bud masz 8 no.3:299-316 '61.

ZYCZKOWSKI, M. (Krakow)

Integrals with respect to modulus of the squared complete elliptic integrals. Zastos mat 6 no.1:65-78 '61.

(Integrals) (Functions, Elliptic)

21260
P/006/60/008/004/007/010
D265/D303

10.7000
24.4200 1327

AUTHOR: Życzkowski, Michał

TITLE: Exertion of material in sub-critical states

PERIODICAL: Rozprawy inżynierskie, v. 8, no. 4, 1960, 725-761

TEXT: The author analyzes the exertion of material defined as the degree to which the physical state of material at a given point approaches the dangerous state such as the elastic limit, the yield point or the ultimate strength. Sub-critical states are considered, in which the elementary measure of exertion ω_0 was assumed until recently to be the effective stress, or the ratio of this stress to its dangerous limit in the case of pure tension denoted by K_r and described by

$$w_0 = \frac{\sigma_0}{K_r}, \tag{1.3}$$

and

$$w_0 = 1 - \frac{\overline{PN}_0}{\overline{ON}_0} = 1 - \frac{r_{r_0}}{r_{a_0}} = 1 - \frac{1/r_{a_0}}{1/r_{r_0}} \tag{1.5}$$

The geometric representation of these values is illustrated in Fig. 1

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where $$w_0 = \frac{\overline{OP}}{\overline{ON_0}}. \qquad (1.4)$$

After analyzing extensively the existing hypotheses for the exertion of material, the author concludes that this elementary measure criterion implies the possibility of reaching the limit surface at one point N_0 only, and is valid for proportional loading. The notion of a general measure of exertion ω is introduced and defined

$$w = 1 - \frac{\mathfrak{M}(1/r_0)}{\mathfrak{M}(1/r_P)} \qquad (3.3)$$

and

$$\mathfrak{M}(1/r_P) = \frac{\underset{\kappa_p}{SS}(1/r_P)\, pdf_P^{(n-1)}}{\underset{\kappa_p}{SS}\, pdf_P^{(n-1)}} \qquad (3.4)$$

where the probability of motion of a point in various directions of the space of exertion is taken into consideration as shown in Fig. 2. The practical importance of such a definition is illustrated by considering the sub-critical state in the pre-stressed concrete. The measure ω takes into

Exertion of...

account other factors influencing the exertion such as temperature or humidity, besides the principal dangerous states of stresses, which are considered in the elementary measure ω_0. In fact, when represented in Hadamard's notation, the integrals appearing in Eq. (3.4) concern a n-dimensional space. When the probability p depends on the direction in the space of exertion factors only and does not depend on the location of the point p, the general formula (3.3) takes the form

$$w = 1 - \frac{\underset{K_0}{SS}(1/r_0)\,p\,df_0^{(n-1)}}{\underset{K_P}{SS}(1/r_P)\,p\,df_P^{(n-1)}}. \tag{3.5}$$

and after iteration in spherical co-ordinates the form

$$w = 1 - \frac{\int_0^{\pi}\sin^{n-2}\varphi_1\,d\varphi_1 \ldots \int_0^{\pi}\sin\varphi_{n-2}\,d\varphi_{n-2}\int_0^{2\pi}\frac{p(\varphi_1,\varphi_2,\ldots,\varphi_{n-1})\,d\varphi_{n-1}}{r_0(\varphi_1,\varphi_2,\ldots,\varphi_{n-1})}}{\int_0^{\pi}\sin^{n-2}\varphi_1\,d\varphi_1 \ldots \int_0^{\pi}\sin\varphi_{n-2}\,d\varphi_{n-2}\int_0^{2\pi}\frac{p(\varphi_1,\varphi_2,\ldots,\varphi_{n-1})\,d\varphi_{n-1}}{r_P(\varphi_1,\varphi_2,\ldots,\varphi_{n-1})}} \tag{3.8}$$

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Exertion of...

Examples are given for computing the exertion by using formula (3.3) for the two-dimensional space of the exertion factors when the limit surface in the form of Huber-Mises-Hencky's cylinder given by

$$(\sigma_1 - \sigma_2)^2 + (\sigma_2 - \sigma_3)^2 + (\sigma_3 - \sigma_1)^2 = 2K_r^2 \qquad (5.1)$$

and for the case of one-dimensional space of the exertion factors when the limit surface is assumed in the form of Burzyinski's paraboloid is given by

$$\sigma_i^2 + 3(K_c - K_r)\,\sigma_m - K_c K_r = 0 \qquad (2.12)$$

The exertion is also investigated in the case of two point distribution of probability in a one-dimensional space of exertion factors. The results obtained in these examples are tabulated and represented in the form of graphs used for investigating optimum initial stresses and minimum material exertion giving a certain appraisal of the advantages of the use of such stresses. There are 8 figures, 5 tables and 74 references: 39 Soviet-bloc and 35 non-Soviet bloc. The four most recent references to the English-

Card 4/6

Exertion of...

language publications read as follows: P. Duwez, Materials for High Temperature Aircraft Structures, High Temperature Effects in Aircraft Structures, Pergamon Press, 1958, 58-79; A. Kelly, C. Chiou, The Temperature Dependence of Flow Stress of an Age Hardened Alloy, Acta Metallurgica, v. 9, no. 6 (1950) 565-571; B. E. Gatewood, Thermal Stresses, McGraw-Hill, New York 1957; L. W. Hu, An Experimental Study on the Fracture of Metals under Hydrostatic Pressure, J. Mech. Phys. Solids, v. 2, no. 4, (1956), 96-103.

ASSOCIATION: Zakład mechaniki ośrodków ciągłych IPPT, PAN (The Institute of Mechanical Continual Media, IPPT, PAS)

SUBMITTED: April 23, 1960

Card 5/6

28216
P/033/60/012/003/007/007
D242/D302

24.4200

AUTHOR: Zyczkowski, Michal (Kraków)

TITLE: Geometrically non-linear creep buckling of bars

PERIODICAL: Archiwum mechaniki stosowanej, v. 12, no. 3, 1960, 379 - 411

TEXT: The present paper is connected with the first approach to creep buckling - the analysis of deflections of an initially curved bar. The author proposes to clarify the problem from the view point of geometrical linearity. For this purpose he first considers the infinitesimal linearity. For this purpose he first considers the infinitesimal small deflections of Wagner's model which is a very simple model with one degree of freedom and was introduced probably for the first time by H. Wagner, G. Kimm (Ref. 37: Bauelemente des Flugzeugs (Construction Elements of the Aircraft), 2nd ed., 1942). This model is shown in Fig. 1. The author assumes the following relation between the torque M and the angle of twist φ, cor-

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Geometrically non-linear creep ...

