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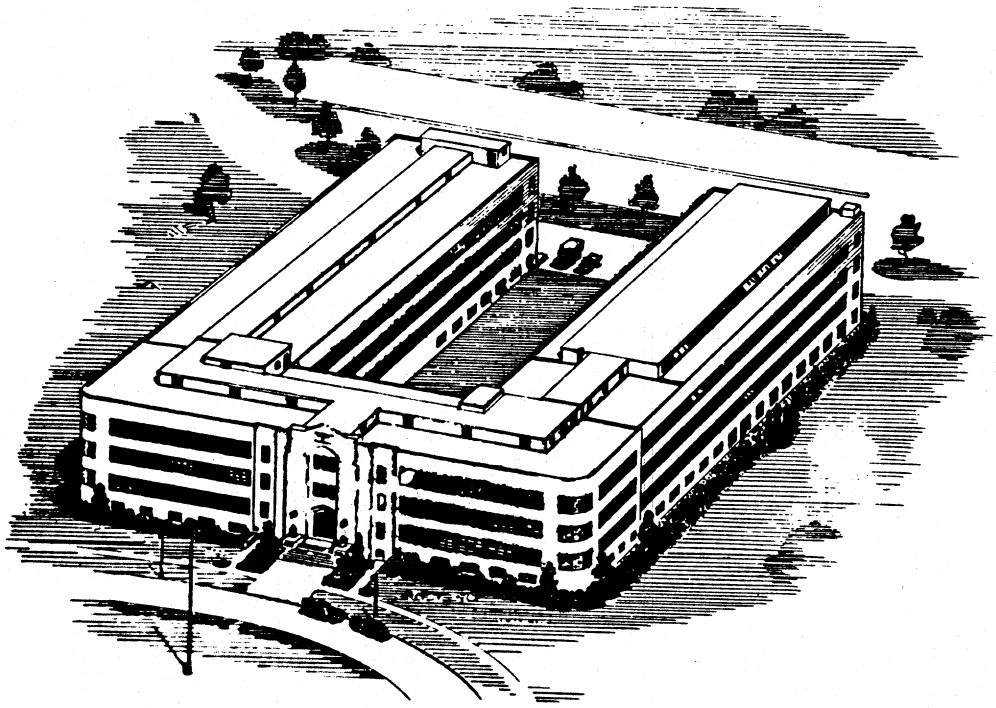
BIBLIOGRAPHY ON LACTIC ACID AND DERIVATIVES



BIBLIOGRAPHY ON LACTIC ACID AND DERIVATIVES

Compiled by

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INTRODUCTION

This bibliography is a compilation of references relating to the chemical and industrial aspects of lactic acid and its derivatives. The references have been classified into the sections listed in the Table of Contents. Some of the references are pertinent to more than one section and hence are repeated in the appropriate sections.

For a general descriptive account of the chemistry of lactic acid and its derivatives, the reader is referred to the three following publications:

"Lactic Acid--Versatile Intermediate for the Chemical Industry", U. S. Dept. of Agri., Bur. Agr. and Ind. Chem. AIC-178 (Eastern Regional Research Laboratory), 21 pp., May 1948. (Processed)

"Properties and Reactions of Lactic Acid. A Review", U. S. Dept. of Agri., Bur. Agr. and Ind. Chem. AIC-279 (Eastern Regional Research Laboratory) 35 pp., October 1950. (Processed)

"The Overall Report on Lactic Acid", Chemurgic Digest *9*, 9, June 1950.

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ERRATUM

Nos. 450 to 549, page 45. There are no references corresponding to these numbers.

SECTION I. PHYSICAL PROPERTIES AND STRUCTURE

(1) AKAMATU, H.
1940. MEASUREMENT OF SMALL QUANTITIES OF SUBSTANCES ADSORBED AT THE SOLID-LIQUID INTERFACE. J. Chem. Soc. Japan 61: 1470-4.

(2) BAI, K.S.
1940. RAMAN SPECTRA OF SOME CARBOXYLIC ACIDS. Proc. Indian Acad. Sci. 11A: 212-28.

(3) BHAGWAT, W. V., VARMA, M. and HERMALKER, H. G.
1942. SOLUBILITIES OF WEAK ACIDS IN SALTS OF WEAK ACIDS. J. Indian Chem. Soc. 19: 363-5.

(4) BHUTNAGAR, S. S., KAPUR, A. N. and BHATNAGAR, M. S.
1940. ADSORPTIVE PROPERTIES OF SYNTHETIC RESINS. IV. J. Indian Chemical Soc. 17: 361-9.

(5) BRITTON, H. T. S. and MOSS, A. A.
1936. OPTICAL ROTATION OF l-MALIC AND l-LACTIC ACIDS. DURING NEUTRALIZATION WITH SODIUM HYDROXIDE. J. Chem. Soc. 1936: 1487-89.

(6) BURKARD, O. and KAHOVEC, L.
1938. RAMON EFFECT LXXXII. NITROGEN COMPOUNDS. 10. (α-AMINO- AND α-HYDROXY-PROPIONIC ACIDS AND THEIR ESTERS). Sitzber. Akad. Wiss. Wein. Abt. IIB. 146: 779-91. Monatsh. 71: 333-45.

(7) CANNAN, R. K. and KIBRICK, A.
1938. COMPLEX FORMATION BETWEEN CARBOXYLIC ACIDS AND DIVALENT METAL CATIONS. J. Am. Chem. Soc. 60: 2314-20.

(8) CLOUGH, G. W.
1927. CONFIGURATIONAL RELATIONSHIPS OF 2-HYDROXYBUTYRIC ACID AND LACTIC ACIDS. A REPLY. J. Biol. Chem. 75: 489-90.

(9) DIETZEL, R. and ROSENBLUM, E.
1927. ELECTROLYTIC DISSOCIATION OF LACTIC ACID. Z. Elektrochem. angew. phys. Chem. 33: 196-200.

(10) DOLE, M.
1941. THE GLASS ELECTRODE. METHODS, APPLICATIONS, AND THEORY. 332 pp. Jno. Wiley & Sons, New York (see p. 313).

(11) DUCKERT, R., KOHLER, P. and WENGER, P.
1943. VARIATION IN THE ELEC. CONDUCTIVITY OF MIXTURES OF H_3PO_4 WITH SOME POLYHYDROXY ORGANIC COMPOUNDS. Helv. Chim. Acta 26: 2026-30.

(12) DUNSTAN, A. E.
1905. VISCOSITY OF LIQUID MIXTURES. PT. II. J. Chem. Soc. 87: 11-17.

(13) DUVAL, C. and LECOMTE, J.
1943. INFRARED ABSORPTION SPECTRA AND THE MODES OF VIBRATION OF METALLIC SALTS OF HYDROXY AND AMINO ACIDS. Bull. soc. chim. 10: 180-92.

(14) ELLIS, C., WELLS, A. A. and HEYROTH, F. F.
1941. THE CHEMICAL ACTION OF ULTRAVIOLET RAYS. Reinhold Publishing Corp., N.Y.C., 961 pp. See pp. 448-50.

(15) FREDGA, ARNE
1940. STRUCTURAL RELATIONSHIP OF OPTICALY ACTIVE LACTIC ACID AND THIOLACTIC ACID. Arkiv Kemi, Mineral. Geol. 14B: No. 12, 1-8.

(16) ----------, TENOW, M. and BILLSTROM, I.
1943. CONFIGURATIVE RELATION BETWEEN OPTICALLY ACTIVE LACTIC ACID AND ALPHA-HYDROXYISOBUTYRIC ACID. Arkiv. Kemi. Mineral, Geol. 16A: (21) 10 pp.

(17) FREUDENBERG, K.
1914. ÜEBER DIE KONFIGURATION DER GLYCERINSÄURE UND MILCHSÄURE. Ber. 47: 2027-37.

