"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

BRESLER, P.I.

81914

24.3430

S/051/60/009/01/004/031
E201/E691

AUTHORS: Bresler, P.I. and Ruzin, B.N.

TITLE: The Optico-Acoustic Effect in the Visible and Ultraviolet Regions, and Its Relationship with Photochemical Reactions in Gases

PERIODICAL: Optika i spektroskopiya, 1960, Vol 9, Nr 1, pp 22-25 (USSR)

ABSTRACT: The optico-acoustic effect was discovered in the infrared region. Recently Gerlovin (Ref 1) reported observations of the optico-acoustic effect in the ultraviolet region in nitrogen, oxygen and acetylene. The present paper reports the existence of the optico-acoustic effect in the near ultraviolet region in chlorine and in the visible region in nitrogen dioxide. The optico-acoustic effect was detected by means of apparatus (Fig 1) consisting of a typical optico-acoustic gas analyser and including appropriate light sources. The ultraviolet sources were lamps UFO and PRK-4; the visible source was a 12V, 30W incandescent lamp. The authors obtained also the "gas characteristics" of a prototype optico-acoustic gas analyser

Card 1/2

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

81914

S/051/60/009/01/004/031
E201/E691

The Optico-Acoustic Effect in the Visible and Ultraviolet Regions, and Its Relationship with Photochemical Reactions in Gases

for chlorine. It was found that the optico-acoustic effect was strongly enhanced on addition of hydrogen to chlorine contained in an optico-acoustic chamber. This was due to an additional optico-acoustic effect produced by a photochemical reaction of chlorine and hydrogen. There are 3 figures and 1 Soviet reference.

SUBMITTED: October 29, 1959

Card 2/2

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

S/051/62/013/003/003/012
E032/E514

AUTHOR: Bresler, P.I.

TITLE: An approximate method of determination of the integral intensity and half-width of lines in the vibration-rotation absorption bands of gases

PERIODICAL: Optika i spektroskopiya, v.13, no.3, 1962, 313-316

TEXT: It is pointed out that the relation between the magnitude of the optico-acoustic effect and the properties and density of the gas under investigation which fills the chamber of an optico-acoustic detector of radiation may be used in an approximate determination of the integral intensity and half-width of rotational lines. This method is said to have been first described by M. L. Veyngerov and P. V. Slobodskaya (Izv.AN SSSR, ser.fiz., 11, 420, 1947) and was discussed theoretically by the author in a previous paper (Opt.i spektr., 7, 616, 1959). It is noted that the optico-acoustic detector has a basic advantage as compared with the method described by E. B. Wilson and A.J. Wells (J.Chem.Phys., 14, 578, 1946). The latter method involves the spectral decomposition of the radiation and subsequent graphical

Card 1/3

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

integration, while the optico-acoustic method does not require this spectral decomposition. It is now pointed out that there is a range of values for the equivalent thickness of the gas under investigation in the optico-acoustic detector for which the amplitude of the acoustic vibrations is proportional to the square-root of this thickness. By determining the minimum and maximum values of the thickness between which the square-root dependence holds, it is possible to determine the integral intensity and half-width (α and δ respectively). In fact, these two quantities are given by:

$$\alpha \simeq \frac{4.96 \cdot B}{\sqrt{m}} \frac{1}{\sqrt{w_{min} \cdot w_{max}}} \qquad (5)$$

$$\delta \simeq 0.146 \cdot d \sqrt{\frac{w_{min}}{w_{max}}} \qquad (6)$$

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

where B is the rotational constant of the molecule and $m = Bhc/kT$. Trial experiments based on this method and designed to determine the integral intensity of the 14.8 μ band of CO_2 have shown that the method is only suitable for the determination of rough values of α and δ. This might be useful in studying bands which are not well known and is, therefore, of interest in gas-analytic practice. There are 2 figures.

SUBMITTED: June 21, 1961

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

BREISER, S.D., inzh.; KAVALERCHIK, M.Ya., inzh.

Air purification and recirculation in picking shops. Tekst. prom. 18 no.6:32-33 Je '58. (MIRA 11:7)
(Textile factories--Heating and ventilation)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

PROCESSES AND PROPERTIES INDEX

The effect of the addition of salts on swelling in willow tanner's liquor. S. Bressler. *Vestnik Kozhevennoi Prom. Torgov.* 1930, 216–16; *Chem. Zentr.* 1932, II, 3819.—The effect of the addn. of various salts to willow tanner's liquor on the swelling of gelatin and unhaired hide was investigated for liquors of 1°, 2° and 3° Bé. strength and salt concns. of 0.05, 0.1 and 0.15 *M*. In the pure 1° Bé. liquor contg. no salt the increase in wt. of the gelatin in 24 hrs. was 539%; in the presence of NaCl, 618%; NaF, 620%; urea, 634%; $NaHSO_4$, 640% and Na_2SO_4, 1014%. In all cases the swelling decreased with increasing strength of the liquor and increased with salt concn. The following were investigated in liquors of 1° Bé. strength K_2SO_4, NH_4Cl, Na_2HPO_4, $FeSO_4$, $CuSO_4$, $FeNH_4(SO_4)_2$, $Cr_2(SO_4)_3$, K_2CrO_4, $K_3Fe(CN)_6$ and $K_4Fe(CN)_6$, Cu and Ni nitrates, Co and Zn acetates. A reduction of the swelling was observed in the presence of K_2CrO_4, nitrobenzene and nitrotoluene. The same effect was observed on unhaired hides in the case of K_2CrO_4 and nitrobenzene.

M. G. Moore

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

PROCESSES AND PROPERTIES INDEX

Artificial chamois on a base of wool fabric. S. M. Bresler and I. V. Plotnikov *Kozhevenno-Obuvnaya Prom. S. S. S. R.* 15, No. 9, 30-2(1936).—The fabric is creased and impregnated with a rubber soln. or a latex emulsion. The creasing is effected by means of a preliminary mercerization with a 15% NaOH soln. at room temp. and during 30 min., followed by washing and pressing. It is then saturated during 5 min. with a synthetic resin soln. contg. phenol 100, formaldehyde 100, and K_2CO_3 4 parts (the mixt. is heated to boiling for 20 min. and dild. with water 2:1). The goods are dried at 40° and passed through hot rollers to effect a partial polymerization. The unpolymerized ingredients of the satn. liquid are removed by washing with a lukewarm soap soln. (4-6 g. soap per l. of H_2O) and rinsing with cold water. Instead of phenol resins, urea-aldehyde condensation products resins may be used. A. A. Hoehtlingk

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

15

Yuft substitute from cotton fabrics obtained by impregnation with acidic emulsions. P. I. Pavlovich and S. M. Breaker. *Koshevenno-Obuvnaya Prom. S. S. S. R.* 16, No. 2, 63-5(1937).—The emulsion is prepd. according to Orlov from paraffin, rosin, lanolin, AcOH, gelatin, EtOH, Al acetate, turpentine and (or) NH_4OH. Details of prepn. and application are given. A. A. Podgorny

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

CA

29

Hygrothermic tests on leather. A. N. Mikhailov and S. M. Bresler. *Kozhevenno-Obuvnaya Prom.* 17, No. 6, 18-21(1938); *Chimie & industrie* 41, 752. The hygrothermic test of leather consists in detg. the variations which take place in the latter at high temp. (of the order of 80°) in an atm. satd. with water vapor. The hygrothermic strength is given by the formula: $HR\% = 100B/A$, in which A is the mean tensile strength in kg. before subjecting to hygrothermy, and B is the strength after hygrothermic treatment. Preliminary chrome tanning imparts hygrothermic strength to hides. A. Papineau-Couture

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

B-2-10

Hydrothermic stability of leather. A. N. [illegible] and N. L. SADOVNIKOV (Kosh. Obuv. [illegible] 11, 27—30).—The tensile strength of tanned hides rises with increasing duration of soaking in H_2O after tanning. This is not due to combination of tanning by residual extract, and is not associated with change in the coagulation temp. or with presence of Cu or Fe salts, but seems to be due to removal of [illegible] (probably fermentation) products; [illegible] particularly to be the case with leather tanned [illegible] extract. In general, presence of [illegible] substances promotes hydrolysis of [illegible] particularly where this is in contact with [illegible] leather), and this leads to a fall in its hydrothermic stability. No const. relation between wear-resistance and hydrothermic stability of sole leather was found to exist. R. T.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

✓ **Use of urotropine in mineral and chrome-vegetable tanning.** S. M. Bresler and A. N. Mikhaflov. [illegible] tween urotropine and [illegible] and Al [illegible] means of [illegible] urotropine and [illegible] of alkali [illegible] The chrome urotropine complex [illegible] 6, further addn. [illegible] alkali causes destruction of the complex. Urotropine acts as a buffer when added to Al salt soln. Urotropine raises the shrinkage temp. of both chrome and chrome-vegetable tanned leather. B. Z. Kanich.

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

BRESLER, S.

Mikhailov, A. Utilization of urotropine in mineral and chromium tannin. Tr. from the Russian. p. 15.
LEKA PROMISHLENOST, Sofiya, Vol. 4, no. 2, 1955.

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 4, no. 10, Oct. 1955, Uncl.

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

BRESLER, S.M., kandidat tekhnicheskikh nauk

Effect of aluminum salts in chrome tanning. Leg. prom. 15 no.4: 44-45 Ap '55. (MLRA 8:7)

(Tanning)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

BRESIER, S.M.