responding to Norton's creep law

$$\dot{\varphi} = \frac{\dot{M}}{A} + \frac{M^n}{B} \qquad (2.2)$$

where A and B are constants, corresponding to E and λ, respectively. For the sake of simplicity, the author assumes n to be an odd integer. In the physically linear case n = 1, the author obtains

$$\ln \varphi = \frac{m}{1 - m} \tau + C \qquad (2.10)$$

where τ - dimensionless time. The constant C must be found from the initial (boundary) condition. Assuming $\varphi = 0$ for $\tau = 0$ (mathematical buckling), one should obtain $C = -\infty$ and no deflections except m = 1 (Euler force). The author then briefly discusses the case of a small initial deflection (technical buckling) which he states is much more interesting for practical applications. He states that in the linear case the angle of deflection increases infinitely with infinitely increasing time, whereas in the non-linear case it increases infinitely already at the moment

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$$\tau = \tau_k = \frac{1 - m}{(n - 1)m^n \varphi_+^{n-1}} = \frac{(1 - m)^n}{(n - 1)m^n \varphi_-^{n-1}} \qquad (2.18)$$

the quantity τ_k is called the critical time or working period of the bar. He mentions that he introduced a contradiction by assuming the small-deflection theory and considering infinitely large deflections. In order to clarify this contradiction he then analyzes the same problem, using the finite-deflection theory. In this connection he gives several numerical values of the function $\omega_1(\varphi)$ and $\omega_2(\varphi)$ for $n = 1$ and $n = 3$, and compares numerical values of finite deflections of Wagner's model with those of infinitely small deflections of the same model. In Fig. 2 the author gives a graph comparing deflections of Wagner's model for $n = 1$ and $n = 3$, for both the finite deflections and the infinitely small deflections, whereby the latter are denoted $\tilde{f}$ to distinguish them from the former denoted f. The diagram shows the relations $f = f(\tau)$ and $\tilde{f} =$

Geometrically non-linear creep ...

$= \tilde{f}(\tau)$. The author then discusses briefly the idea of "critical time" from the theoretical and practical point of view. Fig. 2 shows that the finite deflection theory gives no significant differences between n = 1 and n = 3 over and above a more rapid development of buckling in the latter case. Therefore, those differences are entirely fictitious and the idea of the previously defined critical time seems to be without physical sense. An analogy exists with eccentrically compressed elastic bars where infinitely large deflections are found when the Euler force is acting and the small deflection theory is used. However, the Euler force has an extremely important meaning for axially compressed bars, whereas "critical time" τ_k seems to lack even minor interpretation. The practical point of view is somewhat different. For n = 3 (physical non-linearity) where τ approaches τ_k the deflections increase very rapidly, and the real working period of the bar is in fact close to τ_k. In this case, τ_k presents a criterion of failure, but vor n = 1 there is $\tau_k \rightarrow \infty$ and the real working period is undoub-

Geometrically non-linear creep ...

tedly finite (in the present case it is a time of order $\tau = 2$). Thus the weaker the physical non-linearity, the greater the difference between τ_k and the real working period. The general criterion of failure of a structure subjected to creep buckling should be chosen in a different way, for instance as a criterion of limited deflections or a criterion of limited strains. In the case of strongly non-linear materials both criteria will give similar results. The quantity τ_k, however, must be used with the greatest caution, and in physically linear cases only a deformation-criterion may give correct results and be used for design. In his discussion, the author then studies the real bar and considers first the finite deflections of a physically linear bar. He states that first the elastic deflections, which appear immediately when the load is applied, whould be calculated. The author then discusses creep deflections, first in the physically linear case,

$$\dot{\varepsilon} = \frac{\dot{\sigma}}{E} + \frac{\sigma}{\lambda} . \qquad (1.3)$$

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Geometrically non-linear creep ...

He considers an element of an initially curved bar (Fig. 3). For the discussion he uses Bernouilli's assumption of plane cross-sections. He obtains the basic equation of creep bending

$$\dot{M} + M = \dot{\varkappa}\, EI \qquad (4.9)$$

where dots denote differentiation with respect to τ. He uses this equation in all further considerations concerning creep buckling, the influence of normal force being disregarded. He then considers a bar with one end clamped and the other free, for which he assumes a system of coordinates s -v and introduces dimensionless variables x, y, defined by the formulae

$$x = \frac{\pi}{2l}s, \qquad y = \frac{\pi}{2l}v. \qquad (4.10)$$

He obtains the following non-linear partial differential equation of the third order

$$\dot{y}''(1 - y'^2) + y'y''\dot{y}' + m(y + \dot{y})(1 - y'^2)^{3/2} = 0 \quad (4.14)$$

with the following boundary conditions

Goemetrically non-linear creep ...

$$/y/_{x=0} = 0, \quad /y'/_{x=\pi/2} = 0 \tag{4.15}$$

and the initial condition

$$y = y_{+}(x) \quad \text{for } \tau = 0. \tag{4.16}$$

For solving Eq. (4.14) the author uses the simple method of collocation because the approximate methods would be very difficult in this case. He assumes the solution in the form corresponding to elastic deflections with the parameter m replaced by a functions of time, which he denotes by $4a^2$, thus

$$y = f\sqrt{1 - a^2f^2}\,\frac{sn(2ax)}{dn(2ax)} \tag{4.18}$$

where $a = a(\tau)$ and $f = f(\tau)$ are two unknown functionsof time. In the further discussion the author then also points out that the most important point x (or line in time) is $x = \pi/2$ (fixed end), because in this point both bending moment and curvature at ma- ximum. He includes several numerical values for the various func-

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Geometrically non-linear creep ...

tions used in the calculation. The author then discusses the case of finite deflections of a physically non-linear bar. He starts with the general case of Norton's law (1.1) and limits himself to the theoretical I-section. In his discussion he obtains the following non-linear partial differential equation

$$\left\{ \dot{y}''(1-y'^2)+y'y''\dot{y}'+m\dot{y}(1-y'^2)^{3/2}+ \right. \qquad (5.13)$$
$$\left. +\frac{m^n}{2}\left[(y+\eta\sqrt{1-y'^2})^n+(y-\eta\sqrt{1-y'^2})^n\right](1-y'^2)^{\frac{3}{2}}=0. \right.$$

which, in a certain sense, constitutes a generalization of Eq. (4.14) (more general creep law, but less general form of cross-section). The solution of this Eq. (5.13) is obtained with boundary conditions (4.15) and initial condition (4.16) by help of the collocation method. The author points out that the development of creep buckling in the physically non-linear case does not differ qualitatively from the physically linear case, and the differences pointed out in certain papers should not be treated as essential. There are

Card 8/12

Geometrically non-linear creep ...

10 figures, 7 tables and 44 references: 17 Soviet-bloc and 27 non-Soviet-bloc. The four most recent references to the English-language publications read as follows: N.J. Hoff, Creep buckling, Aero. Quart., 7, 1956, 1 - 20; J.L. Sanders, H.G. McComb jr., F.R. Schlechte, A variational theorem for creep with application to plates and columns, NACA Tech. Note 4003, May 1957; N.J. Hoff, A survey of the theories of creep buckling, Proc., Third US Nat. Congr. Appl. Mech., Brown Univ. 1958, publ. Pergamon Press 1958; M. Zyczkowski Some problems of creep buckling of homogeneous and non-homogeneous bars, in "Non-Homogeneity in Elasticity and Plasticity", Symposium, Warsaw, September 2-9, 1958, Pergamon Press, New York-London 1959, 353-363.