(18) ----------, KUHN, W. and BUMANN, I.
1930. THE CONFIGURATION OF THE HALOPROPIONIC ACIDS AND THE ALANINES. Ber. 63B: 2380-90.

(19) GREENSTEIN, J. P.
1936. RELATION BETWEEN DISSOCIATION CONSTANTS OF SUBSTITUTED ALIPHATIC ACIDS AND THE DISTANCE BETWEEN THE DISSOCIATING AND THE SUBSTITUTED GROUPS. J. Am. Chem. Soc. 58: 1314-16.

(20) GYANI, B. P. and GANGULY, P. B.
1943. STUDIES ON ADSORPTION IN RELATION TO CONSTITUTION. II. ADSORPTION OF ORGANIC ACIDS ON ACTIVATED SILICA GEL. J. Indian Chem. Soc. 20: 331-7.

(21) HICKEY, F. C.
1940. THE IONIZATION OF LACTIC ACID IN AQUEOUS SODIUM CHLORIDE SOLUTIONS FROM 0° TO 37.5°: J. Am. Chem. Soc. 62: 2916-19.

(22) HUFFMAN, HUGH M., ELLIS, EMORY L. and BORSOOK, HENRY
1940. THERMAL DATA. XI. THE HEAT CAPACITIES AND ENTROPIES OF GUANIDINE CARBONATE, GLUTAMIC ACID HYDROCHLORIDE, ORNITHINE DIHYDROCHLORIDE, d-LACTIC ACID AND l-LACTIC ACID. J. Am. Chem. Soc. 62: 297-9.

(23) IVANOV, B. V.
1947. SOLUBILITY OF POTASSIUM BITARTRATE IN VAROUS MEDIA. Vinodelie i Virogradarstvo S.S.S.R. 7: No. 10, 17-20.

(24) JUNGFLEISCH, E. and GODCHOT, M.
1905. SUR L'ACIDE LACTIQUE DROIT. Compt. rend. 140: 791-21.

(25) KAHOVEC, L. and KOHLRAUSCH, K. W. F.
1944. RAMAN EFFECT. CXLVIII. NITROGEN COMPOUNDS. 27. NITRILE DERIVATIVES OF AMINO ACIDS AND RELATED COMPOUNDS. Z. physik. Chem. 193: 188-95.

(26) KATAGIRI, H. and KITAHARA, K.
1938. OPTICAL PROPERTIES OF THE FERMENTATION LACTIC ACIDS. VI-VII. J. Agr. Chem. Soc. Japan 14: 645-9, 1072-1074.

(27) KOHLER, P.
1944. CONDUCTIVITY OF SOME MIXTURES OF MINERAL ACIDS RO_3H_3 AND SOME POLYHYDROXY ORGANIC COMPOUNDS. Arch. sci. phys. Nat. 26: 157-79; 183-94..

(28) KOPACZEWSKI, W.
1935. PHYSICAL CHARACTERISTICS OF LACTIC ACID AND AGING. Bull. sci. pharmacol. 42: 87-89.

(29) KUHN, WERNER
1935. ABSOLUTE CONFIGURATION OF LACTIC ACID. REMARKS ON THE HYPOTHESES AND ASSUMPTIONS IN THE CALCULATION OF OPTICAL ROTATION. Z. physik. Chem. B21: 23-57.

(30) KUNA, M. and LEVENE, P. A.
1937. CONFIGURATIONAL RELATIONSHIP OF MANDELIC ACID TO LACTIC ACID. J. Biol. Chem. 118: 315-20.

(31) LEVENE, P. A.
1925. CONFIGURATIONAL RELATIONSHIPS OF THE SUGARS, HYDROXY ACIDS, AMINO ACIDS, AND HALOGEN ACIDS. Chem. Rev. 2: 179-216.

(32) LEVENE, P. A. and HALLER, H. L.
1925. CONFIGURATIONAL RELATIONSHIP BETWEEN β-OXYBUTYRIC ACID and LACTIC ACID. Science 62: 356.

(33) ---------- ----------
1927. CONFIGURATIONAL RELATIONSHIPS OF 2-HYDROXYBUTYRIC AND LACTIC ACIDS. J. Biol. Chem. 74: 343-50.

(34) ---------- ----------
1928. CONFIGURATIONAL RELATIONSHIPS OF 3-HYDROXYVALERIC AND LACTIC ACIDS AND OF ETHYLMETHYL AND ETHYLPROPYLCARBINOLS. J. Biol. Chem. 76: 415-22.

(35) ---------- ----------
1928. CONFIGURATIONAL RELATIONSHIPS OF 2-HYDROXYVALERIC AND LACTIC ACID. J. Biol. Chem. 77: 555-62.

(36) ---------- ----------
1928. CONFIGURATIONAL RELATIONSHIP OF METHYLBUTYL CARBINOL AND OF 2-HYDROXY CAPROIC ACID TO LACTIC ACID. J. Biol. Chem. 79: 475-88.

(37) ---------- and ROTHEN, A.
1934. ANALYSIS OF ROTATORY DISPERSION CURVES OF α-SUBSTITUTED NORMAL CARBOXYLIC ACIDS. J. Biol. Chem. 107: 533-53.

(38) LUTZ, O. and JIRGENSONS, B.
1932. A SIMPLE METHOD FOR ASSIGNMENT OF OPTICALLY ACTIVE HYDROXY ACIDS TO THE d- OR l-SERIES. I. MONOBASIC ACIDS. Ber. 65B: 784-91.

(39) MARKER, R. E.
1936. SUGGESTION FOR AN EMPIRICAL METHOD FOR PREDICTING THE CONFIGURATION OF OPTICALLY ACTIVE COMPOUNDS. J. Am. Chem. Soc. 58: 976-78.

(40) MARTIN, A. W. and TARTAR, H. V.
1937. THE IONIZATION CONSTANT OF LACTIC ACID, 0-50°, FROM CONDUCTANCE MEASUREMENTS. J. Am. Chem. Soc. 59: 2672-5.

(41) MIKHNEVICH, G. L. and OVCHINNIKOVA, E. N.
1939. DEACTIVATION OF THE SURFACE EFFECTS TAKING PLACE DURING THE CRYSTALLIZATION OF A SUPERCOOLED ORGANIC LIQUID IN THIN LAYERS. I. Acta Physicochim. U.R.S.S. 11: 603-16.

(42) MIZUTANI, M.
1925. THE DISSOCIATION OF WEAK ELECTROLYTES IN METHANOL. Z. physik. Chem. 118: 387-41.

(43) NIMS, LESLIE F. and SMITH, PAUL K.
1936. THE IONIZATION OF LACTIC ACID FROM ZERO TO FIFTY DEGREES. J. Biol. Chem. 113: 145-52.

(44) PALOMAA, M. H.
1913. INFLUENCE OF THE POSITION OF THE OXYGEN ATOM IN THE CHAIN ON THE VELOCITY OF ESTER HYDROLYSIS. Ann. Acad. Sci. Fennicae (A) 4: 1-104.

(45) PEYCHES, I.
1935. RAMAN SPECTRA OF SOME ACIDS AND ALCOHOLS AND THEIR DERIVATIVES. Bull. soc. chim. (5) 2: 2195-2209.

(46) PURDIE, T. and WALKER, J. W.
1895. PREPARATION OF THE ACTIVE LACTIC ACIDS AND THE ROTATION OF THEIR METALLIC SALTS IN SOLUTION J Chem Soc. 67: 616-640.

(47) ROTHENFUSSER, S. and KOTSCHOPOULOS, M.
1933. REFRACTOMETRY OF THE HIGHLY DISPERSED CONSTITUENTS OF MILK. Milch. Forsch. 16: 80-100.

(48) SZARVAS, P.
1941. THE ROTATORY DISPERSION AND CONFIGURATION OF ALPHA-HYDROXY ACID. Magyar Chem. Folyoirat 47: 28-37.