BRESIER, S.M., kand.tekhn.nauk

Method of determining the tanning efficiency of chromium salts. Leg.prom.17 no.9:32-33 S '57. (MIRA 10:12)
(Chromium salts) (Tanning)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

BRESLER, S.M., kand. tekhn. nauk; MIKHAYLOV, A.N., doktor tekhn. nauk prof.

Acidity conditions in chrome tanning. Kozh.-obuv. prom. no.8:15-17 Ag '59.

(Tanning) (MIRA 13:1)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

BRESLER, S.M., kand.tekhn.nauk; MIKHAYLOV, A.N., doktor tekhn.nauk, prof.

Tanning chrome pig leather with chrome emulsions. Kozh.-obuv. prom. 2 no.4:12-15 Ap '60. (MIRA 13:9)
(Tanning)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

BRESLER, S.M.; MIKHAYLOV, A.N.

Effect of the methods of the basicity regulation of chromium salt solutions on their tanning properties. Kozh.-obuv.prom. 4 no.6:19-23 Je '62. (MIRA 15:6)

(Tanning materials)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

BRESLER, S.M.; MIKHAYLOV, A.N.

Improving the chrome emulsion method of leather tanning. Kozh.-obuv.prom. 4 no.8:32-34 Ag '62. (MIRA 15:8)
(Tanning)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

BRESLER, S.M.; MIKHAYLOV, A.N.

Effect of the tanning temperature on the stability of the chromium-collagen bond in leather washing with water. Kozh.-obuv. prom. 5 no.11:29-32 N '63. (MIRA 17:1)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

BRESLER, S.M.; MIKHAYLOV, A.N.; ROGATYKH, N.I.

Increased resistance to the washing out of leather fixed chromium compounds. Nauch.-issl. trudy TSNIKP no.20:33-36 '63 (MIRA 18:1)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

BRESLER, S.M.; MIKHAYLOV, A.N.

Changes in the composition of chromium complexes occurring during tanning. Nauch.-issl. trudy TSNIKP no.33:24-30 '63 (MIRA 18:1)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

PHASE I BOOK EXPLOITATION SOV/6568

Bresler, Semen Yefimovich

Vvedeniye v molekulyarnuyu biologiyu (Introduction to Molecular Biology) Moscow, Izd-vo AN SSSR, 1963. 519 p. Errata slip inserted. 7500 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Institut vysokomolekulyarnykh soyedineniy.

Resp. Ed.: S. A. Neyfakh, Doctor of Biological Sciences, Professor; Ed. of Publishing House: A. A. Frolov; Tech. Ed.: R. A. Zamarayeva.

PURPOSE: This book is intended for scientists and graduate students in chemistry, physics, and biology.

COVERAGE: The book reviews modern achievements in a comparatively new field of science, devoted to the study of life on a molecular

Card 1/6

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

level. The author defines the role and the place of molecular biology in natural science and shows the direction of past and present trends in the study of high molecular compounds occurring in nature (proteins and nucleic acids) and the progress being made in the study of their structure, functions, and synthesis in the cell. There are 208 references.

TABLE OF CONTENTS:

Introduction 3

Ch. I. Structure of Proteins
1. Introduction 9
2. Chemical structure of proteins 9
3. Analysis of amino-acid composition of proteins 10
4. Determination of sequence of amino acids in the protein chain 17
5. Classification of the macromolecular structure of proteins 20
6. Synthetic polypeptides, models of proteins 32
36

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

BRESLER, S.Ye.; PYRKOV, L.M.; FRENKEL', S.Ya.

Sedimentation of graft copolymers in a density gradient. Approach to equilibrium, selective solvation, and polydispersity of composition. Vysokom.soed. 5 no.9:1315-1320 S '63. (MIRA 17:1)

1. Institut vysokomolekularnykh soyedineniy AN SSSR.

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

BRESLER, S.Ye.; POPOV, A.G.

Gas-liquid chromatography. Part 3. Zhur. fiz. khim. 37 no.5: 1178-1182 My '63. (MIRA 17:1)

1. Institut vysokomolekulyarnykh soyedineniy AN SSSR.

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

BRESLER, S.Ye.; PERUMOV, D.A.

Mutagenesis on isolated DNA induced by ultraviolet radiation and chemical agents. Dokl. AN SSSR 158 no.4:967-969 O '64. (MIRA 17:11)

1. Institut vysokomolekulyarnykh soyedineniy AN SSSR. Predstavleno akademikom A.N. Tereninym.

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

CA

V

Two-dimensional (double-layer) reactions. S. R. Breiter, V. V. Drushinin and D. L. Talmud. *J. Phys. Chem.* (U. S. S. R.) 4, 703-5(1933).—Expts. on the change of surface tension of unimolecular layers of substances insol. in H_2O show that at the boundary, of a unimol. layer on H_2O, reactions between the adsorbed mols. of different substances take place. Systems studied were myristic acid—cetyl alc. and palmitic aldehyde—cetyl alc.

F. H. Rathmann

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES

CA

The depth effect of orientating forces and the stability of foams and emulsions. S. E. Bresler and D. L. Talmud. *J. Phys. Chem.* (U. S. S. R.) 4, 796-801 (1933).—Expts. with 3 to 25% aq. solns. of KCl, KBr, KI, K_2SO_4, $K_4Fe(CN)_6$, KCNS and $BaCl_2$ in C_6H_6 emulsions were made to measure the stability of elementary foams and emulsions formed by non-aq. solns. of non-polar substances and solns. of electrolytes, and are summarized in several tables. The results substantiate the latest views that quasi-crystal complexes are oriented by the effect of the boundary layer and that in such case the hydration of polar groups must exert an additional depth effect in some sizes of complexes. The surface tensions at 20° for solns. of biphenyl in C_6H_6 were 0%, 29.20; 20%, 29.03; 30% 31.39; 50% 32.12 and for naphthalene in C_6H_6 0%, 21.17; 30%, 21.53 dynes/cm.

F. H. Rathmann

The mobility of the molecules in the surface layer. S. E. Bresler, B. A. Talmud and D. L. Talmud. *Physik. Z. Sowjetunion* 4, 864-72(1933).—Layers of cetylic alc. and oleic acid were forced through a "flat capillary" onto a water surface. The curve of surface tension against time shows a period of slow variation indicating a low mobility. A relation between rate of flow, viscosity of the film, and the resistance of the base is calcd.

Louis Goldman

The structure of the surface layer of a liquid. V. P. Berdennikov, S. E. Bresler, I. L. Zelmanov and E. A. Strauf. *Physik. Z. Sowjetunion* 4, 873-84(1933).—The orienting effect of the surface extends to within 10^{-6} cm. as shown by the thickness of bubbles in paraffin 2-3° above its m. p. and the thickness of a paraffin film that prevents the coalescence of 2 Hg layers. Electron interference diagrams for Hg show a quasi-cryst. structure for the surface.

Louis Goldman

ASM-SLA METALLURGICAL LITERATURE

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

CA

Gelatinized emulsions. S. E. Bresler, M. Katz and L. Kremnev. *Physik. Z. Sowjetunion* 4, 889-93(1933).—The prepn. of gelatinized emulsions is described. They contain up to 90% by vol. of an org. liquid which in the emulsion has a frothy structure. Louis Goldman

The recrystallization of dispersed quartz. S. E. Bresler, E. A. Strauf and I. L. Zelmanov. *Physik. Z. Sowjetunion* 4, 909-10(1933).—A film of amorphous quartz formed by condensation of the vapor recrystallizes at about 400° as compared with 1000° for the recrystn. of quartz glass. Louis Goldman

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

A-1

Solvation of molecules and the equation of state of an adsorbed layer. S. E. Breiman, B. A. Talmud, D. L. Talmud, and Y. B. Khariton (J. Phys. Chem. U.S.S.R., 1934, 5, 107—118).—The effect of cations and anions on the dehydration (I) of intol. layers of cetyl alcohol and oleic acid adsorbed on aq. electrolytes and glycerin in the order of the lyotropic series. (I) is related to the electrostatic effects of polar groups in the adsorbed layer. (Chem. Abs. (e))

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

PROCESSES AND PROPERTIES INDEX

"The Structure of the Surface Layer of a Liquid [Mercury]. V. P. Berdennikov, S. K. Breeler, I. Zelmanov, and E. A. Shtrauf (*Zhur. Fizich. Khimii* (*J. Phys. Chem.*), 1934, **5**, (5), 584-590; *C. Abs.*, 1935, **29**, 7759).—[In Russian.] (*Cf. Physikal. Z. Sowjetunion*, 1933, **4**, 873. In the case of mercury, the surface layer, as determined from electronograms, is quasi-solid, with the hexagonal axes of the crystallites normal to the surface.—N. B. V.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

BC

A-1

Structure of surface layers of liquids and films. S. E. Bresler and P. F. Pochil (Bull. Acad. Sci. U.R.S.S., 1937, 413—420).—The stability of the foam produced from fused *p*-azoxyanisole falls from the m.p. (118°) to zero at the transition point from anisotropic to isotropic liquid, at 137°. The η is at a min. at 130°, and at a max. at 140°, showing that the stability of the foam is not connected with η. The stability of the elementary foam obtained with polar liquids (AcOH, H_2O) is at a max. at temp. $>0{\cdot}1°$ above their f.p. Dichroism is observed for H_2O at 0°, and disappears at 0·02°. R. T.

ASM SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

SA

A 53

f

199. Molecular statistical theory of melting. S. Bresler. *J. of Exp. and Theor. Phys. U.S.S.R.*, 9, 6, *pp.* 711–721, 1939. *In Russian.* —After a review of the experimental facts about molecular structure of liquids, the author develops a qualitative theory of the melting of solids, based on the ideas of order and disorder introduced by Bragg and Williams.