ASSOCIATION: Department of Mechanics of Continuous Media, IBTP Polish Academy of Sciences

SUBMITTED: February 13, 1960

Card 9/12

ZYCZKOWSKI, M.

Stress in working materials at the subcritic state. Bul Ac Pol tech 8 no.7:333-341 '60. (EEAI 10:3)

1. Anstalt fuer Mechanik Kontinuierlicher Medien, Institut fuer Grundprobleme der Technik, Polnische Akademie der Wissenschaften
Presented by W.Olszak.
(Strains and stresses)

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R002065720020-7"

PHASE I BOOK EXPLOITATION POL/4231

Polskie towarzystwo matematyczne

Prace Matematyczne, I, 2 (Mathematical Transactions, Vol. 1, pt. 2). Warszawa, Panstwowe wyd-wo naukowe, 1955. 441 p. 1463 copies printed. Errata slip inserted.

Editorial Committee: Wladyslaw Orlicz (Chief Ed.), Stefan Drobot (Deputy Chief Ed.), Adam Bielecki, Stanislaw Hartman, Jan Mikusiński, Roman Sikorski, Marceli Stark, Hanna Szmuszkowicz, Krzysztof Tatarkiewicz, and Wlodzimierz Wrona.

PURPOSE: This book is intended for mathematicians.

COVERAGE: The book consists of a collection of articles on analysis, series, and function theory. Among the topics discussed are: the solution of Diophantine equations, set translation, power series, measure by a function, operational calculus, approximation of a function, and functional spaces. References and summaries in English and Russian are found at the end of most of the articles. No personalities are mentioned.

AVAILABLE: Library of Congress

Card 3/3

AC/wbc/mas
9-16-60

9

ZYCZKOWSKI, M.; WNUK, M.

The influence of a weakened bar on the critical force in an elastic plastic range. p. 311.

ROZPRAWY INZNIERSKIE. (Polska Akademia Nauk. Instytut Podstawowych Problemow Techniki) Warszawa, Poland.
Vol.7, no.3, 1959.

Monthly list of East European Accessions (EEAI) LC, Vol.9, no.1, Jan. 1959.

Uncl.

5778 624.173.2

Życzkowski M. The Influence of the Compressibility of Material on the Stress Distribution in Elastic-Plastic Plates.

„Wpływ ściśliwości materiału na rozkład naprężeń w płytach częściowo uplastycznionych". Archiwum Budowy Maszyn (PAN). No. 1, Warszawa, 1958, pp. 53—87, 5 figs.

The solutions of the theory of elastic-plastic plates, developed chiefly by A. A. Iliushin and W. W. Sokolovski, are based for the most part on the assumption of non-compressibility of the material both in the elastic and the plastic zone. The stress distribution is then a trapezoidal one, and the relations between the bending moments and the main curvatures of the plate are particularly simple. The object of the present paper is to analyse the effect of the compressibility of the material on the stress distribution, and to investigate the advisability of introducing the assumption of non-compressibility of the material in calculating plates occurring in practical applications, i.e. plates for which, as a rule, the Poisson coefficient is $\nu = 0.3$. It is shown that in the elastic zone the error caused by regarding a compressible material as a non-compressible one may exceed 40% of the intensity of the stresses. In the plastic zone, this error decreases and tends to zero when the carrying capacity of the plate is exhausted. The solution for the plastic zone is obtained by the method of small parameter. This parameter, characterizing compressibility, has, as justified in the text, been taken to be $u = 1-2\nu$. The paper also gives the dependence of the bending moments on the curvatures for

THE INFLUENCE OF

a compressible material. Some authors have used trapezoidal stress distributions, assuming a strict stress distribution in the elastic zone, and postulating a constancy and continuity of stresses in the plastic zone. This is equivalent to the assumption in the plastic zone of a constant Poissout coefficient instead of the experimentally verified variable value tending to 1/2. Errors then occur only in the elastic-plastic range and increase with the approach to the limit state. However, the analysis made in the paper shows them to be smaller — not exceeding 30% of the intensity of the stresses — than when the non-compressibility of the material is assumed.

MOSKATIEV, P.P.; CHISTYAKOV, N.I., doktor tekhnicheskikh nauk, professor, retsenzent; SARKISYAN, B.G., inzhener, retsenzent; ZYDAKIN, A.I., inzhener, redaktor; TUBYANSKAYA, F.G., izdatel'skiy redaktor; ZUDAKIN, I.M., tekhnicheskiy redaktor

[Control and adjustment of units of electronic apparatus] Regulirovka i nastroika blokov radiotekhnicheskikh ustroistv. Moskva, Gos. izd-vo obor. promyshl., 1957. 106 p. (MLRA 10:5)
(Electronic control)

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R002065720020-7"

1407

Zydanowicz, J. Electric Computation of High Tension Lines by Means of Nomographs. 621.3.017.3

„Obliczanie elektryczne linii wysokiego napięcia przy pomocy nomogramów drabinkowych" Przegląd Elektrotechniczny. No. 9, 1951. pp. 354—365, 12 figs

The article contains nomographs to aid the rapid determination of voltage loss and drop, and power loss, in high tension conductor lines. These nomographs can be used both in planning new sectors and in defining the carrying capacity of existing high tension grid sectors.

ZIOMIŃSKA, Barbara, mgr inż.

Gas-insulated and vapor-cooled transformers. Przegl elektrotechn 41 no.3:89-91 Mr '65.

ZYCZKOWSKI, M.; WALCZAK, J.

A new method of computing the dimensions of bars with considerable curvatures, p.23.

(ARCHIWUM BUDOWY MASZYN. Vol. 4, No. 1, 1957. Warszawa, Poland)

SO: Monthly List of East European Accessions (EEAL) LC. Vol. 6, No. 10, October 1957. Uncl.

GALOS, Marian; ZYCZKOWSKI, Michal (Krakow)

Analytical method of computing the limit load carrying capacity of bars subject to torsion. Rozpr inz PAN 12 no.2:267-296 '64.

1. Technical University, Krakow.

ŻYCZYŃSKA, Irena; LUDWICZAK, Rufina Stella

The neutral components of lupine. Pt.1. Rocz chemii 37 no. 7/8: 757-763 '63.

1. Zaklad Chemii Organicznej i Biologicznej, Akademia Medyczna, Poznan.

WISNIEWSKI, B., inz.; ZYCHOWICZ, W., inz.

Production capacity and economic planning. Przegl techn 84 no.34:3 25 Ag '63.