(49) ----------
1941. THE DISPERSION OF ROTATION OF SOME α-HYDROXY ACIDS. Z. physik. Chem. A188: 235-45.

(50) TIMMERMANS, J.
1938. THE CONFIGURATION OF THE OPTICAL ANTIPODES OF VARIOUS SUBSTANCES. Rec. trav. chim. 57: 525-8.

(51) WILLIAMS, R. J., GABRIEL, A. and ANDREWS, R. C.
1928. THE RELATION BETWEEN THE HYDROLYSIS EQUILIBRIUM CONSTANT OF ESTERS AND THE STRENGTHS OF THE CORRESPONDING ACIDS. J. Am. Chem. Soc. 50: 1267-71.

(52) WOOD, C. E.
1927. ROTATORY DISPERSION OF CERTAIN DERIVATIVES OF HYDROXY ACIDS. J. Soc. Chem. Ind. 46: 424-27T.

(53) WURMSER, R. and MAYER, N.
1932. THE EQUILIBRIUM BETWEEN LACTIC AND PYRUVIC ACIDS. Compt. rend. 195: 81-3.

SECTION II. MANUFACTURE

A. GENERAL

(54) ANONYMOUS
1940. LACTIC ACID AND CASEIN. Chem. & Met. Eng. 47: (6) 427-8.

(55) ---------
1940. PRODUCTION AND SALES OF SYNTHETIC ORGANIC CHEMICALS MADE NEW RECORD LAST YEAR. Chem. Met. Eng. 47: (6) 437-8.

(56) ---------
1944. LACTIC ACID: PRODUCTION STATISTICS. Chem. Met. Eng. 51: (3) 208.

(57) CARBIDE & CARBON CHEMICALS CORPORATION
1948. SALTS OF CARBOXYLIC ACIDS. Brit. Patent 601,817, May 13.

(58) CHRISTMANN, L. J.
1931. METHOD OF MAKING ESTERS FROM NITRILES. U. S. Patent 1,790,262, Jan. 27.

(59) CRAMER, R. D. and KISTIAKOWSKY, G. B.
1941. THE SYNTHESIS OF RADIOACTIVE LACTIC ACID. J. Biol. Chem. 137: 549-555.

(60) EISEMAN, W.
1930. PRODUCTION AND PLACE OF LACTIC ACID. Food Ind. 2: 262-3.

(61) FISHER, C. H. and FILACHIONE, E. M.
1948. LACTIC ACID--VERSATILE INTERMEDIATE FOR THE CHEMICAL INDUSTRY. Bur. Agr. and Ind. Chem. Report AIC-178 (May).

(62) GARRETT, J. F.
1930. LACTIC ACID. Ind. Eng. Chem. 22: 1154-4.

(63) GOULD, I. A.
1945. LACTIC ACID IN DAIRY PRODUCTS. III. THE EFFECT OF HEAT ON TOTAL ACID AND LACTIC ACID PRODUCTION AND ON LACTOSE DESTRUCTION. J. Dairy Sci. 28: 367-77.

(64) HENZE, H. R., ALLEN, B. B. and WYATT, B. W.
1942. CATALYTIC HYDROGENATION OF COTTON HULL FIBER. J. Org. Chem. 7: 48-55.

(65) HEUSER, E.
1929. DECOMPOSITION OF CELLULOSE BY TREATMENT WITH ALKALOIDS AT HIGH TEMPERATURE. Paper Trade J. 89: (26) T271-273.

(66) HILLIG, F. and RAMSEY, L. L.
1945. LACTIC ACID AND VOLATILE ACIDS IN FRUITS AND FRUIT PRODUCTS. Assoc. Off. Agr. Chem. J. 28: 525-30.

(67) HURTLEY, W. R. H.
1929. IMPROVED PROCESS OF MANUFACTURING ESTERS OF LACTIC ACID. British Patent 341,961, Oct. 25.

(68) I. G. FARB. A.-G.
1927. ORGANIC HYDROXY ACIDS FROM NITRILES. Brit. Patent 300,040, Dec. 28.

(69) ----------
1928. HYDROXY ACIDS. Fr. Patent 655,579, June 11.

(70) JACOBSOHN, K. P.
1929. THE FORMATION OF OPTICALLY ACTIVE LACTIC ACID FROM CARBOHYDRATE UNDER THE INFLUENCE OF SUNLIGHT. Biochem. Z. 215: 216-21.

(71) JAMYN, S.
1940. INDUSTRIAL PRODUCTION OF LACTIC ACID FROM LACTOSE. Rev. chim. ind. (Paris) 49: 58-64, 93-6, et seq.

(72) JOHNSON, J. Y.
1927. IMPROVEMENTS IN THE PRODUCTION OF PURE a-HYDROXY-CARBOXYLIC ACIDS. British Patent 300,040, Dec. 28.

(73) ----------
1928. IMPROVEMENTS IN THE PRODUCTION OF ESTERS OF a-HYDROXY CARBOXYLIC ACIDS. British Patent 325,531, Oct. 20.

(74) JONES, G.
1920. THE ACIDS OF PARAGRAPH I AND RELATED MATERIALS PROVIDED FOR IN THE TARIFF ACT OF 1913. U. S. Tariff Commission, Tariff Information Series No. 13, 85 pp.

(75) KLAPPROTH, W.
1927. LACTIC ACID. Fr. Patent 644,314, Nov. 21.

(76) KRIEBLE, V. K. and NOLL, C. I.
1939. HYDROLYSIS OF NITRILES WITH ACIDS. J. Am. Chem. Soc. 61: 560-3.

(77) LEVENE, P. A. and HALLER, H. L.
1929. ON THE CONFIGURATIONAL RELATIONSHIP OF LACTIC ACID AND 2-CHLOROPROPIONIC ACID. J. Biol. Chem. 81: 703-9.

(78) ---------- and KUNA, M.
1941. HOMOLOGOUS SERIES OF ALPHA-SUBSTITUTED ALIPHATIC ACIDS. J. Biol. Chem. 141: 391-400.

(79) LINDBERG, OLOV
1946. ON THE OCCURRENCE OF PROPANEDIOL PHOSPHATE AND ITS EFFECT ON THE CARBOHYDRATE METABOLISM IN ANIMAL TISSUES. Arkiv f. Kemi, Mineral o. Geol. 23A: (2) 1-45.

(80) LODER, D. J.
1941. ORGANIC ACID SYNTHESIS. U. S. Patent 2,265,945, Dec. 9.

(81) MACLAY, W. D., HANN, R. M. and HUDSON, C. S.
1939. CLEAVAGE OF THE CARBON CHAINS OF SOME METHYL ALDOHEXO-METHYLO-PYRANOSIDES BY OXIDATION WITH PERIODIC ACID. J. Am. Chem. Soc. 61: 1660-66.

(82) MATHESON, H. W., and BLAIKIE, K. G.
1925. MANUFACTURE OF LACTIC ACID ESTERS. British Patent 257,907, Sept. 3.

(83) ---------- ----------
1927. MANUFACTURE OF LACTIC ACID ESTERS. U. S. Patent 1,650,950, Nov. 29.

(84) ---------- ----------
1928. MANUFACTURE OF HYDROXY-ACID ESTERS. U. S. Patent 1,683,347, Aug. 28.

(85) MICHAEL, W. and HAAG, W.
1931. PRODUCTION OF a-HYDROXY CARBOXYLIC ACIDS. U. S. Patent 1,802,154, Apr. 21.

(86) ---------- --------
1931. PRODUCTION OF ESTERS OF a-HYDROXY CARBOXYLIC ACIDS. U. S. Patent 1,831,025, Nov. 10.

(87) NEF, J. U.
1904. DISSOCIATION OF THE GLYCOLS AND OF THE GLYCEROLS. I and II. Ann. 335: 191-245, 247-333.