D. S.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

The character of thermal motion of long organic chains with reference to the elastic properties of rubber. S. E. Bresler and Ya. I. Frenkel. *J. Exptl. Theoret. Phys.* (U. R. S. S.) 9, 1094-1106(1939).—A crit. discussion is given of the theories of Mark (*C. A.* 31, 8988[9]) and of Kuhn (*C. A.* 30, 7941[1]). These theories are considered incorrect, since they derive the elastic properties of rubber from thermal motion alone under assumption of free rotation in long org. chains. From the latest expts. on sp. heat of ethane and propane by Pitzer (*C. A.* 31, 4863[9]) and by Kistiakowsky, *et al.* (*C. A.* 33, 1215[5], 5273[9]) it follows that free rotation does not exist, as it is opposed by the repulsive forces between H atoms and between CH_3 radicals. The trans configuration is stable and corresponds to the min. of potential energy. Change from trans to cis state involves expenditure of energy. On the basis of these findings a new theory is developed, in which the energy of the chain is regarded as a function of the deformation angle: $U = (U_0/2)(1 - \cos\epsilon)$, where ϵ is the angle between planes passing through two neighboring links. The term $1 - \cos\epsilon$ is a function of temp.: (I) $\delta = 1 - \cos\epsilon = 1 - [((1 + e^{-U_0/kT})/(1 - e^{-U_0/kT})) - (2kT/U_0)] \cong 2kT/U_0$. Although the angle is small (close to 60°), the total deformation is equal to the sum of deformations of all links. Hence the av. statistical length of the chain (the distance between its two ends) is much smaller than its true geometrical length. For a 3-dimensional mol. it is shown with the aid of equation I that the statistical length is a function of temp.: (II) $A^2 = l^2 2n/\delta(1 - \cos\omega) = l^2 n U_0/kT(1 - \cos\omega)$, where U_0 is equal to $6kT$ at ordinary temps. (Kistiakowsky, *et al.*). ω is the angle complementary to the angle between the valences of the carbon atom. It is assumed const. during the deformation process. n = no. of links in the chain; l = length of each link. For a two-dimensional model of a mol. equation (II) is simplified: (III) $A^2 = l^2 2n/\delta$, which at very high temps., when the deformation angle is small, reduces to: (IV) $A^2 = l^2 n$. The equation IV is very close to the expressions of Mark and of Kuhn. At very low temps. δ is less than unity, and for small n, $n\delta < 1$, hence: (V) $A^2 \cong l^2 n^2$. This means that at low $T°$ the chain does not bend (is in the trans state), as found by Kistiakowsky, *et al.* Thus the new theory gives correct results for the limiting cases. Equation II was applied to mols. in soln. The calcd. A is much larger than that obtained by Kuhn. This means that for aliphatic acids, soaps and other mols. with n not greater than 20 the deformation is slight. An investigation by means of x-rays is thought desirable. Equation II was also compared with the Staudinger viscosity equation: (VI) $l^2 n U_0/kT(1 - \cos\omega) = A^2 \cong kn = \lim[((\eta/\eta_0) - 1)(1/C)]_{c\to 0}$. It follows that the coeff. $k \sim 1/T$, whereas according to Kuhn's theory it should be const. Exptl. proof is thought necessary. Finally, the elastic properties of rubber were studied. When n is large the deformation is considerable, although less than that predicted by Mark or by Kuhn. If thermal motion alone is taken into ac-

Inst. Physical & Chemical Res. and Leningrad Physico-Technical Inst.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

count, then the theory of Brownian movement, together with the equation of Smoluchowsky for the diffusion of a particle, gives for the modulus of elasticity: $E = f/\Delta = 4kT(1 - \cos\omega)/a^2 = (1/a^2)[9(1 - \cos\omega)/U_0]k^2T^2$. This equation is different from that of Kuhn and of Mark and gives much smaller E values. However, the exptl. E value is larger, which leads to the conclusion that thermal (Brownian) movement alone is not sufficient for deriving the elastic properties of rubber. Other forces play essential roles in the deformation process, namely: the interaction of mols. and displacement of their centers of gravity. Also the chem. forces between the org. chains and the S atoms binding them in vulcanized rubber.

C. S. Shapiro

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

BC

Shape and character of thermal motion of long-chain organic molecules and elasticity of rubber-like substances. S. E. BAYALIS and J. I. FRENKEL (Acta Physicochim. U.R.S.S., 1939, 11, 485—504).—Theoretical. The theory of Mark and Huhn (A., 1935, 150; 1936, 1327, 1337) is based on free rotation about single bonds, and therefore cannot be valid since the work of Kistiakowsky and Pitzer (A., 1937, I, 398; 1939, I, 62, 362) shows that free rotation does not occur and must be replaced by torsional oscillations. In an analysis in which account is taken of the energy difference (U ~3600 g.-cal.) between the *cis*- and *trans*-configurations, it is shown that the mean-square length ($\bar{\lambda}^2$) of a chain of n links of length l is given by $\bar{\lambda}^2 = l^2nU/[kT \times (1 - \cos\omega)]$, where ω is the complement to the valency angle. This implies that org. mols. of > ~20 links are almost rigid in solution, and in general that the difference between statistical and geometrical length, although large for very long chains, is < in the Mark–Kuhn theory. The val. calc. on this basis for the elasticity modulus in terms of "kinetic elasticity" alone is ~20 times too low, and the approx. agreement obtained by Kuhn is to be regarded as accidental. F. J. G.

H-1

Inst. Physical Chem. Res, Leningrad

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

CA

2

Viscosity of liquid methane and deuteriomethane. E. Brasler and A. Landerman. *J. Exptl. Theoret. Phys.* (U. S. S. R.) 10, 260-1(1940).—According to the theory of viscosities of liquids proposed by Frenkel and Eyring, the viscosities of liquids with the same mol. forms should be proportional to square roots of their mol. wts. Thus with liquid methane and deuteriomethane the viscosity ratio should be equal to $\sqrt{20}/\sqrt{16} = 1.119$. The viscosities of these 2 compds. were measured at the temp. of liquid O (90.1°K.) and were found to be equal to: $\eta_{CH_4} = 2.10 \times 10^{-3} \pm 0.01 \times 10^{-3}$ poise and $\eta_{CH_4} = 2.34 \times 10^{-3} \pm 0.01 \times 10^{-3}$ poise with the ratio $\eta_{CH_4}/\eta_{CH_4} = 1.113 \pm 0.005$. This is in very good agreement with the theoretical prediction. Roksalana Gamow

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

CA

2

The mechanism of the oxidation effect of ultrasonic vibrations. S. E. Bresler. *Acta Physicochim. U. R. S. S.* 12, 323-6(1940).—Exptl. evidence supporting a ballo-elec. mechanism and the cavitation hypothesis is advanced for luminol-Na_2CO_3 solns. Increase of pressure to 2.5-3.0 atm. quenches the luminescence; hydrodynamic cavitation with a much longer oscillation period than ultrasonic cavitation produces no luminescence. By the addn. of substances with a high vapor pressure, such as ether or ammonia, the breakdown of the cavitation bubbles is prevented, and the luminescence of luminol otherwise produced by ultrasonic vibrations is prevented. It is concluded that ultrasonic luminescence in the presence of air is due to direct activation of O_2 and not to H_2O_2 first formed.

F. H. Rathmann

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

BC

A1

Adsorption of acetylene on selective adsorbents. S. Hreshchenko (*Acta Physicochim. U.R.S.S.*, 1940, 12, 783–788). The possibility of selective chemisorption of C_2H_2 on ketones of high mol. wt. has been investigated. n-$C_{13}H_{27}$·COMe, if pptd. from an alkaline medium, readily takes up 1—1·8 mols. of C_2H_2 per mol., the sorption being largely reversible. The activity of the adsorbent slowly decreases on keeping, and more rapidly on warming. Specimens pptd. from acid media have only a very low activity, suggesting that the active adsorbents are in the enol form, and that the loss of activity on keeping is due to a change to the keto-form. F. J. G.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

BC

A-1

Mechanism of the cutting action of supersonics. S. E. Breuer (*J. Phys. Chem. Russ.*, 1940, 14, 309—311).—Solutions of 3-aminophthalhydrazide (luminol) (I) radiate in a supersonic field much more light than if (I) is added to a solution after it has been subjected to supersonics. Elimination of O_2 from the solution or keeping it under 3 atm. of O_2 prevents the emission of light, since cavitation ceases in absence of gas or under pressure. Cavitation produced by expansion of liquid causing a large vessel through a narrow capillary causes no light emission, presumably because of the slow formation of these cavities. Addition of Et_2O or NH_3 to the solution of (I) extinguishes its luminescence since these substances increase the gas pressure in the cavities and, therefore, hinder discharge therein (cf. Frenkel, A., 1941, I, 449). J. J. B.