Application of Guggenheim-Smith extrapolation to dipole-moment determinations. Henryk Całus and Barbara Zyczyńska (Politech., Warsaw). *Zeszyty Nauk. Politech. Warszawskiej Chem.* No. 2, 61-70(1957)(English summary).—Dipole moments of nitrobenzene, benzophenone, and acetophenone were detd. by dielec.-const. measurements in solns. of C_6H_6 satd. with H_2O. The values, 3.93, 3.00, and 2.91, resp., all ±0.01, were obtained by extrapolations after Guggenheim-Smith and LeFèvre-Vine. J. Stecki

CATEGORY : Poland

ABS. JOUR. : RZKhim., No. 21 1959, No. 75772

AUTHOR : Domagalina, E., Ludwiczak, R. S., and Zyczynska, L
INST. : Not given
TITLE : Beta-Sitosterol from Tall Oil Produced in Poland

ORIG. PUB. : Przemysl Chem, 37, No 8, 540-542 (1958)

ABSTRACT : The importance of tall oil as a valuable industrial source of phytosterol is discussed. The physical properties of Polish ST Grade tall oil have been determined and a convenient method for the extraction of phytosterol, a raw material for the production of steroid hormones, and a method for the purification of beta-sitosterol are given.

From authors' summary

CARD: 1/1

ZYCZYNSKA, Irena, dr

3-terpene and sterol components of narrow-leaf lupine (Lupinus angustifolius L.) seeds. Wiad chem 16 no.12:769-771 D '62.

1. Zaklad Chemii Organicznej i Biologicznej, Akademia Medyczna, Wroclaw.

STEFANKIEWICZ, Zdzislaw, Mgr Inz.

Fast operating bridge impulse resistanc relay for remote-controlled protection of ve y high voltage networks. Przegl elektrotechn 41 no.2:49-53 F '65.

ZYDANOWICZ, J

"Universal diagrams of impedance and admittance for the analysis of the performance of distance and directional relays during faults."

p. 289 (Archiwum Elektrotechniki Vol 7, No. 2, 1958, Warsaw, Poland)

Monthly Index of East European Accessions (EEAI) LC, Vol, 8, No. 1, Jan 59

KIM, M.V.; BITADZE, M.A.; YERMILOV, B.F.; ZYDEL', A.I.; KUSHNEV, A.P.; LAZAREV, N.N.; MIRAV'YEV, D.M.; BONDAREV, P.D., kand. tekhn. nauk, nauchnyy red.; OSENKO, L.M., red.izd-va; RODIONOVA, V.M., tekhn.red.

[Erection of foundations under permafrost conditions; from practice used in the Norilsk region] Vozvedenie fundamentov v usloviiakh vechnomerzlykh gruntov; iz opyta Noril'skogo raiona. Moskva, Gosstroiizdat, 1962. 53 p. (MIRA 15:9)

1. Russia (1917- R.S.F.S.R.) Krasnoyarskiy ekonomicheskiy administrativnyy rayon. Sovet narodnogo khozyaystva. (Foundations) (Noril'sk--Frozen ground)

ZYDLAN, S. K.
(# 2721)

Tb in children who have survived tb meningitis Probl. Tuberk. 1951, 3 (8-11)

Nearly 80% of 226 children who had survived tb meningitis remained in good health and could continue normal school attendance. Relapses occurred in 15% and other forms of tb (chiefly in the bones) in 5%.

Todorovic - Belgrade (XX, 7, 8, 15)

SO: EXCERPTA MEDICA Vol. 5 No. 7 Sec. VIII July 1952

2. USSR (600)

"Lake Gimel'skoye." Izvestiya Karelo-Finskoy nauchno-issledovatel'skoy bazy AN USSR, No 1, 1948 (93-102)

9. Meteorologiya i Gidrologiya, No, 3, 1949. [redacted] Report U-2551, 30 Oct 52.

BOJANOWICZ, K.; KUZMICKI, R.; ZYDOWICZ, L.

A rare case of Ascaris lumbricoides in the urinary tract. Wiad. parazyt. 8 no.5:535-538 '62.

1. I Klinika Chorob Wewnetrznych AM, Lodz.
(ASCARIASIS) (URINARY TRACT INFECTIONS)

BOJANOWICZ, Kazimierz; ZYDOWICZ, Lucjan

Studies with the aid of the thorax-extremity index on the role of the constitution in obesity and some of its complications in adults. Pol. tyg. lek. 17 no.11:396-399 12 Mr '62.

(OBESITY) (BODY CONSTITUTION) (ANTHROPOMETRY)

ZYDOWICZ, Lucjan

A hepatolienal and pseudodiphtheric form of infectious mononucleosis with septicemia. Pol. tyg. lek. 18 no.49:1852-1855 2 D'63.

1. Z II Kliniki Chorob Wewnetrznych WAM w Lodzi; kierownik: doc. dr. med. J.R.Chojnowski.

CHOJNOWSKI, Jozef Ryszard; ZYDOWICZ, Lucjan

Dispersion phase during erythrocyte sedimentation. Pol. tyg. lek. 20 no.26:956-959 28 Je '65.

1. Z II Kliniki Chorob Wewnetrznych Wojskowej AM w Lodzi (Kierownik: doc. dr. med. J.R. Chojnowski).

ZYDOWICZ, W.

The opening of a new plant producing fly-ash concrete building elements.

P. 349. (MATERIALY BUDOWLANE) (Warszawa, Poland) Vol. 12, no. 11, Nov. 1957

SO: Monthly Index of East European Accession (EEAI) LC Vol. 7, No. 5, 1958

ZYDOWO, Jan, mgr inz.

The Research Center of the Shipbuilding Industry of the Central Ship Design Office No. 1 in Danzig. Bud okretowe Warszawa 9 no.4:112-113 '64.

1. Deputy Director, Central Ship Designing Office No. 1 for Scientific and Research Problems, Gdansk.

MOZOLOWSKI, W.; ZYDOWO, M.; KALIHOWSKI, J.; MOSCZCZYNSKA, Z.

A characterization of the blood-serum in the newborn child, in the parturient woman, and in the healthy non-pregnant woman, by means of refraction, viscosity and specific gravity. Bull. internat. Acad. polon. sc. Classe med no.1-10:65-78 Jan-Dec 50. (CIML 20:8)

ZYDOWO, M.

Natural ultrafiltration of blood in man caused by a change in posture. I. Calculation of refractive index and specific gravity of ultrafiltrate. Polski tygod. lek. 7 no.22:697-700 2 June 1952. (CIML 23:2)

1. Of the Institute of Physiological Chemistry (Head--Prof. Wlodimierz Mozolowski, M.D.) of Gdansk Medical Academy.

ŻYDOWO, M., GÓRSKI, M.

Certain physical properties of blood serum and salted out fractions in pathologic conditions. Polski tygod. lek. 8 no.44: 1497-1500 2 Nov. 1953. (CIML 25:5)

1. Of the Institute of Physiological Chemistry (Head — Prof. Włodzimierz Mozołowski, M.D.) and of the First Internal Clinic (Head —Prof. Marian Górski, M.D.), Gdansk. Medical Academy.