(88) NOLTE, A. J. and VON LOESECKE, H. W.
1941. PROCESS FOR PRODUCING LACTIC ACID. U. S. Patent 2,261,926, Nov. 4.

(89) OWEN, WM. L.
1948. THE PRODUCTION OF GUM DEXTRAN. Sugar 42: No. 8, 28-9.

(90) PECKHAM, G. T., JR.
1944. THE COMMERCIAL MANUFACTURE OF LACTIC ACID. Chem. Eng. News 22: 440-43, 409, Mar. 25.

(91) PURDIE, T. and WALKER, J. W.
1895. PREPARATION OF ACTIVE LACTIC ACIDS AND THE ROTATION OF THEIR METALLIC SALTS IN SOLUTION. J. Chem. Soc. 67: 616-40.

(92) SHEEHAN, M. J.
1944. LACTIC ACID (SYNOPSIS OF INFORMATION). Inquiry Reference Service, Bureau of Foreign and Domestic Commerce, U. S. Department of Commerce, 6 pp., Mar.

(93) STODOLA, FRANK H. and LOCKWOOD, LEWIS B.
1947. OXIDATION OF LACTOSE AND MALTOSE TO BIONIC ACIDS BY PSEUDOMANAS. J. Biol. Chem. 171: 213-21.

(94) THORPE, EDWARD
1922. A DICTIONARY OF APPLIED CHEMISTRY, LACTIC ACID. Vol. IV, p. 5-11. Longmans, Green and Co.

(95) U. S. TARIFF COMMISSION
1946. SYNTHETIC ORGANIC CHEMICALS, UNITED STATES PRODUCTION AND SALES, 1941-3. Report 153, 142 pp.

(96) ----------
1947. SYNTHETIC ORGANIC CHEMICALS, UNITED STATES PRODUCTION AND SALES, 1945. Report 157, 213 pp.

(97) VON LOESECKE, H. W.
1949. **OUTLINES OF FOOD TECHNOLOGY.** Ed. 21, 585 pp. Reinhold Publishing Corporation, New York (See Lactic Acid, p. 205-06).

(98) WATSON, P. D.
1940. **COMPOSITION OF LACTIC ACID: PRODUCTION OF A HIGHLY CONCENTRATED ACID.** Ind. Eng. Chem. 32: 399-401.

(99) WHITTIER, E. O.
1944. **LACTOSE AND ITS UTILIZATION: A REVIEW.** J. Dairy Science 27: 505-37.

B. FERMENTATION

(100) ANDERSEN, A. A. and WERKMAN, C. H.
1940. **DESCRIPTION OF A d-LACTIC ACID FORMING ORGANISM OF THE GENUS BACILLUS.** Iowa State Coll. J. Sci. 14: 187-93.

(101) ANONYMOUS
1935. **LACTIC ACID FROM WHEY.** Flow Sheet. Chem. and Met. Eng. 42: 606-07.

(102) ---------
1947. **NEW RESEARCH ON SUGAR.** Chem. Eng. News 25: (21) 1514-5 (May 26).

(103) BATE, J. B.
1945. **CHEMURGIC PROCESSES.** Petroleum (London) 8: 134, 154.

(104) BLAISTEN, RAUL J.
1947. **LACTIC ACID FROM MOLASSES BY FERMENTATION WITH A SPORULATED ANAEROBIUM.** Rev. asoc. bioquim. argentina 14: 188-90.

(105) BOINOT, F.
1925. **MANUFACTURE OF NORMAL BUTYL ALCOHOL.** U. S. Patent 1,505,543, Dec. 15.

(106) COCHRANE, VINCENT W.
1948. **COMMERCIAL PRODUCTION OF ACIDS BY FUNGI.** Economic Botony 2: 145-57.

(107) EISEMAN, W.
1930. **PRODUCTION AND PLACE OF LACTIC ACID.** Food Ind. 2: 262-3.

(108) FABIAN, F. W.
1940. ACETIC AND LACTIC ACIDS. The Fruit Products Journal and American Vinegar Industry 19: 263-270, 281. May.

(109) FAIRWEATHER, W. C. (GUTZWILLER & CO.)
1944. ORGANIC ACIDS BY FERMENTATION. Brit. Patent 565,772, Nov. 28.

(110) FRED, E. B. and PETERSON, W. H.
1921. FERMENTATION PROCESS FOR THE PRODUCTION OF ACETIC AND LACTIC ACIDS FROM CORNCOBS. Jour. Ind. and Eng. Chem. 13: 211-213.

(111) FULMER, E. I. and WERKMAN, C. H.
1930, INDEX TO CHEMICAL ACTION OF MICROORGANISMS ON NON-NITROGENOUS ORGANIC COMPOUNDS. Charles C. Thomas Publisher, Springfield, Illinois, 198 pp.

(112) GEHRKE, CHARLES W. and WEISER, HARRY H.
1948. A COMPARATIVE STUDY OF THE BIOCHEMICAL ACTIVITY OF STREPTOCOCCUS LACTIS, STREPTOCOCCUS CITROVORUS, AND STREPTOCOCCUS PARACITROVORUS WHEN GROWN IN COW MILK AND SOYBEAN MILK. J. Dairy Sci. 31: 213-22.

(113) GENIN, G.
1937. A NEW AMERICAN PLANT FOR THE MANUFACTURE OF LACTIC ACID. Lait 17: 259-63.

(114) ---------
1938. THE PROGRESS OF AMERICAN INDUSTRY WITH COMPOUNDS OF LACTIC ACID. Lait 18: 43-5.

(115) GUNSALUS, I. C. and UMBREIT, W. W.
1945. OXIDATION OF GLYCEROL BY STREPTOCOCCUS FAECALIS. J. Bact. 49: 347-57.

(116) HAMMER, B. W.
1920. THE TYPE OF LACTIC ACID PRODUCED BY STARTERS AND BY ORGANISMS ISOLATED FROM THEM. Iowa Agr. Expt. Sta. Res. Bul. 65.

(117) HARRIS, S. A., HEYL, D. and FOLKERS, K.
1944. STRUCTURE AND SYNTHESIS OF PYRIDOXIME AND PYRIDOXAL. Abstracts of Papers Presented before the Division of Organic Chemistry at the New York Meeting of the American Chemical Society, September 1944, page 39 M.

(118) KOPELOFF, L. M. and KOPELOFF, N.
1937. **OPTICAL ACTIVITY OF LACTIC ACID PRODUCED BY LACTOBACILLUS ACIDOPHILUS AND L. BULGARICUS.** J. Bact 33: 331-4.

(119) ---------- ----------, ETCHELLS, J. L., and POSSELT, E.
1937. **OPTICAL ACTIVITY OF LACTIC ACID PRODUCED BY LACTOBACILLUS ACIDOPHILUS AND LACTOBACILLUS BULGARICUS.** J. Bact. 33: 89-90.

(120) KREHL, WILLARD A. and FRUTON, JOSEPH S.
1948. **UTILIZATION OF PEPTIDES BY LACTIC ACID BACTERIA.** J. Biol. Chem. 173: 479-85.

(121) KURTH, E. F.
1947. **UTILIZATION OF WOOD WASTE BY FERMENTATION PROCESSES.** The Chemurgic Digest 6, No. 24, 361-3.

(122) LEONARD, R. H. and PETERSON, W. H.
1946. **PRODUCTION OF LACTIC ACID BY FERMENTATION OF SULFITE WASTE LIQUOR.** Presented before the Division of Sugar Chemistry and Technology at the Chicago Meeting of the American Chemical Society, September 1946.

(123) ---------- ---------- and JOHNSON, M. J.
1948. **LACTIC ACID FROM FERMENTATION OF SULFITE WASTE LIQUOR.** Ind. Eng. Chem. 40: 57-67.

(124) MANNING, PAUL D. V.
1938. **THE MANUFACTURE OF CASEIN AND OF BY-PRODUCTS FROM WHEY.** Proc. 11th Ann. State Coll. Wash. Inst. Dairying 1938: 38-47.