ASM SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

CA

2

Expanded state and binary films. S. E. Bresler and P. F. Pokhil. *J. Phys. Chem.* (U. S. S. R.) 14, 810-30 (1940).—B. and P. discuss the thermodynamics of the expansion of unimol. layers and give exptl. data on the expansion of the binary films of myristic acid, Et stearate and the dimethyl ester of α, ω-tetradecanedicarboxylic acid with the hydrocarbons $C_{10}H_{22}$, $C_{14}H_{30}$ and $C_{18}H_{38}$. The results indicate normal orientation and ds. corresponding to the x-ray dimensions. F. H. Rathmann

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

BC

Viscosity and relaxation in uffimolecular layers. A. R. Bresler and S. E. Bresler (*J. Phys. Chem. Russ.*, 1940, 14, 1604—1619).—A paraffin wax dish carries in the middle a paraffin disc on a stem; when the dish is filled the H_2O level is 1 cm. above the disc. Into the H_2O is lowered a paraffin ring the radius of which is > that of the disc. The film is deposited on the surface bounded by the ring; it rotates when the dish and disc are rotated. The speed of paraffin particles embedded in the film depends on the distance from the centre of the ring; it increases with the no. of revolutions of the dish and the area per mol. of the film. The speed t sec. after the rotation of the dish has started is $v_0(1 - \exp.(-t/\tau))$, v_0 = const., τ = relaxation time; this equation is analogous to those obtaining in gels. The val. of τ is, e.g., 10·2 sec. for myristic acid at 32·6 A.^{2} per mol., 12·6 sec. for cetyl alcohol at 30·7 A.^{2}, 11·0 sec. for Et stearate at 29·9 A.^{2}, and 12·1 sec. for Et 1:16-dimethyltetradecandicarboxylate. $CaCl_2$ and $Al(NO_3)_3$ do not affect the viscosity of the films when the solution is in contact with paraffin wax only. If a glass ring is used, $CaCl_2$ (10^{-3}M.) and $Al(NO_3)_3$ (10^{-3}M.) increase the τ of dil. myristic acid films by 50—100%. Conc. films on these salt solutions are rigid and move as a whole. Since films on salt solutions possess shear elasticity they cannot consist of perfectly oriented mols. Probably mols. in the monolayers are entangled; this picture accounts also for the area per mol. being higher in films (30·5 A.^{2}) than in crystals (18 A.^{2}). J. J. B.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

BC

A

Mechanical properties of monolayers obtained by two-dimensional polymerisation and condensation. S. E. Bresler, M. Judin, and D. Tahmud (*Acta Physicochim. U.R.S.S.*, 1941, 14, 71—84).—Arrangements for studying the mechanical properties (viscosity and rigidity) of monolayers are described. By the use of polyfunctional mols., surface condensation and polymerisation reactions have been realised, which give rise to the two-dimensional analogues of a viscous liquid, a rubber like solid, and a brittle solid. F. J. G.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

BC

A-1

Expanded state and binary films. S. K. Bresler and P. F. Pochil (*Acta Physicochim. U.R.S.S.*, 1941, 16, 85–104).—The properties of binary films, consisting of a surface-active substance and a long-chain hydrocarbon, have been studied. Solid hydrocarbons are completely extruded from the film, but liquid hydrocarbons give a homogeneous film with ≥ 8 mols. of hydrocarbon per mol. of active substance. In presence of the hydrocarbon ("two-dimensional solvent") the discontinuous expansion point disappears, and on compression the val. for the limiting area per mol. is $<$ for the ordinary film, and is equal to that in the crystal. The interpretation of these results, and also the thermodynamics of the expansion, considered as a phase change of the second kind, are discussed.

F. J. G.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

PROCESSES AND PROPERTIES INDEX

The polar properties of molecules with conjugated double bonds and the mechanics of the polymerization process. S. B. Breyer. *Trudy Konferentsii Vysokomolekulyar. Soedineniyam, Akad. Nauk S.S.S.R., Otdel. Khim. Nauk i Otdel. Fiz.-Mat. Nauk* 1, 16-17(1943)(Pub. 1945).—Electrons can shift along diene chains much the same as in metals. This permits the dienes to show great polarizability. It is assumed that the first step in diene polymerization is an ionization. The fact that a monomer unites with the ion and the electron shifts to the end of the new chain permits further chain growth. H. M. Leicester

2

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

1A

23

Vulcanization of cellulose materials. P. V. Afanas'ev and S. E. Breuer. *Trudy Konferentsii Vysokomolekulyar. Soedinenii, Akad. Nauk S.S.S.R., Otdel. Khim. Nauk i Otdel. Fiz.-Mat. Nauk* 2, 120-9(1944)(Pub. 1945).—Alkylation of cellulose by compds. of the type $ROCH_2NR_3Cl$ (I) is due to formation of positively charged ions of $-O\cdot CH_2$ which are stabilized by occurrence of resonance forms. If aromatic rings or chains of conjugated double bonds are introduced, the ions are more stable and can react with OH groups in cellulose under milder conditions than can I itself. Such compds. are obtained by condensing pyridine-HCl with the bis(chloromethyl) ether of diethylene glycol, bis(2-chloroethyl) ether, the tris(chloromethyl) ether of glycerol and the bis(chloromethyl) ether of decamethylene glycol. Viscose fibers are soaked in aq. solns. of these compds. for 10 hrs. and then heated at 120° for 20 min. Vulcanization occurs and the products swell less in solvents than the original fiber. Partly hydrolyzed polyvinyl acetate and polyvinyl alc. undergo the same reaction. H. M. Leicester

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

BRESLER, S. Ye.
Comptes Rend. Acad. Sci. URSS, 1944, 43, 310-314 (cont.)

to an orderly packing of the folded polypeptide chain.

Inst. of Biochemistry, Phys, Tech .Inst. AS USSR

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

CA

New method of conservation of liquefied gases. M. M. Blat, S. E. Bresler, and Yu. N. Ryabinin. *J. Tech. Phys.* (U.S.S.R.) 15, 916-23(1945).—Kistler's aerogel, a nearly transparent colloidal SiO_2, weighing about 100 g./l., with pore dimensions of the order of 5×10^{-6} cm., was used as heat insulating material for jackets for liquid O and N. The aerogel vol. consists of about 5% SiO_2 and about 95% air. Pressures of the order of 1 atm. compress the powder by about 10%. Under atm. pressure, at 34°, the heat cond. is about 1.89×10^{-4} cal./m. hr. °C. Heat cond. measurements under reduced pressures were made in an app. consisting of two concentric hollow steel spheres. The space between the spheres, contg. the aerogel, was connected with a vacuum pump and two manometers, one near and other away from the pump, to insure correct detn. of the pressure, between 2×10^{-5} and 760 mm. Hg. The outer sphere was kept at 14.5°, the inner sphere was at the temp. of the liquefied gas contained in it, −195.8°. From the amt. of liquefied gas evapd. in 1 hr., the results were plotted in terms of Q = kg. cal. hr. transmitted against log p (pressure). Without aerogel, Q depends mainly on the condition of the walls of the spheres facing each other, Q being considerably less with the walls polished. With aerogel, no such difference is observed. Examples for aerogel-insulated vessels: space between spheres 1 cm., log p = −2, 0, 2, Q = about 3, 12, 25; without aerogel, walls polished, Q = about 18, 32, 34; space between spheres 3 cm., log p = −2, 0, 2, Q = 2, 5, 10; without aerogel, walls polished, Q = 11, 16, 37. Only at lowest pressures, below 10^{-4} mm. Hg, are the Q values with and without aerogel more or less the same, above 10^{-3} mm., the insulating qualities of aerogel are striking. Its convenience lies in the fact that it requires only a moderate vacuum. Heat cond. coeffs. of the aerogel obtained in vessels of varying dimensions coincide satisfactorily. Owing to adsorption, the aerogel reduces the gas pressure obtained by pumping. Detns. of adsorption of air were made between 700 and 10 mm. Hg, example, p = 20, 40, 100, 200, 600 mm. Hg, adsorption A = resp., 230, 275, 340, 365, 365 cc./g. The plot of p/A against p is a straight line. A container made of stainless steel, wall thickness 0.25 mm., cubic shape, capacity 5 l., thickness of insulation 30 mm., was tested and found satisfactory. Best results are obtained when the air is replaced by CO_2; this eliminates the necessity of pumping it out. N. Thon

Inst. Chemical Physics, AS USSR

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

PROCESSES AND PROPERTIES INDEX

BC

Phenomenon of the lower limit in the low-temperature polymerisation of hydrocarbons. S. E. Bresler (*Compt. rend. Acad. Sci. U.R.S.S.*, 1945, 47, 410—411).—The polymerisation of $(CH_2:CH)_2$ (I) and isoprene (II) at −80° to −100° has been investigated. The existence of a crit. initial temp., the exact equiv. of the lower limit in chain explosions, has been demonstrated. (I) containing 0·3% of BF_3 does not polymerise until the temp. is raised to −76°; an auto-accelerating reaction suddenly sets in and attains explosive proportions. The corresponding crit. temp. for (II) is −68°. The chain-branching const. depends on the amount of catalyst as well as on temp. At least 0·05—0·1% of BF_3 is necessary to initiate the reaction. C. R. JL.