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POLON

Effect of adrenaline on the biochemistry of human blood. II. Acid base balance. Mieczysł Żydowo (Akad. Med., Gdańsk, Poland). *Acta Biochim. Polon.* 1, 185-9(1954); *C.A.* 49, 4[illegible] — Intramuscular injection of adrenaline-HCl causes a d[illegible] in blood CO_2, a decrease in pH, and an increase in s[illegible]um protein. I. Z. R[illegible]

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R002065720020-7"

[redacted]; BILAWSKI, W.; CHYRNK-BOROWSKA, S.; JUSKO, J.; MANITIUS, A.; NIEMIRO, R.; WOLOWSKI, R.

Effect of adrenalin on certain biochemical changes in normal man. Acta physiol. polon. 5 no.4:620-621 1954.

1. Z Zakladu Chemii Fizjologicznej w Gdansku. Kierownik: prof. dr W.Mozolowski.

(EPINEPHRINE, effects,
on blood)
(BLOOD, effect of drugs on,
epinephrine)

2 KD 44

POLAND / Pharmacology, Toxicology. Hypothermic Drugs. U-1

Abs Jour : Referat Zh.-Biol., No 1, 1958, No 332.

Author : Zydowo, M., Kaninski, Z.

Inst : Not given Inst. Physiol Chem, Gdansk Poland

Title : Blood Serum Fractions in Patients Treated with Largaktyl

Orig Pub : Acta biochem. polon., 1955, 2, No 4, 443-447.

Abstract : The ESR and an electrophoretic study of blood serum were done on 20 schizophrenics treated with largaktyl. An increase in alpha 1 and alpha 2 globulins, a decrease in the albumin fraction and an increase in the ESR were noticed in those patients who received over 150 mg of largaktyl per day. These changes were not found in 9 patients who received smaller daily doses.

Card : 1/1

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1(1)Y

Biochemical changes in the blood of healthy men under the influence of adrenaline. M. Żydowo (School Med., Gdansk). *Bull. acad. polon. sci.*, Classe II, 3, 103-5(1955) (in English); cf. *C.A.* 49, 4150a.—After intramuscular injection of 1 mg. adrenaline-HCl the following changes in properties of blood plasma or serum were noted: increase of serum protein concn., decrease in vol. of circulating plasma, decrease in alk. reserve, decrease in K concn. in serum, and a decrease in bicarbonate and phosphate ion concn. No significant changes were noted in sp. gr., Mg ion concn., Na ion concn., and chloride ion concn. J. C. Middleton

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R002065720020-7"

POL.

Biochemistry of nerve tissue. Mariusz Żydowo (Akad. Med., Gdańsk, Poland). Wiadomości Chem. [illegible] 1956. — The following topics are reviewed: chem. structure and metabolic processes of nerve tissue, chem. [illegible] with relation to brain functions, and permeability of [illegible] [illegible] references. [illegible]

Effect of adrenalin on protein level in human blood. Polskie arch. med. wewn. 25 no.1a:223-224 1955.

1. Z Zakladu chemii fiziol. A.M. w Gdansku; kier. prof. dr. W.Mozolowski.

(BLOOD PROTEINS, effect of drugs on epinephrine)
(EPINEPHRINE, effects on blood protein level)

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R002065720020-7

1869. SERUM PROTEIN FRACTIONS IN THE PATIENTS TREATED WITH CHLORPROMAZINE - Frakcje bialkowe surowicy krwi u chorych leczonych largaktylem (chloropromazyną) - Zydowo M. and Kamiński Z. Zakł. Chem. Fizjol. A. M., Gdańsk - POL. TYG. LEK. 1957, 12/15 (549-553) Tables 6

In mental patients treated with large doses (more than 150 mg. per 24 hr.) of chlorpromazine, a statistically significant increase of the α_1-globulin ($0.01 > P > 0.001$) and α_2-globulin ($P < 0.0001$) fractions was found, irrespective of whether the drug had been administered orally or i.m. In patients receiving i.m. injections of the drug there were local inflammatory reactions and a very considerable increase of the BSR ($0.01 > P > 0.001$), but not in those receiving even large doses orally. Chlorpromazine-HCl added to serum in vitro did not have any effect on the protein fractions. When added to blood in vitro it reduced the BSR. The changes observed in vivo are ascribed to the induction of inflammatory processes by large doses.

ZYBOWO, M.; MAKAREWICZ, W.; UMIASTOWSKI, J.; PURZYCKA, Jadwiga

Temperature dependence of AMP deamination catalysed by muscle extracts from homeothermic and poikilothermic animals. Acta biochim. Pol. 12 no.4:319-325 '65.

1. Department of Biochemistry, Medical School, Gdansk.

ZIEMNO, Mariusz

The kinetics of AMP-aminohydrolase in poikilothermic and homeothermic animals. Postepy biochem. 11 no.1:15-23 '65

ZYDOWO, M.; PURZYSKA, Jadwiga

Enzymic determination of glutamine with rat kidney preparation.
Acta biochim. polon. 10 no.3:293-299 '63.

1. Department of Biochemistry, Medical School, Gdansk.
(GLUTAMINE) (KIDNEY) (MITOCHONDRIA)
(CYANIDES) (BIOCHEMISTRY) (AMIDOHYDROLASES)

ZYDOWO, Mariusz

Biochemistry of isolated mitochondria. Folia morphol 21 no.3:263-274 '62.

1. Zaklad Biochemii, Akademia Medyczne, Gdansk.

ZYDOWO, E.; DUDZYCKA, Jadwiga; ZELEWSKI, L.

The adaptation of amp aminohydrolase in rat kidney to prolonged acidosis. Acta biochim. polon. 9 no.2:n.p. '62.

1. Department of Biochemistry, Medical School, Gdansk.
(ADENOSINE PHOSPHATES metab) (AMIDASES metab)
(ACIDOSIS exper) (GLUTAMINE metab)

ZELEWSKI, L.; ZYDOWO, M.; PURZYCKA, Jadwiga

The excretion of citrate in male and female rats after prolonged acidosis or alkalosis. Acta biochim. polon. 9 no.2:147-151 '62.

1. Department of Biochemistry, Medical School, Gdansk.
(CITRATES urine) (ACIDOSIS exper)
(ALKALOSIS exper)

ZYDOWO, Mariusz

Biochemistry of subcellular structures. Postepy biochem. 8 no.2:165-191 '62.

(CYTOLOGY) (BIOCHEMISTRY)

ZIDOWO, Mariusz

Enzymic structure of the cytoplasmic particles. Postepy biochem 7 no.3:341-356 '61.

(PROTOPLASM) (ENZYMES metab)

ZYDOWO, A.

Adenylic acid and adenosine deaminases in rat kidneys. Acta biochim.polon. 7 no.2/3:215-226 '60.

1. Zaklad Chemii Fizjologicznej AM, Gdansk Kierownik: prof. dr Wl.Mozolowski.

(KIDNEYS metab.)
(AMIDASES metab.)

PORZECKA, J.; ZYDOWO, M.