(125) MAY, O. E., and HERRICK, H. T.
1932. **PRODUCTION OF ORGANIC ACIDS FROM CARBOHYDRATES BY FERMENTATION.** U. S. Dept. of Agriculture, Cir. No. 216, May 1932, 30 pp.

(126) ---------- ----------
1935. **FERMENTATION AS A FACTOR IN PRODUCING ORGANIC ACIDS FOR CHEMICAL INDUSTRY.** Chemical and Metallurgical Engineering 42: 142-3 (March 1935).

(127) MEZZANDROLI, G.
1917. COMMERCIAL USE OF SUCROSE-INVERTING BACTERIA FOR THE MANUFACTURE OF LACTIC ACID, ACETIC ACID AND ACETONE. Bollettino dell'assoc. ind. zucchero e dell' alcool 9: 142-5; Bull. Agr. Intelligence 8: 787-9.

(128) MÖLLER, E. F.
1940. FOOD AND GROWTH SUBSTANCES OF LACTIC-ACID BACTERIA. Angew. Chem. 53: 204-3.

(129) MYERS, R. P. and WEISBERG, S. M.
1946. LACTIC ACID BY FERMENTATION. Can. Patent 432,878, Jan. 29.

(130) NEEDLE, H. C.
1939. FERMENTATION PROCESS FOR PRODUCING LACTIC ACID AND LACTATES. U. S. Patent 2,143,360, Jan. 10.

(131) NEUBERG, C. and KOBEL, M.
1927. BIOCHEMICAL FORMATION OF OPTICALLY ACTIVE LACTIC ACID AND A SIMPLE METHOD FOR THE PREPARATION OF D-(-) LACTIC ACID. Ann. acad. sci. Fennicae 29A: No. 8, 9 pp.

(132) NILSSON, GERDA
1948. PRODUCTION OF LACTIC ACID FROM WHEY. Svenska Mejeritid. 40: 207-10.

(133) PAN, S. C., PETERSON, W. H. and JOHNSON, M. J.
1940. ACCELERATION OF LACTIC ACID FERMENTATION BY HEAT-LABILE SUBSTANCES. Ind. Eng. Chem. 32: 709-714.

(134) PEDERSON, C. S., PETERSON, W. H., and FRED, E. B.
1926. THE FORMS OF LACTIC ACID PRODUCED BY PURE AND MIXED CULTURES OF BACTERIA. J. Biol. Chem. 68: 151-164.

(135) PRESCOTT, S. C. and DUNN, C. G.
1940. INDUSTRIAL MICROBIOLOGY. McGraw-Hill Book Co., New York, N. Y.: Lactic Acid, pp. 260-280, 303-308, 394-401.

(136) ROGERS, L. A. and WHITTIER, E, O.
1928. LIMITING FACTORS IN THE LACTIC FERMENTATION. J. Bact. 16: 211-229.

(137) ROZHDESTVENSKII, A. A.
1933. **PRODUCTION OF PURE LACTIC ACID FROM MOLASSES.** Sovet. Sakhar. No. 3-4, 37.

(138) ----------
1935. **LACTIC ACID FERMENTATION.** Trans. VI Mendeleev Congr. Theoret. Applied Chem. 1932, 2, Pt. 2, 166-8.

(139) RUSSO, GIUSEPPE
1940. **MECHANISM OF INHIBITION OF BACTERIAL LACTIC FERMENTATION BY BILE SALTS.** Atti accad. gioenia sci. nat. Catania 4: Mem. 2, 1-17.

(140) SAITCEW, J. V.
1927. **THE LACTIC ACID FERMENTATION OF CANE SUGAR MOLASSES.** Centr. Bakt. Parasitenk, II Abt. Orig. 72, 4-21.

(141) SEVERIN, FRANTISEK
1947. **COMMERCIAL PRODUCTION OF LACTIC ACID AND ITS SALTS.** Chem. Obzor 22, 231-2.

(142) SILISHCHENSKAYA, O.
1937. **LACTIC-ACID BACTERIUM 52.** Spirto-Vodochnaya Prom. 14: No. 8, 10-13; Chem. Zentr. 1938: II: 200-1.

(143) SMITH, B. L.
1938. **UTILIZATION OF WHEY SOLIDS.** Dairy Ind. 3: 295, 303.

(144) SNELL, E. E.
1948. **NUTRITIONAL REQUIREMENTS OF THE LACTIC ACID BACTERIA.** Wallerstein Lab. Communs. 11: 81-104.

(145) STILES, H. R. and PRUESS, L. M.
1938. **NUTRIENT REQUIREMENTS OF L. DELBRÜCKII IN THE LACTIC ACID FERMENTATION OF MOLASSES.** Jour. Bact. 36: 149-153.

(146) SWABY, R. J.
1945. **PRODUCTION OF LACTIC ACID [BY FERMENTATION]. 1. FROM WHEY.** J. Australian Inst. Agr. Sci. 11: 179-85.

(147) TATUM, E. L. and PETERSON, W. H.
1935. **FERMENTATION METHOD FOR PRODUCTION OF DEXTRO-LACTIC ACID.** Ind. Eng. Chem. 27: 1493-94.

(148) VAN SLYKE, L. L. and BAKER, JOHN C.
1918. STUDIES RELATING TO MILK. III, FREE LACTIC ACID IN SOUR MILK. N. Y., Geneva Agr. Expt. Sta. Techn. Bul. 63, p. 21-54.

(149) VIALA, LABORATORY PIERRE
1939. NOTE ON LACTIC ACID IN WINES. Rev. vit. 91: 242-8.

(150) WAKSMAN, S. A. and HUTCHINGS, I. J.
1937. LACTIC ACID PRODUCTION BY SPECIES OF RHIZOPUS. Amer. Chem. Soc. J. 59: 545-47.

(151) WALSH, J. F. and NEEDLE, H. C.
1939. LACTIC ACID FERMENTATION PROCESS. U. S. Patent 2,143,358, Jan. 10.

(152) WEBB, B. H. and WHITTIER, E. O.
1948. THE UTILIZATION OF WHEY: A REVIEW. J. Dairy Science 31: (2) 139-164 (Feb.).

(153) WEISBERG, S. M, and others
1937. PROCESS OF MAKING LACTATE SALTS AND LACTIC ACID. U. S. Patent 2,071,368, Feb. 23.

(154) WELLS, P. A. and WARD, G. E.
1939. FERMENTATION PROCESSES. Ind. Eng. Chem. 31: 172-7.

(155) WHITTIER, E. O. and ROGERS, L. A.
1931. CONTINUOUS FERMENTATION IN THE PRODUCTION OF LACTIC ACID. Ind. Eng. Chem. 23: 532-534.

(156) WILLIAMS, WM. L., BROQUIST, HARRY P. and SNELL, ESMOND E.
1947. OLEIC ACID AND RELATED COMPOUNDS AS GROWTH FACTORS FOR LACTIC ACID BACTERIA. J. Biol. Chem. 170: 619-30.

(157) ZAKHAROV, I. P. and FEDOROVA, M. E.
1946. PRODUCTION OF LACTIC ACID FROM SUGAR BEET AND CASES OF INACTIVATION OF LACTIC ACID FERMENTATION. Mikrobiologiya 15: No. 1, 57-66.

(158) ZAKHAROVA, G. S. and UTENKOV, M. D.
1946. CONTINUOUS PROCESS FOR THE PRODUCTION OF LACTIC ACID BY FERMENTATION. U.S.S.R. Patent 67,563, Dec. 31.

C. FERMENTATION RAW MATERIALS

(159) ANONYMOUS
1936. USE OF AGRICULTURAL PRODUCTS FOR LACTIC ACID MAKING OFFERS GROWERS A NEW MARKET IN THIS FIELD. Agr. News Letter 4: 175.