Leningrad Physico-Technical Inst., Acad. Sci. USSR

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

CA

11A

Enzymic synthesis of polypeptides at high pressures. S. E. Bresler and M. V. Glikina. *Biokhimiya* 12, 389–405 (1947); cf. *C.A.* 41, 0005g.—The enzymes involved in protein metabolism usually act proteolytically when employed in the lab. However, at a pressure of 5000 atm., trypsin, papain, erepsin, and pepsin exert their synthetic action, forming polypeptides and proteins from amino acids. The synthetic activity of the proteolytic enzymes at high pressures is explained by Le Chatelier's Principle. High pressures reduce the mol. vol. The expts. of Bernal (*C.A.* 25, 5815) are cited. Thus, in a crystal of alanine, the distance between the mols. is 5.8 A., whereas the distance between the alanine units in alanine polypeptide is only 3.5 A. The procedure used in the enzymic synthesis was to place the ampul with a thin capillary opening, contg. 3 ml. of the protein hydrolyzate, in a rubber sack filled with 3 ml. of the same soln. The rubber sack was placed in a thick-walled bomb surrounded by distd. water, through which the pressure was communicated by a steel piston of a hydraulic press. The rubber sack prevented contamination of the soln. with traces of heavy metals. In expts. with gelatin, a tryptic hydrolyzate was employed, in a medium of 0.1 *N* borate buffer (pH 8.5–9.2), with a gelatin concn. of 1–4%, and the ratio of trypsin to substrate 1:30. The same gelatin soln. could be repeatedly hydrolyzed (at atm. pressure) and then resynthesized (at 5000 atm. pressure) by the action of the same sample of trypsin. The subsequent enzymic hydrolysis of the resynthesized gelatin proceeded at the same rate as the initial hydrolysis. After resynthesis, the gelatin behaved very much like the starting material; solns. gelatinized after having been cooled to room temp. However, the exact nature of the resynthesized proteins (mol. wt., electrochem., and biol. properties) has not yet been elucidated. The hydrolyzed ovalbumin after resynthesis by trypsin at high pressures was also quite similar to the starting ovalbumin. The resynthesis of hemoglobin by papain yielded a product free of pigment, and resembled globulin. The result was quite different with the serum globulin resynthesized by trypsin. A gel was obtained which could not be dissolved in acids, alkalies, or in salt solns. When acted on by strong HOAc, it dispersed in the form of a turbid colloidal soln. H. Priestley

Leningrad Physico-Technical Inst. Acad. Sci. USSR

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

Bresler, S. E.

PA 20T28

USSR/Medicine - Enzymes
Medicine - Amylase

Jan 1947

"Principles of the Enzyme System Under Pressure," S. E. Bresler, 3 pp

"Dok Ak Nauk SSSR" Vol LV, No 2

Submitted by A. F. Ioffe, Leningrad Physical Technical Institute, Academy of Sciences of the USSR, 20 Nov 1946. Experiments carried out under pressures of 6,000 atmospheres. Concluded that under sufficiently high pressures a fermentative synthesis occurs in trypsin and amylase.

20T28

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

BRESLER, S. YE

PA 6077

USSR/Chemistry - Peptides Jul 1947
Chemistry - Synthesis

"Enzyme Synthesis of Polypeptides Under Pressure," S. Ya. Bresler, M. V. Glikina, Phys-Tech Inst, Acad Sci USSR, Leningrad, 4 pp

"Dok Akad Nauk SSSR, Nova Ser" Vol LVII, No 1

Describes experiments which show that proteolytic ferments such as trypsin, pepsin, erepsin, and papain resynthesize under a pressure of several thousand atmospheres. Expresses thanks to N. A. Seleznevaya who took part in the experiments.

[redacted]

6077

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

13

25

"Vulcanization" of Cellulose Materials. (In Russian.) P. V. Afanas'ev and S. E. Bresler. *Kolloidnyi Zhurnal* (Colloid Journal), v. 10, July-Aug. 1948, p. 249-258.

Presents results of attempts to change the chemical and mechanical properties of the above by formation of chemical bonds between the macromolecules of cellulose, that is, a sort of vulcanization. This process reduces the plasticity of the fiber, particularly in a water-vapor atmosphere.

COMMON ELEMENTS

COMMON VARIABLES INDEX

OPEN

MATERIALS INDEX

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

MATERIALS INDEX

AUTHOR INDEX

1ST AND 2ND LETTER

3RD AND 4TH ORDERS

3RD LETTER

4TH GROUPS

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

USSR/Chemistry -- Synthesis
Chemistry -- Albumen

Nov/Dec 48

"Problems in the Synthesis of Albumen and Starch," S. Ye. Bresler, Physicotech Inst, Acad Sci USSR, 16 pp

"Iz Ak Nauk SSSR, Ser Fiz" Vol XII, No 6

695-410

Concludes that fermentation reactions in hydrolysis of albumens and starch are reversible. Shift in equilibrium from dissolution of polymeric molecules to synthesis is associated with variations in volume due to changes in the peptide (and ozide) link in the chain. Experiment revealed correlation of volume variations with synthesis phenomena for various conditions governing reaction.

25/49T10

PA 25/49T10

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

BRESLER S.E.

The problem of synthesis of protein and starch [illegible]

[illegible]

[illegible] gave after application of [illegible]

sure at 50° a product containing 13–15 amino acid units with av. mol. wt. 1200–1400. Expts. on protein resynthesis by means of enzymes are mentioned (cf. Bresler, C.A. 41, 6995g; 43, 704h). For such work under high pressure the borate buffer (pH 9) appears to be the best, on the basis of vol. changes observed during protein hydrolysis by trypsin. In pure H_2O, pressure resynthesis is unsatisfactory. Treatment of alanine in borate and soda buffer (pH 9.1) at 6000 atm. with pancreatin led to polymer synthesis with decline of amino-N by 25–30%. The product, purified by adsorption on C, showed 2 fractions: alanine and the dipeptide. Similarly maltose was polycondensed in the presence of malt amylase and salivary amylase; the product consisted of about 8 maltose units and gave a distinct violet color with iodine.

G. M. Kosolapoff

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

PA 52/49T15

USSR/Chemistry - Amino Acids May/Jun 49
Chemistry - Proteins

"Synthesis of Proteins and Peptides Under Pressure," S. Ye. Bresler, M. V. Glikina, A. P. Konikov, N. A. Selezneva, P. A. Finogenov, Molecular Dept, Physicotech Inst, Acad Sci USSR, Microbiol Dept, Inst of Experimental Med, Acad Med Sci USSR, 14 pp

"Iz Ak Nauk SSSR, Ser Fiz" Vol XIII, No 3 392-406

Experiments showed that polymers resynthesized by authors have most characteristic physicochemical and biological properties of natural proteins. A number of important conclusions on structure of protein

[redacted] 52/49T15

USSR/Chemistry - Amino Acids (Contd) May/Jun 49

globule and connection of immunological and fermentative activity with structure of macromolecule may be drawn from resynthesis of protein. Made first successful steps in synthesizing amino acids from simplest substrates. Submitted 25 Apr 49.

[redacted] 52/49T15

BRESLER, S. YE.

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

PROCESSES AND PROPERTIES INDEX

CA

11a

Structure of globulin proteins and their interaction with the external medium. S. E. Bresler. *Biokhimiya* 14, 180-9(1949); cf. *C.A.* 39, 1428[illegible].—An aq. soln. of serum albumin (1-3%) in phosphate buffer of pH 6.5 (0.03 *M*) on satn. with ether (6.6%), gave a lower sedimentation const. than the control, when subjected to the ultracentrifuge in Svedberg's lab., Sweden. Calcn. showed an increase of 18.7% in the size of the protein mol. as a result of swelling. When 5 and 10% acetone was added to the protein soln., the mol. increase was 8 and 15.9%, resp. In the presence of urea, the sedimentation const. of serum albumin increased. The protein mol. had become heavier because 360 mols. of urea had combined with it. A soln. of serum albumin satd. with C_6H_6 gave 2 sedimentation peaks, one due to the serum albumin, the other due to the bimolecular, assocd. protein. The monoprotein could not be sepd. from the diprotein by electrophoresis. H. Priestley

Leningrad Physico-Technical Inst., Acad. Sci. USSR

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

CA

11 G

Immunological properties of pressure-resynthesized proteins. S. B. Breaker, A. P. Konikov, and N. A. Selezneva (Phys.-Tech. Inst., Leningrad, Acad. Sci. U.S.S.R.). *Doklady Akad. Nauk S.S.S.R.* 65, 521-3 (1949); cf. *C.A.* 43, 7968b.—While serum albumin loses its antigenic properties and antigen specificity upon enzymic hydrolysis, enzymic resynthesis under 6000 lb. pressure restores both properties; no new specificities arise. Hence, specificity must be ascribed not to a macromolecule but to some specific sections thereof.

G. M. Kosolapoff

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

BRESLER, S.Ye.; FINOGENOV, P.A.

Method of electrophoresis of proteins. Biokhimiia, Moskva 15 no.2: 145-154 Mar-Apr 1950. (CLML 20:7)

1. Physico-Technical Institute, Academy of Sciences USSR, Leningrad.

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

10

New synthesis of polypeptides by condensation of amides of hydroxy acids. S. E. Bresler and N. A. Seleznev (Leningrad Phys. Tech. Inst., Acad. Sci. U.S.S.R.). *Zhur. Obshchei Khim.* (J. Gen. Chem.) 20, 356-60(1950).—AcNH$_2$ (40 g.) in 100 ml. abs. EtOH refluxed 20-30 min. with 11.5 g. EtONa gave a cryst. product which was taken up in more EtOH and satd. with dry HCl, filtered, and evapd., yielding 100% *AcNH$_2$-HCl*, m. 59°. No by-products were detected. Hence the reaction was applied to the derivs. of HO acids to form polymeric products. Lactic acid was converted by treatment of the Et ester with NH$_3$ into the amide which, boiled with Na in dioxane, yielded the Na deriv., *MeCH(ONa)CONH$_2$*, m. 291°. The product (8 g.) heated in an evacuated tube 3-4 weeks to 80° gave a transparent *resin*, which was treated in EtOH with dry HCl, filtered, and evapd., yielding a clear resin, decomp. 105° without melting; it is sol. in H$_2$O, less in EtOH, insol. in Et$_2$O, dioxane, or Me$_2$CO. Condensation for 5-7 days gives a softer resin. Condensation of the free amide with metallic Na at 110° gave a dark product and considerable NH$_3$. Hydrolysis of the product by alc. aq. HCl at 33° in 22 hrs. gave 40% cleavage of the peptide links, while pancreatin gave 45% hydrolysis in 10 hrs. In both cases alanine was the end product, hence the resin was a *polypeptide* of *polyalanine* type. Adsorption on charcoal and refractometric examn. of the soln. established the polymeric nature of the product and its hydrolyzates. Polarimetric examn. showed 89% retention of the L-configuration. Mol. wt. by viscosity detns. gave 5000-6000 av. mol. wts.