Deaminases of adenylic acid and adenosine in rat tissues. In English. Bul Ac Pol biol 8 no.9:483-484 '60. (EEAI 10:7)

1. Department of Physiological Chemistry, School of Medicine, Gdansk. Presented by J. Heller.
(ADENYLIC ACID DEAMINASE) (ADENOSINE DEAMINASE)

POLAND/Human and Animal Physiology. Blood. V

Abs Jour: Ref Zhur-Biol., No 6, 1958, 26746.

Author : Mariusz Zydowo
Inst : [redacted]
Title : The Effect of Adrenalin on the Protein Content of Human Serum.

Orig Pub: Polskie arch. med. wewnętr., 1955, 24, No 1a, 223-224.

Abstract: The serum proteins of 5 healthy adult males 20 to 31 years of age were subjected to refractometric examination before and after the injection of 1 mg of adrenalin HCl; the specific gravity of the proteins was determined by the method of Phillips and Van-Slyke, viscosity with a Kalinov viscosimeter, and total nitrogen by the Kjeldahl method. In all

Card : 1/2

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ZYDOWO, MARIUSZ.

MEDICINE.

ZYDOWO, MARUSZ. Naturalna ultrafiltracja krwi pod wplywem adrenaliny. Gdansk, 1957. 32 p. (Acta biologica et medica, t. 1, fasc. 1)

DNLM Not in DLC.

Monthly Index of East European Accessions (AAEI) LC, Vol. 8, no. 1, Jan. 59.

ACCESSION NR: -AP3010698 S/0245/63/000/005/0129/0139

AUTHOR: Golodets, R. G.; Zyegarnik, B. V.; Rubinshteyn, S. Ya.

TITLE: Clinical and pathopsychological characteristics of asthenic states developing with chronic irradiation

SOURCE: Voprosy* psikhologii, no. 5, 1963, 129-139

TOPIC TAGS: radiation sickness, chronic radiation sickness, asthenic state, psychological test, mental capacity, reduced mental capacity, fatigue, memory loss, emotional instability, personality change

ABSTRACT: Clinical and experimental psychological investigations were made of patients (doctors, X-ray technicians, and laboratory personnel) who in the course of their work had developed chronic radiation sickness because of inadequate safety measures. In addition to various physiological shifts, all patients were found to be in an asthenic state. Patients complained of weakened memory, inability to concentrate, fatigue, and emotional instability. Various psychological tests confirm these complaints and clearly show

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ACCESSION NR: AP3010698

that these factors greatly reduce the capacity of patients for mental work. In more serious cases, the mental disorders are found somewhat comparable to those in organic diseases such as sclerosis of the brain and Parkinson's disease. Patients who are less seriously ill undergo greater personality changes than more seriously ill patients because they try harder to compensate for their inadequacies. Orig. art. has: None.

ASSOCIATION: Institut psikhiatrii MZ RSFSR, Moskva (Institute of Psychiatry, MZ, Russian Socialist Federative Soviet Republic)

SUBMITTED: 00 DATE ACQ: 15Nov63 ENCL: 00

SUB CODE: AM NO REF SOV: 011 OTHER: 004

Card 2/2

L 31880-66 EWT(m)/ETC(f)/EWP(j)/T DS/WW/RM

ACC NR: AP6012534 SOURCE CODE: UR/0062/66/000/003/0562/0564

AUTHOR: Vyazankin, N. S.; Razuvayev, G. A.; Bychkov, V. T.; Zvezdin, V. L. 33 B

ORG: Laboratory for Stabilization of Polymers, Academy of Sciences SSSR (Laboratoriya stabilizatsii polimerov Akademii nauk SSSR)

TITLE: Reactions of bis(triethylgermyl) cadmium

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 3, 1966, 562-564

TOPIC TAGS: organic synthesis, cadmium compound

ABSTRACT: Two types of reactions are known for the bimetal organic compound, containing Ge-Me bond with monobromo derivatives

$$(R_3Ge)_n M + n\,R'Br \begin{cases} \rightarrow n\,R_3GeBr + R'_n M & (1) \\ \rightarrow n\,R_3GeR' + MBr_n & (2) \end{cases}$$

Equation (1) is followed in photoreaction of bis(triethylgermyl)-mercury and tris (triethylgermyl)-antimony under the action of heat. Reaction (2) is characteristic for triethylgermyl potassium, triphenylgermyl lithium and related compounds.

Card 1/2

UDC: 547.1'13 + 541.14

L 31880-66

ACC NR: AP6012534

Bis(triethylgermyl)-cadmium reacts in the same manner with alkyl bromide. Continuing the work in this field the authors found that bromobenzene (in contrast to alkyl bromides) does not react with bis(triethylgermyl)-cadmium even where the latter decomposes into hexaethyldigermane and metallic cadmium. On the contrary, the photochemical reaction (1) proceeds very easily under ultraviolet light with bromobenzene, and produces triethylbromogermane, triethylphenylgermane, diphenyl cadmium and cadmium bromide. It was found that bis(triethylgermyl)-cadmium and bis(triethylgermyl)-mercury react with Li(Na) in tetrahydrofurane with the formation of triethylgermyl lithium (sodium) derivative.

SUB CODE: 07/ SUBM DATE: 23Jul65/ ORIG REF: 004/ OTH REF: 007

Card 2/2

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R002065720020-7"

Application of technical nitric acid to the production of a catalyst used in the synthesis of methanol. Jan Pasella. *Przemysl Chem.* 8, 528(1952).—The catalyst (ZnO-Al...) prepd. with tech. HNO_3 contains 0.01–0.015% Fe and also about the same amt. of chlorides. These impurities have a disadvantageous effect only when the amt. of each is higher than 0.2%, therefore they do not cause corrosion of the ... [illegible]

Gene A. [illegible]

CH

MGT

Poland/Physical Chemistry - Thermodynamics. Thermochemistry. Equilibrium. Physicochemical Analysis. Phase Transitions, B-8

Abst Journal: Referat Zhur - Khimiya, No 19, 1956, 61015

Author: [redacted]i, M., Zygadlo, J.

Institution: None

Title: Investigation of Vapor Pressure of Aqueous Three-Component Solutions

Original Periodical: Badania nad przebiegem, peznosci par roztworow wodnych trojskladnikowych. Przem. chem., 1953, 9, No 12, 608-610; Polish

Abstract: The authors observed deviation in magnitude of vapor pressure for 3-component systems of following composition: $Ca(NO_3)_2$ - NH_4NO_3 - H_2O; $Ca(NO_3)_2$ - KNO_3 - H_2O; urea-chlorides of Ca, Mg, Li - H_2O. It was ascertained that vapor pressure of 3-component solutions is higher than that of initial 53.3% solution of Norwegian saltpeter and lower than that of a 40% solution of saltpeter. It was found that a 45% solution of saltpeter in water is isobaric, i.e., on

Card 1/2

Poland/Physical Chemistry - Thermodynamics. Thermochemistry. Equilibrium. Physicochemical Analysis. Phase Transitions, B-8

Abst Journal: Referat Zhur - Khimiya, No 19, 1956, 61015

Abstract: addition of urea no change in vapor pressure occurs over such a solution. The cause of no change in vapor pressure following addition of urea is due to formation of double salts and distribution of water between initial salt and the double salt, the [redacted] having equal vapor pressure.