(160) ---------
1937. WHAT YOU CAN USE; MATERIALS USED IN THE MANUFACTURE OF LACTIC ACID. Oil, Paint and Drug Rep. 131: (8) 48, Feb. 22; 131: (9) 48, Mar. 1.

(161) ANDERSEN, A. A. and GREAVES, J. E.
1942. d-LACTIC ACID FERMENTATION OF JERUSALEM ARTICHOKES. Ind. Eng. Chem. 34: 1522-26.

(162) BURTON, L. V.
1937. BYPRODUCTS OF MILK. II. CONVERSION OF CALCIUM LACTATE TO LACTIC ACID AND PRODUCTION OF WHEY POWDER. Food Indus. 9: 634-636 (Nov.).

(163) ----------
1938. BYPRODUCTS OF MILK. Dairy Ind. 3: 371-3.

(164) ETCHELLS, J. L. and JONES, I. D.
CHARACTERISTICS OF LACTIC ACID BACTERIAL FROM COMMERCIAL CUCUMBER FERMENTATIONS. Manuscript of S.R.R.L., B.A.I.C., U.S.D.A.

(165) FRED, E. B. and PETERSON, W. H.
1921. FERMENTATION PROCESS FOR THE PRODUCTION OF ACETIC AND LACTIC ACIDS FROM CORNCOBS. Ind. Eng. Chem. 13: 211-213.

(166) HAJNY, GEORGE J., GARDNER, C. H., RITTER, GEORGE J., and McCOY, ELIZABETH
1948. THERMOPHILUS FERMENTATION OF CELLULOSE IN WOOD. J. Bact. 56: 141.

(167) HAUSER & SOBOTKA A.-G.
1936. LACTIC ACID COMPOSITIONS. Austrian Patent 146,479, July 10.

(168) LOGINOVA, L. G.
1939. THE FERMENTATION OF CORNSTALKS BY THERMOPHILIC CELLULOSE BACTERIA. Microbiology (U.S.S.R.) 6: 1101-10; Chem. Zentr. I, 4544.

(169) MANNING, P. D. V.
1938. THE MANUFACTURE OF CASEIN AND OF BYPRODUCTS FROM WHEY. Proc. 11th Ann. State Coll. Wash. Inst. Dairying, 38-47.

(170) NOLTE, A. J. and VON LOESECKE, H. W.
1940. POSSIBILITIES OF PREPARING LACTIC ACID FROM GRAPE-FRUIT JUICE. The Fruit Products Journal 19: (7) 204-5, 216-220. March.

(171) ---------- ----------
1941. PROCESS FOR PRODUCING LACTIC ACID. U. S. Patent 2,261,926, Nov. 4.

(172) ---------- ----------
1946. POSSIBILITIES OF PREPARING LACTIC ACID FROM GRAPE-FRUIT JUICE. AIC-84, 6 pp. Processed. U. S. Bur. Agr. & Ind. Chem.

(173) OLIVE, T. R.
1936. WASTE LACTOSE IS RAW MATERIAL FOR A NEW LACTIC ACID PROCESS. Chem. & Met. Eng. 43: 480-3.

(174) OWEN, W. L.
1937. BLACKSTRAP MOLASSES AS RAW MATERIAL FOR BIOCHEMICAL INDUSTRIES. VI. LACTIC ACID. Facts About Sugar 32: 16-17.

(175) ----------
1939. BLACKSTRAP MOLASSES AS RAW MATERIAL FOR BIOCHEMICAL INDUSTRIES. 113 pp., Wadman, New York (see pp. 27-30).

(176) RETTGER, LEO F.
1940. MICROBIAL FERMENTATION. J. Bact. 39: 84-5.
WILLKIE, HERMAN F., KOLACHOV, PAUL J. and STARK, W. H.
THE INFLUENCE OF THE INITIAL pH OF RYE MASHES ON THE FERMENTATION EFFICIENCY. Ibid. 85-6.
FORNACHON, JOHN C. M., DOUGLAS, HOWARD C., and VAUGHN, REESE H.
THE EFFECT OF pH ON THE GROWTH AND METABOLISM OF HETER-OFERMENTATIVE SPECIES OF LACTOBACILLUS. Ibid. 86.
ROGERS, L. A. and WHITTIER, E. O.
THE COMMERCIAL FERMENTATION OF LACTOSE IN WHEY TO LACTIC ACID. Ibid. 88-9.
The above are titles of papers presented before the Society of Am. Bacteriologists and published in abstr. form.

(177) SAXE, SIGMOND
1917. **MANUFACTURE OF LACTIC ACID.** U. S. Patent 1,249,511, Dec. 11.

(178) SMITH, B. L.
1938. **UTILIZATION OF WHEY SOLIDS.** Dairy Ind. 3: 295, 303.

(179) STEVENS, K. R. and WESTERN, A. E.
1944. **POTATOES AS A SOURCE OF LACTIC ACID BY FERMENTATION.** Proc. Utah Acad. Sci. 19/20: 33-4 (1941-3)..

(180) TSUKERVANIK, I. P., SAMSONOV, P. F., DANILEVSKII, L. P. and SIDOROVA, N. G.
1935. **UTILIZATION OF COTTONSEED HUSKS FOR SYNTHESIS OF GLUCOSE, LACTIC ACID AND GLYCEROL.** Bull. univ. Asie centrale No. 21: 69-82.

(181) WEISBERG, S. M., CHAPPELL, F. L., STRINGER, W. E., STEVENS, S. and TREBLER, H. A.
1937. **PROCESS OF MAKING LACTATE SALTS AND LACTIC ACID.** U. S. Patent 2,071,368, Feb. 23.

(182) WERKMAN, C. H.
1936. **UTILIZATION OF AGRICULTURAL PRODUCTS IN THE FERMENTATIVE PRODUCTION OF LACTIC ACID.** Iowa Agr. Expt. Sta., Ann. Rept., Pt. II, 57-8; Iowa Corn Research Inst., 1st Ann. Rept.

(183) WHITTIER, E. O.
1944. **LACTOSE AND ITS UTILIZATION: A REVIEW.** J. Dairy Science 27: 505-537.

(184) WILLIAMS, A. E.
1945. **LACTIC ACID FROM STARCH BYPRODUCTS.** Ind. Fibres, Synthetics & Byproducts 7: 265-8.

D. FROM CARBOHYDRATES AND ALKALINE REAGENTS

(185) ALBERT, W. D. and UPSON, F. W.
1935. **THE ACTION OF BARUINE HYDROXIDE ON CERTAIN OF THE MONOBASIC SUGAR ACIDS.** Jour. Amer. Chem. Soc. 57: 132-34..

(186) BERNER, E.
1933. THE ALCOHOLYSIS OF CANE SUGAR. Ber. 66B: 1076-80.

(187) BERNHAUER, K. and GÖRLICH, B.
1929. SUGAR OXIDATIONS AND DECOMPOSITIONS. VII. THE CONVERSION OF METHYLGLYOXAL. Biochem. Z. 212: 452-65.

(188) ----------and WOLF, H.
1929. SUGAR OXIDATION AND DESTRUCTION. VI. HYDROLYSIS OF GLUCOSE INTO THREE-CARBON CHAINS BY ALKALINE EARTH CARBONATES. Biochem. Z. 212: 443-51.

(189) ---------- --------
1930. SUGAR OXIDATION AND DESTRUCTION. VIII. LACTIC ACID FORMATION FROM DIFFERENT SUGARS AND RELATED SUBSTANCES. Biochem. Z. 219: 232-40.

(190) BEYTHIEN, K., PARCUS, E. and TOLLENS, B.
1889. THE FORMATION OF LACTIC ACID FROM RAFFINOSE AND FROM CANE SUGAR WITH BASES. Ann. 255: 222-8.

(191) BRAUN, A. D.
1938. ANIONS OF WEAK ACIDS AS CATALYSTS IN THE FORMATION OF LACTIC ACID FROM SUGARS. Biokhimiya 3: 583-9.