G. M. Kosolapoff

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

BRESLER, S.Ye.

Biosynthesis of protein. Usp. sovrem. biol. 30 no.1:90-112 July-Aug. 1950. (CIML 20:1)

1. Leningrad.

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

CA

11C

Structure of procollagen macromolecule. S. E. Bresler, P. A. Finogenov, and S. Ya. Frenkel. *Doklady Akad. Nauk S.S.S.R.* 72, 555-8(1950).—Rat skin procollagen is a monodisperse globulin as shown by ultracentrifugal sedimentation; its diffusion coeff. at 20° in H_2O is 2.24 × 10^{-7} cm.^{2}/sec. at 0.3-0.5% concn. Its mol. wt. is estd. as 70,000 and the shape of the mol. estd. from the mol. friction const. is a cylinder with 20:1 axis ratio with the length about 380 A. Ultracentrifugal study in 0.32 *M* NaCl gave a triply peaked sedimentation curve, the 2 new peaks being caused by more rapidly moving particles, apparently caused by lengthwise assocn., as well as axial assocn.

G. M. Kosolapoff

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

BRESLER, S.E.

From the Russian for Dr. Daniel Steinberg
Doklady Akademii Nauk SSSR 75, 1: 79-82, 1950

Enzymatic reaction of transfer of phosphate from adenosinetriphosphoric acid to ribonucleic acid
by
S. E. Bresler and E. I. Nidzian

Translated at the National Institutes of Health, Bethesda, Maryland.
Full translation available in [redacted]/M.

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

11A

Proteolytic enzymes are metallo-proteins. S. E. Breslet and N. A. Rozentsveig (Phys.-Tech. Inst., Leningrad). *Biokhimiya* 16, 84-94(1951).—Com. trypsin, or the trypsin in pancreatic juice, contains 1 atom Cr per mol. protein. Cryst. trypsin (obtained by the addn. of a large excess of $MgSO_4$) has the Cr replaced by Mg. The enzymic activity of both trypsins (blood albumin and benzoylargininamide as substrates) is the same. The Cr is not firmly bound, and can be removed by dialysis. Purified, but uncrystd. com. trypsin is completely inhibited by the following org. metal complex-forming compds., in 0.002-0.005 *M* concns.: 8-quinolinol, formaldoxime, Na phenylthiocarbamate, thioglycolic acid, mercaptobenzothiazole, nitroso-2-naphthol, nitroso-R-salt, and diphenylcarbazide. None of these poisons which so effectively paralyze the com. enzyme have the least effect on crystd. (Mg-contg.) trypsin. On dialyzing com. trypsin, about 95% of the proteolytic activity is lost. The activity can be largely restored by the addn. of 0.0005 *M* Cr or 0.000 *M* Mg. Even the undialyzed enzymes can be activated for proteolysis by adding to the buffer solns. traces of Cr or Mg. More effective proteolysis and synthesis by proteolytic enzymes under high pressures is achieved in the presence of these metal activators. In chymotrypsin, the active metal is Mg, which is held rather firmly, and is not removed by dialysis. Chymotrypsin activity is inhibited by 0.03 *M* quinalizatin. It is suggested that some digestive disorders in man and in animals occur because of the scarcity of the metals entering into the compn. of digestive enzymes, or because of a metabolic disturbance of these metals in the organism. The *healing effect of some mineral waters* in digestive disorders is ascribed to the presence in the water of trace elements necessary to the organism.

H. Priestley

1951

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

BRESLER, S.Ye.; PAVLOVA, S.A.; FINOGENOV, P.A.

Diffusion of polymers in solutions. Zhur.Tekh. Fiz. 21,1061-5 '51. (CA 47 no.17:8467 '53)

(MLRA 4:9)

1. Leningrad Phys.-Tech.Inst.

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

CA

11 A

Resynthesis of biologically active insulin. S. E. Breslez, M. V. Glikina, and A. M. Tongur. *Doklady Akad. Nauk S.S.S.R.* **78**, 543-5(1951).—Cryst. insulin as a 0.6% soln. in 0.2*M* borate buffer at pH 8.8 was used as starting material. This was hydrolyzed by 0.0012% trypsin and 0.006% chymotrypsin for 4-5 hrs. to the extent of about 5% which is max. for these enzymes. Since the enzymes are inactivated under pressure, they were stabilized by 20% glucose. Pressure resynthesis, measured by decrease of free amino groups, reached 96%. To prevent renewed hydrolysis by the enzymes on release of pressure the mixt. was adjusted immediately to pH 2.5 and frozen in liquid air. The resynthesized insulin, in contrast with the hydrolyzate, showed typical insulin sedimentation consts.; this indicated reestablishment of its macromol. from proteolytic fragments of low mol. wt. The biol. activity was reestablished to the extent of some 10%. The hydrolyzate used as starting material for resynthesis was inactive.

G. M. Kosolapoff

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

2
IRMC

NW/7691

C11 RADIOACTIVE ELEMENTS. S. E. Bresler. Moscow-Leningrad, Gostekhizdat, 1952. 435p. (In Russian) (Book on display at Geneva Conference)

A monograph on the chemistry of radioactive substances and radiochemical methods of investigation. Radioactive series; analysis of the processes of concentration, separation and adsorption of radioactive substances. Fundamentals of the chemistry of radioelements and artificial radioactivity and of nuclear reactions. Methods of producing artificial radioactive elements and their compounds. Application of labelled atoms in chemical, biological, medical and geological research; bibliography after each chapter. (publisher's note)

RMC

Jac

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

BRESLER, S. Ye.

Brit Abs AIII
July 1953
General, Organs + Constituents.
Comparative Physiology

Chem

Resynthesis of protein under pressure. S. E. Bresler, M. V. Glikina, N. A. Sclernova, and P. A. Fincgenov (*Biochimia*, 1952, 17, 44—55).—Various proteins were treated with crystalline proteases. After hydrolysis had occurred the mixture was exposed to a pressure of 6000 atm. and the resynthesis of the protein studied. It is found that with mixtures of different substrates, *e.g.*, ovalbumin, serum albumin, the amount of protein resynthesised was greatly reduced, although each of the proteins separately could be resynthesised. Resynthesis takes place not in steps but rapidly, and it is not possible to isolate any intermediary substances between the products of hydrolysis and the resynthesised protein.

D. H. SMYTH.

4-26-54

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

BRESLER, S. YE., PAVLOVA, S. A., FINOGENOV, P. A., CHMUTOV, K. V.

Polymers and Polymerization

Remarks on the paper "Diffusion of polymers in solutions" Zhur. fiz. khim. 26 No. 3, '52.

9. Monthly List of Russian Accessions, Library of Congress, September 1952 Uncl.

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

USSR/Chemistry, Biological - Proteins 11 Jun 52

"Crystallization of Resynthesized Protein," S. Ye. Bresler, N. A. Selezneva

"Dok Ak Nauk SSSR" Vol LXXXIV, No 5, pp 1013-1015

Authors showed formerly that enzymatic resynthesis under pressure of products of deep fission of proteins yielded artificial substances of globular structure which exhibited a biol activity (antigenic, enzymatic, and hormonal) typical for native proteins. In the expts described now, equine serum albumin was split by trypsin and chymotrypsin. Upon addn of glucose serving to protect the enzymes against fission,

223T22

the protein was resynthesized under pressure. Investigation in an ultracentrifuge showed that the resynthesized protein showed a mol wt dispersion of 22% in comparison with the initial albumin. This dispersion explains the lower biol activity per unit of wt exhibited by resynthesized proteins. The product of resynthesis crystd with great facility, however.

223T22

BRESLER, S. YE.

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

BRESLER, S.E.; KORSHAK, V.V.; PAVLOVA, S.A.; FINOGENOV, P.A.

Experimental study of the molecular-weight distribution function of polyamides. Doklady Akad.Nauk S.S.S.R. 87, 961-4 '52. (MLRA 5:12) (CA 47 no.14:6738 '53)

1. Inst. High-Mol. Compds., Acad. Sci. U.S.S.R., Moscow.

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

BRESLER, S.YE.

"Concerning the Article 'Synthesis of Proteins' by S.Ye. Bresler
V.P. Korotkoruchko, Kiev, reviewer)
Biokhim, vol. 18, no. 1, pp 130-136, Jan/Feb 1953

Review is an exhaustive criticism of an article which appeared in Voprosy Filozofii, no.3, 1951, pp 82-94. The reviewer accuses Bresler of deviating from the theories of dialectical materialism and of presenting theories which are in direct contradiction to his own (Bfesler's) experimental data. He quotes Bresler as denying the existence of polypeptides in living tissue and accuses him of disregarding the effects of environment on the synthesis of proteins. His general conclusion is that Bresler has brought considerable confusion to the accepted ideas on the biological synthesis of proteins.