Card 2/2

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R002065720020-7"

3

Barnowski M., Zygadło J. Investigation of Vapour Pressure in Three-Component Aqueous Solutions.

„Badania nad przebiegiem prężności par roztworów wodnych trójskładnikowych". Przemysł Chemiczny No 12, 1954, pp 588-589, 2 figs, 2 tabs.

It has been found, when investigating H_2O vapour pressure of aqueous salt solutions in three-component systems, that, within a certain range of concentrations, the vapour pressure of solutions of some organic salts (for instance $Ca(NO_3)_2$) increases with the addition of water or [illegible] according to which the pressure [illegible]

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R002065720020-7

4150

Sarnowski M., Zygadło J., Sełecka I. Investigation of Vapour Pressure in Three-Component Aqueous Solutions. 541.123.31

„Badania nad przebiegiem prężności par roztworów wodnych trójskładnikowych". Przemysł Chemiczny, No. 8, 1955, pp. 412—416, 8 figs, 4 tabs.

The results of a study of changes of vapour pressure over a three-component solution obtained by adding solid urea to the solution of electrolyte. The measurements were carried out by the isopiestic method and a two component solution of electrolyte used as a comparative solution. It was found that by adding urea to aqueous solutions of adequate concentration of $CaCl_2$, $Mg(NO_3)_2$, $CaBr_2$ and LiBr, an increase in water vapour pressure resulted. The rate of increase of vapour pressure (contradictory to the Raoult law) is at first raised, with the addition of urea, reaching a certain maximum. The decrease of vapour in less concentrated solutions of these electrolytes is, when adding urea, approximately linear.

GRADEK, J.; SARNOWSKI, M.; FARANOWSKI, B.

Investigation of vapor pressure in three-component aqueous solutions. III. Interpretation. p. 425.

PRZEMYSL CHEMICZNY
Warszawa
Vol. II, no. 8, Aug. 1955

SOURCE: Monthly list of East European Accessions (EEAL), LC, Vol. 5, no. 2. Feb. 1956

Poland/Chemical Technology. Chemical Products and Their Application -- Industrial organic synthesis, I-14

Abst Journal: Referat Zhur - Khimiya, No 2, 1957, 5668

Author: Mazgaj, W., Sarnowski, M., Zygadlo, J.

Institution: None

Title: Preparation of Hydrogen Cyanide from Methane, Ammonia and Air

Original Publication: Przem. chem., 1955, 11, No 8, 462-464

Abstract: Preliminary data are presented concerning the initiated laboratory experiments on an orientative determination of the conditions of a synthesis of HCN from CH_4, NH_3 and air, over a Pt catalyst with a carrier. It has been ascertained that this method is very economical in comparison with the syntheses from formamide or calcium cyanamide. The synthesis can be conducted in a simple, fully automatic and efficient apparatus, by a continuous operation of the process over a period of many months. Possibility of repeated regeneration of the catalyst has been ascertained. Diagram of the unit is included.

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APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R002065720020-7"

New complex salts with urea. Mircea Saramure[illegible] Van Z[illegible] [illegible] Chem. [illegible] (English summary).—The following complex salts were prepd. by the slow evapn. at about 20° of the following solns.: $LiBr \cdot CO(NH_2)_2 \cdot H_2O$ (from soln. of molar ratio salt to urea 1:0.7 and 1:1.5, 1:2.5), $LiNO_3 \cdot 2CO(NH_2)_2$ (1:1, 1:2, and 1:3), $LiI \cdot 2CO(NH_2)_2$ (1:1 and [illegible]), $(NO_3)_2 \cdot CO(NH_2)_2 \cdot 2H_2O$ (1:0.5 and 1:1), $Cd(NO_3)_2 \cdot 6CO(NH_2)_2$ (1:2, 1:4, and 1:6), $Mn(NO_3)_2 \cdot 4CO(NH_2)_2 \cdot 2H_2O$ (1:4, and 1:6), $Mg(NO_3)_2 \cdot 2CO(NH_2)_2 \cdot 6H_2O$ (1:1, 1:2, and 1:[illegible]). The increase of vapor pressure of H_2O over some concd. solns. of electrolytes by adding urea in proportion [illegible] connected with the formation of [illegible] complexes.

[illegible] Semeniuk [illegible]

WIBZAWI, Henryk; ZYGADLO, Jan

Designing problems of a reactor for the preparation of cyanogen hydride by the Andrussow method. Przem chem 42 no.6:323-325 Je '63.

1. Instytut Nawozow Sztucanych, Tarnow.

A new complex compound: $Ca(NO_3)_2.CO(NH_2)_2.3H_2O$. M. Sarnowski, J. Krawczyk, J. Zygadło, and T. Śmiałek (Inst. Syntez. Chem., Tarnów, Poland). *Przemysł Chem.* 34, 223–30(1955).—$Ca(NO_3)_2.CO(NH_2)_2.3H_2O$ (I) was prepd. by crystn. from aq. solns. contg. molar ratios of $Ca(NO_3)_2.4H_2O$:urea from 1:0.5 till 1:1.5. By increasing the amt. of urea another complex $Ca(NO_3)_2.4CO(NH_2)_2$ was prepd. which was known already. The hygroscopicity of I compares favorably with that of $Ca(NO_3)_2.4H_2O$ and fertilizers contg. it and of nitro-chalk; therefore, it can be used as a fertilizer.

Werner Jacobson

Distr: 4E2c(j)

Course of the vapor pressure in three-component water solutions. II. M. Sarnowski, J. Zygadło, and I. Ściślska (Inst. Syntez. Chem., Tarnów, Poland). *Przemysł Chem.* 34, 422–5(1955); cf. *C.A.* 51, 3248b.—Solid urea was added to solns. of $CaCl_2$, $Mg(NO_3)_2$, $CaBr_2$, and LiBr, and the measurements were done according to an isopiestic method, pure salt solns. being used as reference. If the amt. of urea is fairly high (exact value changes from salt to salt), an increase of the vapor pressure of the soln. is obtained, in full contradiction to Raoult's law. This increase reaches a max., beyond which the vapor pressure decreases as concn. increases. At very small addns. of urea Raoult's law is obeyed. III. Interpretations. M. Sarnowski, H. Baranowski, and J. Zygadło. *Ibid.* 425–30.—Modern theories of salt effects and of salting-out are discussed. As none of these can explain the observations satisfactorily, a new hypothesis is given, based on the concept that mols. of double salts exist in soln., accompanied by complex ions. Exptl. work by other authors is cited, which would justify such assumptions. 58 references.