(192) BRAUN, G.
1935. PROCESS FOR THE PRODUCTION OF LACTIC ACID. U. S. Patent 2,924,565, Dec. 17.

(193) EVANS, W. L.
1942. SOME LESS FAMILIAR ASPECTS OF CARBOHYDRATES CHEMISTRY. Chem. Reviews 31: 537-560. (December).

(194) ----------
1942. CHEMICAL REACTIONS OF THE REDUCING SUGARS IN ALKALINE SOLUTIONS. Chemist 19: 144-60.

(195) ---------- and BENOY, M. P.
1930. THE MECHANISM OF CARBOHYDRATE OXIDATION. XI. THE ACTION OF POTASSIUM HYDROXIDE ON MALTOSE. Jour. Amer. Chem. Soc. 52: 294-307.

(196) ---------- and CLARK, C. C.
1932 THE MECHANISM OF CARBOHYDRATE OXIDATION. XV. THE BEHAVIOR OF 3-GLUCOSIDO-ARABINOSE HEPTAACETATE TOWARD AQUEOUS SOLUTIONS OF POTASSIUM HYDROXIDE. Jour. Amer. Chem. Soc. 54: 298-304.

(197) ---------- and CONAWAY, R. F.
1930 THE MECHANISM OF CARBOHYDRATE OXIDATION. XII. THE ACTION OF POTASSIUM HYDROXIDE ON l-ARABINOSE AND d-XYLOSE. Jour. Amer. Chem. Soc. 52: 3280-85.

(198) ---------- and CORNTHWAITE, W. R.
1928 THE MECHANISM OF CARBOHYDRATE OXIDATION. VII. THE ACTION OF POTASSIUM HYDROXIDE ON DIHYDROXY ACETONE. Jour. Amer. Chem. Soc. 50: 486-92.

(199) ---------- and HASS, H. B.
1926 THE MECHANISM OF CARBOHYDRATE OXIDATION. VI. THE ACTION OF POTASSIUM HYDROXIDE ON dl-GLYCERIC ALDEHYDE. Jour. Amer. Chem. Soc. 48: 2703-14.

(200) ---------- and HOCKETT, R. C.
1931 THE MECHANISM OF CARBOHYDRATE OXIDATION. XIV. THE ALKALINE DEGRADATION OF CELLOBIOSE, LACTOSE, MELIBIOSE, AND GENTIOBIOSE BY POTASSIUM HYDROXIDE. Jour. Amer. Chem. Soc. 53: 4384-4400.

(201) ---------- and O'DONNELL, D. C.
1928 THE MECHANISM OF CARBOHYDRATE OXIDATION. X. (a) THE ACTION OF POTASSIUM HYDROXIDE ON MANNOSE. (b) A COMPARISON WITH THAT OF GLUCOSE AND FRUCTOSE. Jour. Amer. Chem. Soc. 50: 2543-56.

(202) ---------- EDGAR, R. H. and HOFF, G. P.
1926 THE MECHANISM OF CARBOHYDRATE OXIDATION. IV. THE ACTION OF POTASSIUM HYDROXIDE ON d-GLUCOSE and d-GALACTOSE. Jour. Amer. Chem. Soc. 48: 2665-77.

(203) FISCHLER, F. TÄUFEL, K. and SOUCI, S. W.
1929 THE BEHAVIOR OF DEXTROSE ON HEATING IN ALKALINE SOLUTION. Biochem. Z. 208: 19-21.

(204) GEHMAN, H. KREIDER, L. C. and EVANS, W. L.
1936 THE MECHANISM OF CARBOHYDRATE OXIDATION. XXIII. A CONTRIBUTION TO THE ALKALINE HYDROLYSIS OF OLIGOSACCHARIDES. Jour. Amer. Chem. Soc. 58: 2388-95.

(205) HARLAY, M. V.
1942. THE ISOMERIC CONVERSION OF GLUCOSE UNDER THE INFLUENCE OF ALKALIES. Jour. Pharm. Chim. (9) 2: 257-63. Chem. Zentr. 1942, II, 1460-1.

(206) HAWORTH, W. N., GREGORY, H. and WIGGINS, L. F.
1946. CHEMICAL PROCESS FOR THE PRODUCTION OF LACTIC ACID FROM SUCROSE. J. Soc. Chem. Ind. 65: 95-6.

(207) HOPPE-SEYLER, F.
1871. THE FORMATION OF LACTIC ACID FROM SUGAR WITHOUT FERMENTATION. Ber. 4: 346-7.

(208) JOLLES, A.
1910. TOWARD A KNOWLEDGE OF THE DECOMPOSITION OF SUGARS. Biochem. Z. 29: 152-201.

(209) KATSUYAMIA, K.
1902. THE FORMATION OF LACTIC ACID FROM PENTOSES THROUGH THE EFFECT OF CAUSTIC POTASH. Ber. 35: 669-71.

(210) KILIANI, H.
1882. PRODUCTION OF LACTIC ACID. Ber. 15: 136-37; 699-701.

(211) KOROTKYJ. B.
1943 ALKALINE EARTH LACTATES. German Patent 737,495, June 3.

(212) ---------- and ERDENBRECHER, A.
1940. PURIFICATION OF ALKALINE EARTH LACTATES. German Patent 698,795, October 17.

(213) KUZIN, A.
1936. ENOLIZATION OF SUGARS UNDER THE INFLUENCE OF VARIOUS BASES. Ber. 69B: 1041-49.

(214) LOCK, R. H.
1945. MANUFACTURE OF LACTIC ACID AND SALTS THEREOF. U. S. Patent 2,382,889, August 14.

(215) MEISENHEIMER, J.
1908. THE BEHAVIOR OF GLUCOSE, FRUCTOSE, AND GALACTOSE TOWARD DILUTE SODIUM HYDROXIDE. Ber. 41: 1009-19.

(216) MIYAKE, SUGURU, HAYASHI, KANEO, and SANO, YASUICHI
1942. FORMATION OF LACTIC ACID FROM CANE SUGAR AND MOLASSES BY THE ACTION OF ALKALI. J. Soc. Trop. Agr., Taihoku Imp. Univ. 14: 291-7.

(217) MONTGOMERY, REX
1949. THE CHEMICAL PRODUCTION OF LACTIC ACID FROM SUGARS. Scientific Report Series No. 11, Sugar Research Foundation, Inc., New York, January, 28 pp.

(218) NADEAU, G. F., NEWLIN, M. R., and EVANS, W. L.
1933. THE MECHANISM OF CARBOHYDRATE OXIDATION. XVI. THE ACTION OF AQUEOUS SOLUTIONS OF POTASSIUM HYDROXIDE ON L-RHAMNOSE. Jour. Amer. Chem. Soc. 55: 4957-63.

(219) NEUBERG, C. and KOBEL, M
1935. THE SPECIFIC INFLUENCE OF ZINC ON THE DISMUTATION OF METHYLGLYOXAL Biochem. Z. 280: 297-306.

(220) NICHOLS, S. H., JR., EVANS, W. L. and McDOWELL, H. D.
1940. THE SYNTHESIS OF CERTAIN TRISACCHARIDES AND A STUDY OF THEIR BEHAVIOR IN ALKALINE SOLUTION. Jour. Amer. Chem. Soc. 62: 1754-58.

(221) NOZU, R. and GOTO, R.
1940. ACTION OF WEAK ALKALIES UPON GLUCOSE. II. Bull. Chem. Soc. Japan 15: 209-11.

(222) OPPENHEIMER, M.
1912. THE EFFECT OF DILUTE SODIUM HYDROXIDE ON GLYCERINE ALDEHYDE AND DIHYDROXY ACETONE. Biochem. Z. 45: 134-9.