257T3

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

Enzymic synthesis of the oxide bonds under pressure. S. E. Bresler and S. Ya. Frenkel (Inst. of High Mol. Compds. Acad. Sci. U.S.S.R., Leningrad). *Biokhimiya* 18, 659-95(1953).—Under pressure of 8-9 thousand atms. it is possible to convert the amylolytic reaction into a process of synthesis. α-1,4-Glucoside was thus synthesized by two methods described. Unlike the case of protein synthesis, no high mol. products could be obtained. Because of the loss of dextrinogenic activity, amylases are ineffective as catalysts in the interpolymerization of dextrin mols.

B. S. Levine

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

BRESLER, S. E.

USSR

The theory of nonequilibrium chromatography. S. E. Bresler and Ya. S. Uflyand. *Zhur. Tekh. Fiz.* 23, 1443-51 (1953).—A differential equation is written for the condition that the adsorption on the grains of the adsorbent is not an equil. value, but trails by a time τ. This equation is $\tau(\partial^2 c/\partial t^2) - (\partial c/\partial t) - (w/qk) - (\partial c/\partial x) = 0$, where w is the velocity of the liquid in ml./sec., q the cross section of the column, k a const. (the sum of the adsorption const. and the coeff. of porosity), and c the concn. This equation was solved by means of Laplace transfers both for the case of frontal and of elutive chromatography. S. Pakswer

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

BRESLER, S. E.

5379. Investigation by means of an ultracentrifuge of the molecular weight distribution of polymers. S. E. BRESLER and S. Y. FRENKEL. Zhur. Tekh. Fiz., 1953, 23, 1502–20; In English: Rubb. Chem. Technol., 1957, 30, 487–506. A method is given for studying molecular weight distribution of linear polymers in general. It involves fractionating the polymer into a series of narrow fractions and investigating each with the ultracentrifuge; plotting the distribution functions of sedimentation constants for each fraction and subsequent summation of curves to build up the distribution function of the sedimentation constants of the whole polymer, discovery of a general functional relation between sedimentation constants and molecular weights for a given series of polymer homologues; and construction of the distribution function of molecular weights of the polymer 38324

3
4E2c(j)
Maj

1/1

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

BRESLER, S. G. USSR.

The molecular-weight distribution of polymers. S. E. Bresler, I. Ya. Poddubnyi, and S. Ya. Frenkel. Zhur. Tekh. Fiz. 23, 1521-40(1953).—Three samples of rubber were selected: 2 butadiene polymers with plasticity 0.3 and 0.26 and 1 low-mol. (plasticity 0.5) butadiene-styrene copolymer (Buna-S). A mol.-wt. distribution was obtained by fractional pptn. by methanol from benzene solns. The fractions were dried in a vacuum and weighed. Their mol. wts. were detd. by osmometry, viscometry, and diffusion of light. The resulting step curve of distribution was smoothed out and compared to the curve obtained from ultracentrifuge data by the method described in the preceding abstract. The latter gives more details about the distribution curve. The calcn. of corrections, included in the method, is given in detail. S. Pakswer

5
0
IMAY

2

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

BRESLER, S. YE.

The Committee on Stalin Prizes (of the Council of Ministers USSR) in the fields of science and inventions announces that the following scientific works, popular scientific books, and textbooks have been submitted for competition for Stalin Prizes for the years 1952 and 1953. (Sovetskaya Kultura, Moscow, No. 22-40, 20 Feb - 3 Apr 1954)

Name	Title of Work	Nominated by
Bresler, S. Ye. Glinkina, M. V.	"Resynthesis of Biologically Active Proteins Under Pressure"	Institute of Biological and Medical Chemistry, Academy of Medical Science USSR

SO: W-30604, 7 July 1954

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

Disturbance of chemical equilibria in surface layers

S. E. Bresler and G. V. Samsonov (Acad. Sci. U.S.S.R.).

Izvestiya Akad. Nauk S.S.S.R., Otdel. Khim. Nauk 1954, 2[illegible] 23. A study was made of the problem of the equil. of chemically interacting substances in the surface layer. Investigations in the direction of chem. processes led to an [illegible] applied to the surface of a liquid. The process [illegible] synthesis of esters from acid and [illegible] consists of a systematic investigation [illegible] of different org. [illegible] of Langmuir Adams, as well as by the [illegible] colorimetric analysis. A series of org. acids [illegible] palmitic was studied and a series of [illegible] hexadecyl to octadecyl was used. Unimol. surfa[illegible] were applied to the surface of water in the Langmuir bath. Surface tension was measured by means of a torsion balance by using the method of breaking away of a glass plate having a perimeter of 20 mm. The error involved in this measurement was 0.2[illegible] dynes/cm. For applying the film a [illegible]% soln. of acid and alc. in hexane was employed. This soln. was applied in the quantity of 5–6 drops from a specially calibrated micropipet. The esters formed were recovered [illegible] colorimetric analysis, after adm. of [illegible] to produce a red color. The synthesis of [illegible] fatty acid and an alc. was demonstrated and it was shown that under conditions of monolayers, reactions of dehydration proceed in the presence of practically endless reservoirs of water, and that the original conditions in the surface layer displace the chem. equil. from hydrolysis to synthesis. Data are presented graphically. G. S. M.

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

BRESLER, S.Ye. (Leningrad)

Enzymatic synthesis of protein. Usp.biol.khim. 2:66-96 '54. (MIRA 12:12)

(PROTEINS,
synthesis, fermentative)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

BRESLER, S.E.

Investigation of the distribution function for the molecular weights of polyamides by sedimentation and ultracentrifuging. I. Determination of the distribution function from sedimentation constants. II. Molecular weight distribution of polyamides and mechanism of condensation. S. E. Bresler, V. V. Korshak, S. A. Pavlova, and P. A. Finogenov (*Izvest. Akad. Nauk SSSR, Otdel. khim. Nauk*, 1954, No. 2, 344—353, 354—361).—I. Distribution functions for mol. wt. are deduced for polyamides by sedimentational (ultracentrifuge) analysis of fractions obtained by fractional precipitation of the polymer with ether from methyl alcohol. After correction for the effects of inhomogeneity of the centrifugal field and of diffusion, the sedimentation curves approximate closely to Gaussian curves and the calculation of the distribution function is simple.

II. Distribution functions derived from sedimentation constants and diffusion coefficients by a fairly vigorous method do not coincide with the theoretical ones calculated on the basis of Flory's theory of the mechanism of linear condensation. An alternative theory is propounded, making allowance for exchange and degradational reactions between molecules of polymer, and of polymer and monomer. The existing methods of fractionating polymers are criticised and the state of polyamides in solution is discussed.

R. C. MURRAY

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

BRESLER, S. E.

10

(6)

The molecular weight of plasteins. S. E. Bresler, K. S. Makarov, and S. Ya. Frenkel (Inst. High-Mol. Compds., Acad. Sci. U.S.S.R., Leningrad). *Biokhimiya* 19, 88–95 (1954).—Sedimentation and diffusion consts. and mol. wts. of two plasteins were detd. The plasteins proved to be polydispersed low-mol. peptides with an av. mol. wt. of about 500. The presence of high-mol. fractions in plastein compns. reported by others are explainable on the basis of secondary aggregation. Plasteins contain no heavy-mol. fractions. The formula of Gutfreund and Ogston (*C.A.* 43, 6259f) yielded correct sedimentation consts. for low-mol. polypeptides. Calcn. of mol. wt. on the basis of distribution in the diffusion layer close to the bottom of the tube can be made with the aid of the barometric Boltzmann formula.

B. S. Levine

10-15-54

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

BRESLER, S. Ye., PRYADILOVA, V. I. and KHAINMAN, V. Ya.

"Investigation of the Mechanism of Rubber Vulcanisation aided by Radioactive Sulphur. I." Zhur. Tekhn. Fiz., 1954, 24, p. 577-98

Thin rubber discs were coated on the under surface with sulphur, isotope 35, and radiation measured on the upper surface by a gieger counter. There sas no cross-linking in natural rubber, using 0.01 to 0.02% S without an accelerator, the sulphur concentration becoming equal on both surfaces. Treatment with thiuram type accelerator or mercaptobenzthiazole, 0.3 to 0.5%, resulted in a low concentration on the upper surface. Combined and free sulphur were directly proportional, corresponding to a first order equation. Accelerators with 3% sulphur showed secondary cross-linkage dur to reverse diffusion. Radiation from the upper surface reached a maximum and then dropped by 25%. This indicated the sulphur concentration on the lower surface to be temporarily lower than that on the upper. Buna has only primary addition whatever the sulphur concentration. The diffusion constant shows the sulphur molecule to be S_8. Only two thiuram sulphurs, those of the disulphide group, take part in the exchange reaction, S^{35}-thiuram. These form a thermodynamically unstable active sulphur biradical, which breaks down a S_8 ring to further biradicals, which then bond hudrocarbons already activated by primary addition. Each polysulphide bond has a length of 10 to 20 sulphur atoms. The scission energy (2,700 cal/mol) suggests the diffusion of most of the bonded rubber. Though vulcanised natural rubber has considerable diffused sulphur, a Buna vulcanisate has little, due to the small number of polysulphide bonds.

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

BRESLER, S. Ye., KUSHNER, V. P. and SAMINSKIY, Ye. M.

"Study of the Mechanism of Vulcanization of Rubber with the aid of Sulfur-35. II" Zhur. Tekh. Fiz. 24, 2150-68, 1954.