Werner Jacobson

Distr: 4E3d

Hydrogen cyanide from methane, ammonia, and air. W. Mazgaj, M. Sarnowski, and J. Zygadło (Inst. Synthet. Chem., Tarnów, Poland). *Przemysł Chem.* 34, 462–4 (1955).—HCN was prepared on a lab. scale according to the reaction $NH_3 + CH_4 + 1.5\ O_2$ (air) $\rightleftharpoons$ HCN + 3 H_2O + 113.3 cal. It was found that 47% of the CH_4 does not react in this desired way, but that 5% thereof is oxidized to CO, and 42% to CO_2; also 2.2% CH_4 remains unchanged. It is believed that the process can compare economically with HCN production from HCHO and $CaCN_2$, because the equipment is simple, and the output is high. W. J.

POLAND / Physical Chemistry. Thermodynamics. Equili- B-8
brium. Phase Transitions. Physicochemical Analysis.

Abs Jour: Ref Zhur-Khimiya, No 8, 1959, 26453.

Author : Sarnowski, M., Scienska, I., and Zygadlo, J.
Inst : Not given.
Title : The Study of Nonideal Ternary Solutions. I. Deviations from Raoult's Law as Criteria for the Feasibility of the Preparation of New Complex Compounds in Electrolyte-Urea-Water Systems.

Orig Pub: Roczniki Chem, 31, No 3, 949-958 (1957) (in Polish with English and Russian summaries).

Abstract: Continuing previous work on the measurement of vapor pressures over ternary solutions and on the study of deviations from ideality connected with complex formation (RZhKhim, 1956, 46327, 77533; 1957, 57156), the authors have studied the increase in vapor pressure over a solution of an electrolyte

Card 1/2

POLAND / Physical Chemistry. Thermodynamics. Equili- B-8
brium. Phase Transitions. Physicochemical Analysis.

Abs Jour: Ref Zhur-Khimiya, No 8, 1959, 26453.

Abstract: following the addition of solid $CO(NH_2)_2$. It has been found that deviations from Raoult's law are closely related to the possibility of complex formation in the solid state. Applying this assumption to the investigation of electrolyte-urea-water systems, the authors have succeeded in isolating nine previously unknown compounds: $LiBr \cdot 3CO(NH_2)_2$, $LiBr \cdot CO(NH_2)_2 \cdot H_2O$, $LiI \cdot 2CO(NH_2)_2$, $LiI \cdot 4CO(NH_2)_2$, $Cd(NO_3)_2 \cdot CO(NH_2)_2 \cdot 3H_2O$, $Cd(NO_3)_2 \cdot 4CO(NH_2)_2$, $Mn(NO_3)_2 \cdot 4CO(NH_2)_2 \cdot 2H_2O$, $CaCl_2 \cdot 2CO(NH_2)_2 \cdot H_2O$, and $Mg(NO_3)_2 \cdot 2CO(NH_2)_2 \cdot 6H_2O$. Crystalline $LiNO_3 \cdot 2CO(NH_2)_2$ has also been isolated; the compound has previously been detected by thermal analysis. See also RZhKhim, 1955, 54891; 1956, 3405. -- From a summary by the authors.

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Anti-Raoult-law properties of ternary systems. I. Anti-Raoult-law properties as a criterion of possibility of formation of complex compounds in electrolyte-urea-water systems. Maciej Sarnowski, Irena Ścieńska, and Jan Zygalski (Inst. Syntezy Chem., Tarnów, Poland). *Roczniki Chem.* 31, 949–57(1957); cf. *C.A.* 50, 6878a.—The increase in H_2O pressure over electrolyte solns. after addn. of urea has been interpreted as an indication of the possibility of preparing complex compds. (*C.A.* 52, 15820*d*). The new compds. $LiBr.3CO(NH_2)_2$, $LiI.4CO(NH_2)_2$, $LiI.2CO(NH_2)_2$, $Cd(NO_3)_2.4CO(NH_2)_2$, $Mn(NO_3)_2.4CO(NH_2)_2.2H_2O$, $CaCl_2.4CO(NH_2)_2.3H_2O$, $CaCl_2.2CO(NH_2)_2.H_2O$, $Mg(NO_3)_2.2CO(NH_2)_2.6H_2O$, and $LiNO_3.2CO(NH_2)_2$ were identified in that way, and some of them were isolated in the cryst. state. II. Anti-Raoult-law properties as a criterion of possible formation of double salts in electrolyte-water systems. Maciej Sarnowski and Irena Ścieńska. *Ibid.* 1223–9(German summary).—An increase of vapor pressure at 30° followed addn. of KNO_3, $RbNO_3$, or $CsNO_3$ to aq. 58% $Cd(NO_3)_2$ solns. This (anti-Raoult-law) behavior of the systems is interpreted as indication of the possibility of obtaining double salts in the solid state. In fact, the following were isolated in cryst. form: $Cd(NO_3)_2.2KNO_3$, $Cd(NO_3)_2.2RbNO_3$, and $Cd(NO_3)_2.2CsNO_3.2H_2O$. III. New complex salts in the systems $LiCl$–$MgCl_2$–$Mg(ClO_4)_2$–$CO(NH_2)_2$–H_2O. *Ibid.* 12, 75–80(1958).—Deviations from Raoult's law may appear in concd. aq. solns. of an electrolyte and urea, owing to replacement of water mols. in solvation layers by urea. It is, therefore, difficult to distinguish the selective solvation and complex-compd. formation. The following compds. were isolated in the cryst. state: $LiCl.3CO(NH_2)_2$, $LiCl.CO(NH_2)_2$, $MgCl_2.4CO(NH_2)_2$, and $Mg(ClO_4)_2.6CO(NH_2)_2$. IV. Anti-Raoult-law properties in systems: $CaCl_2$–$CaBr_2$–CaI_2–$CO(NH_2)_2$–CH_3OH. *Ibid.* 81–4.—$CaCl_2$, $CaBr_2$, or CaI_2 in MeOH solns. showed anti-Raoult-law properties on addn. of solid urea. A. Kregelewski

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brium. Phase Transitions. Physicochemical Analysis.

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Author : Sarnowski, M., Scienska, I., and Zygadlo, J.
Inst : Not given.
Title : The Study of Nonideal Ternary Solutions. I. Deviations from Raoult's Law as Criteria for the Feasibility of the Preparation of New Complex Compounds in Electrolyte-Urea-Water Systems.

Orig Pub: Roczniki Chem, 31, No 3, 949-958 (1957) (in Polish with English and Russian summaries).

Abstract: Continuing previous work on the measurement of vapor pressures over ternary solutions and on the study of deviations from ideality connected with complex formation (RZhKhim, 1956, 46327, 77533; 1957, 57156), the authors have studied the increase in vapor pressure over a solution of an electrolyte

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Physical Chemistry. Thermodynamics. Equilibrium. Phase Transitions. Physicochemical Analysis.

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ZYGADLO, R.; PLUZEK, J.

Machine tools for the chemico mechanical machining of sintered carbides. (Mechanik, Vol. 29, No. 4, Apr 1956, Warsaw, Poland)

SO: Monthly List of East European Accessions (EEAL) LC, Vol. 6, No. 8, Aug 1957. Uncl.