In various synthetic rubbers, and especially natural rubber, a nonlinear addn. of S^{35} was observed at concns. >1% and at elevated temps (120-155°). The primary addn of S was found to be partially followed by the secondary reaction of S-forming polysulfide bridges between the rubber chains. The departure from simple kinetic characteristics of the process is explained on the basis of calcns. of the diffusion coeff. and the amt. of polysulfides in the rubber. Similar measurements were also carried out for rubber vulcanized under the usual conditions (1-2% S; 130-140°). The free radical S_2-- reacts with rubber, even at room temp. The app. is described in detail.

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

Enzymic activity of fragments of protein of low [illegible] weight and the protein of the [illegible]

[illegible] soln. was autolyzed in borate buffer at pH [illegible] at 37° for 3.5 hrs., the process being followed by [illegible] amino N. [illegible] centrifuging was continued 6–8 hrs. at 65,000 r.p.m. after acidification to pH 3 and examn. of a specimen taken from the upper part of the cell (free from protein macromols.) showed that the products were substances of relatively low mol. wt. (2000–3000). This material had protease activity which was only reduced from that of the original enzyme by a factor of 16–20. A control run, in which a hole [illegible] was treated similarly, also showed a weak activity [illegible] fraction of low mol. wt. taken from the upper part of the ultracentrifuge cell; this, however, was several times weaker than that found for the autolyzed specimen. A specimen of myogen was hydrolyzed by combined action of trypsin and chymotrypsin to the extent of 5–6%, after which the product was ultracentrifuged as above. In this case the [illegible] enzymic activity [illegible]

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

tion of a stationary front of the

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

BRESLER, S. Ye.

Resynthesis of protein under pressure. S. E. Bresler (Inst. Highmolecular Compounds, Acad. Sci. U.S.S.R., Leningrad). *Biokhimiya* 20, 463-5(1955).—Talwar and Macheboeuf (*C.A.* 48, 6477*b*) and Macheboeuf, *et al.* (*C.A.* 45, 2036*e*) reported their inability to reproduce the results previously reported by Bresler, *et al.* (*C.A.* 46, 5630*e*) regarding the resynthesis of proteins under pressure. The difference in the results obtained was because the French authors probably used impure enzyme prepns. A method of enzyme purification was described and new data presented which confirm previous assertions. B. S. Levine

CH

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

BRESLER, S.E.

EXCERPTA MEDICA Sec.2 Vol.10/2 Physiology,etc Feb57

572. BRESLER S.E. and RUBINA Kh.M. Biochem. Dept., 1st (Pavlov) Med. Inst., Leningrad. *Enzymatic transportation of phosphate groups from ribonucleic acid to fructose monophosphate (Russian text) BIOKHIMIJA 1955, 20/6 (740-748) Tables 4

Phosphorylated yeast RNA has been enzymatically synthetized. The substance obtained in the presence of 6-phosphofructokinase delivers the phosphate group to fructose 6-phosphate, forming fructose diphosphate. It is believed that the phosphorylated RNA is a high-energy phosphate, resembling ATP. Enzymatic participation of 6-phosphofructokinase seems to indicate that the transported phosphate group must be bound to the 5th carbon of ribose. Szabuniewicz - Gdańsk

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

BRESLER, S. Ye.

The investigation of the reaction mechanism of polymerization by the [measurement of the] distribution of the molecular weights in the products. S. E. Bresler and S. Ya. Frenkel. *Zhur. Tekh. Fiz.* 25, [illegible] cf. *C.A.* 49, 3620/.—11 polymers, which are not identified, were sepd. into the components of various mol. wt. by an oil ultracentrifuge at 40,000 r.p.m. (100,000 × g). The temp. during the runs never rose more than 0.5° and was between 15 and 18°. The diffusion coeff. was detd. in an app. where the temp. could be kept const. to ±0.003°, and the viscosity was measured in a suitable viscometer. The reference value for all values is the sp. vol. of polystyrene in Me Et ketone of 0.91 cc./g. Werner Jacobson

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

BRESLER, S. Ye.

Category: USSR / Physical Chemistry - Surface phenomena. Adsorption. Chromatography. Ion exchange. B-13

Abs Jour: Referat Zhur-Khimiya, No 9, 1957, 30218

Author : Samsonov G. V., Bresler S. Ye., Vansheydt A. A., Kuznetsova N. N., Lavrent'yeva S. F., Shesterikova M. P.

Inst : not given

Title : Sorption of Streptomycin by Carboxyphenol Resins

Orig Pub: Antibiotiki, 1956, 1, No 5, 42-46

Abstract: Trivalent cathions of streptomycin (Str^{3+}) are sorbed irreversibly at sulfocathionites while with purely carboxylic cathionites (KFU and KMT) absorption capacity for Str^{3+} amounts to only 38-22% of their capacity for simple inorganic cathions (Na^{+} and Ca^{2+}), evidently due to steric hindrances caused by excessively close distribution of carboxyl groups. It was found, in accord with the theoretical assumption, that the readily swelling, capable of ion-exchange

Card : 1/2

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

DRESSER, D. L.

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

Ion-exchange chromatography of streptomycin on [illegible] mutite. S. E. Bresler and G. V. Samsonov (Inst. High Mol. Compds., Acad. Sci. U.S.S.R. [illegible]

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

BRESLER, S.E.

B-13

USSR/Physical Chemistry. Surface Phenomena. Adsorption. Chromatography. Ion Exchange.

Abs Jour : Ref Zhur - Khimiya, No 7, 1957, 22561.

Author : G. V. Samsonov, S. E. Bresler.
Inst : Not given
Title : Statics and Dynamics of Streptomycin Ion Exchange with Metal and Hydrogen Ions on Carboxyl Tars.

Orig Pub : Kolloid. Zh. 1956, 18, No 3, 337-343 (rez. angl.)

Abstract : Carboxyl cationites (CC) unlike sulfocationites sorb streptomycin (I) reversibly from solutions, but only in case when CC are used in Na^+, K^+, or NH_2^+ salt form. Exchange capacity of CC in relation to I depends on the degree of tar swelling, which creates new possibilities for increase of accessibility of ionite active centers for large ions I, in comparison to permutites (RZHKhimii,1956,57703). Equilibrium of the I ion exchange with metal cations conforms with B.P. Nikol'skiy's equation, if we take in account only those metal ions in cationite which can exchange with I. For one g-mole of I - 3g-mole of Na^+ are displaced and as a result of that a

-198-

Card 1/2

Inst. Vysokomolekulyarnykh soyedineniy An SSSR, Leningrad.

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

Sorption and chromatography of Aureomycin G. V. Kimronov, S. E. Bresler, and N. A. Rozentsveig (Inst. High-Mol. Compds., Acad. Sci. U.S.S.R., Leningrad). *Kolloid. Zhur.* 18, 470-3(1956).—Aureomycin-HCl (1), from a 0.05% soln., was most strongly adsorbed by C. at

Leningrad Chemico-Pharmaceutical Inst.

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

BRESLER, S. YE.

Category : USSR/Atomic and Molecular Physics - Liquids D-8

Abs Jour : Ref Zhur - Fizika, No 1, 1957 No 970

Author : Bresler, S.Ye., Pikus, G.Ye.

Title : On the Separation of Ions by Their Mobilities.

Orig Pub : Zh. tekhn. fiziki, 1956, 26, No 1, 109-125

Abstract : Development of a phenomonological theory of the separation of ions by their mobilities, using as an example the separation of isotopes of liquid metal by electrolysis. Expressions are derived for the stationary and non-stationary distributions of the concentration of the isotopes and for the amount of isotope concentrated at the edge of the tube (for the stationary cases). The laws derived are applied to the analysis of the experimental data on the separation of Hg and Ga and to the calculation of the differences in the mobilities of the isotopes of these elements.

Card : 1/1

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

BRESLER, S. YE.

USSR/Chemistry of High Molecular Substances. F

Abs Jour: Ref Zhur - Khimiya, No. 8, 1957, 27064.

Author : Bresler, S.Ye., Dolgoplosk, B.A.; Krol', V.A., Frenkel', S.Ya.

Inst :

Title : Reactions of Free Radicals in Solutions. V. Destruction of Polymer Molecules under Influence of Free Radicals.

Orig Pub: Zh. obshch. khimii, 1956, 26, No. 8, 2201 - 2209.

Abstract: The reactions of free radicals (forming in the result of dissociation of alkylpenyltriazenes and of dinitryl of aziisobutyric acid) with natural rubber, synthetic polyisoprene and divinyl polymer were studied in a wide range of concentrations. The reactions of these polymers

High Polymer Inst. AN SSSR, Moscow.

Card 1/3

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

USSR/Chemistry of High Molecular Substances. F

Abs Jour: Ref Zhur - Khimiya, No. 8, 1957, 27064.

with S_2Cl_2 were studied also. The polymer destruction takes place in all cases, the decomposition of the polymer chains occurs without any order, and the probability of a rupture at any monomer link of the polymer is the same. It is established that intramolecular vulcanization does not take place at the action of free radicals on polymers under the conditions, under which the reactions have been carried out. In the opinion of the authors, the destruction proceeds in two stages: 1/ tearing an H-atom away from the polymer with the formation of the polymer radical and 2/ dissociation of the polymer radical with the formation of the diene groupation on the end of the chain and of the allyl radical. The authors arrive at the conclusion

Card 2/3

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6

Sorption and chromatography of Aureomycin. O. V. Samsonov, S. E. Bresler, and N. A. Rasentsvaig. Colloid J. (U.S.S.R.) 43, 481-4(1956)(English translation).—See C.A. 51, 1624g. B. M. R.

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000306910006-6"