(223) PLUNKETT, R. J. and EVANS, W. L.
1938. MECHANISM OF CARBOHYDRATE OXIDATION. XXIV. THE ACTION OF ALDEHYDO-d-GLUCOSE AND OF ALDEHYDO-d-GALACTOSE IN ALKALINE SOLUTION. J. Am. Chem. Soc. 60: 2847-52.

(224) ROOSEN, P.
1897. PROCESS OF MAKING LACTIC ACID, U. S. Patent 584,707, June 15.

(225) SHAFFER, P. A. and FRIEDEMANN, T. E.
1930. SUGAR ACTIVATION BY ALKALI. I. FORMATION OF LACTIC AND SACCHARINIC ACIDS. J. Biol. Chem. 86: 345-74.

(226) UPSON, F. W., NOYCE, W. N. and ALBERT, W. D.
1939. ACTION OF BARIUM HYDROXIDE ON THE MONOBASIC SUGAR ACIDS. III. J. Am. Chem. Soc. 61: 779-86.

(227) WEIDENHAGEN, R. and WEGNER. H.
1939. THE CRACKING OF CARBOHYDRATES DURING HYDROGENATION. Listy Cukrovar. 57: 185-6.

(228) WINDISCH, W., KOLBACH, P. and RUCKDESCHEL, H.
1927. FORMATION OF LACTIC ACID FROM SUGAR BY THE ACTION OF ALKALIES. Wochschr. Brau. 44: 405-10, 417-22, 429-34, 441-6.

(229) WOLFF, H.
1929. LACTIC ACID FORMATION FROM SUCROSE UNDER PRESSURE. Biochem. Z. 210: 458-65.

(230) ZUCKERFABRIK GREIFENBERG i. POMM. G.m.b.H.
1941. ALKALINE EARTH LACTATES. German Patent 713,852, October 23.

III. RECOVERY AND PURIFICATION

A. BY DISTILLATION

(231) BAG, A. A., POPOVA, E. P. and PETROVA, G. A.
1945. A METHOD FOR THE PURIFICATION OF LACTIC ACID IN CONNECTION WITH OBTAINING FROM IT A SUBSTITUTE FOR GLYCEROL. Pischevaya Prom. No. 1, 58-61.

(232) BASS, SHAILER L.
1937. PURIFICATION OF ALPHA-HYDROXY-ALIPHATIC ACIDS. U. S. Patent 2,092,494, September 7.

(233) BORSOOK, H., HUFFMAN, H. M., and LIU, Y. P.
1933. THE PREPARATION OF CRYSTALLINE LACTIC ACID. J. Biol. Chem 102: 449-60.

(234) BURNS, G. R.
1929. PHOTOCHEMICAL DECOMPOSITION OF LACTIC ACID. J. Am. Chem. Soc. 51: 3165-71.

(235) THE GRASSELLI CHEMICAL CO.
1934. LACTIC ACID. French Patent 767,145, July 10.

(236) HAAG, I. L.
1935. LACTIC ACID PURIFICATION. U. S. Patent 2,013,096, Sept. 3.

(237) HART, E. B. and WILLAMAN, J. J.
1913. VOLATILITY OF LACTIC ACID. Jour. Amer. Chem. Soc. 35: 919-23.

(238) HICKEY, F. C.
1940. THE IONIZATION OF LACTIC ACID IN AQUEOUS SODIUM CHLORIDE SOLUTIONS FROM 0 TO 37.5°. Jour. Amer. Chem. Soc. 62: 2916-19.

(239) JAULMES, P.
1937. THE ENTRAINMENT OF VOLATILE SUBSTANCES IN SOLUTIONS BY WATER VAPOR. Bull. Soc. Chem. (5) 4: 157-72.

(240) KRAFFT, F. and DÜYES, W. A.
1895. UEBER CONSTANT SIEDENDE UND KRYSTALLISIRBARE GEHRUNGAMILCHSAURE. Ber. 28: 2589-97.

(241) LAWRIE, J. W.
1926. PURIFICATION OF LACTIC ACID. U. S. Patent 1,594,843, August 3.

(242) LESLEY, B. E.
1929. EFFECT OF HYDROGEN ION CONCENTRATION ON THE STEAM DISTILLATION OF MIXTURES OF LACTIC AND ACETIC ACIDS. Fruit Products J. and Am. Vinegar Ind. 8: No. 11, 14-15.

(243) LEVITSKAYA, V. V.
1945. METHODS FOR PURIFYING COMMERCIAL LACTIC ACID AND OBTAINING IT IN SOLID PREPARATIONS. Rishchevaya Prom. No. 2, 56-61.

(244) LOVELOCK, J. E., LIDWELL, O. M. and RAYMOND, W. F.
1944. VAPORIZATION OF LACTIC ACID AS AN AERIAL BACTERICIDE. Nature 153: 743.

(245) ---------- ---------- ----------
1944. AERIAL DISINFECTION. Nature 153: 20-21.

(246) MACALLUM, A. D.
1935. PURIFICATION OF LACTIC ACID. U. S. Patent 2,013,104, Sept. 3.

(247) ----------
1938 PURIFICATION OF LACTIC ACID. U. S. Patent 2,125,383, August 2

(248) MULLER, J. A.
1896. VOLATILISATION OF LACTIC ACID AND ITS ANHYDRIDES AT THE ORDINARY TEMPERATURE; VOLITILISATION OF LACTIC ACID WITH WATER VAPOUR. Bull. Soc. Chem. (3) 15: 1206-1210.

(249) NOERDLINGER, H., CAROSELLI, A. and BERG, L.
1909. PROCESS OF PREPARING PURE LACTIC ACID. U. S. Patent 924,494, June 8.

(250) PARKS, G. S., THOMAS, S. B., LIGHT, D. W.
1936. STUDIES ON GLASS. XII. SOME NEW HEAT CAPACITY DATA FOR ORGANIC GLASSES. ENTROPY AND FREE ENERGY OF dl-LACTIC ACID. J. Chem. Phys. 4: 64-9.

(251) ROZHDESTVENSKII, A. A.
1935. LACTIC ACID FERMENTATION. Trans. VI Mendeleev Congr. Theoret. Applied Chem. 1932, 2: Pt. 2, 166-8.

(252) SOKOLOFF, B.
1940. A PROCESS FOR PREPARING A CONDENSATION PRODUCT OF LACTIC ACID IN THE CRYSTALLINE FORM. British Patent 516,518, Jan. 4.

(253) WAITE, C. N.
1885. PROCESS OF DISTILLING LACTIC ACID. U. S. Patent 321,925, July 7

B. SOLVENT EXTRACTION

(254) ANGELESCU, E.
1927. EQUILIBRIUM BETWEEN TEO LIQUID PHASES. IV. o-TOLUIDINE-LACTIC ACID-WATER. Bul. Soc. Chim. Romania 9: 19-25.

(255) BASS, S. L.
1937. PURIFICATION OF ALPHA-HYDROXY ALIPHATIC ACIDS. U. S. Patent 2,092,494, Sept. 7.

(256) BEHRENS, W. U.
1927. DISTRIBUTION OF LACTIC ACID BETWEEN WATER AND ETHER AND BETWEEN WATER AND AMYL ALCOHOL. Biochem. Z. 189: 348-9.

(257) BLUMENTHAL, F., SCHULTZ, T. and SOC. IMMOBILIERE ET INDUSTRIELLE ANVERSOISE.
1936. CONCENTRATING ORGANIC ACIDS. French Patent 802,461, Sept. 5.

(258) DERMER, O. C. and DERMER, V. H.
1943. IDENTIFICATION OF ORGANIC ACIDS BY PARTITION BETWEEN ETHYL ETHER AND WATER. J. Am. Chem. Soc. 65: 1653-4.

(259) DIETZEL, R. and ROSENBAUM, E.
1927. STUDIES ON LACTIC ACID. IV. DISTRIBUTION OF LACTIC ACID BETWEEN WATER AND ETHER AND BETWEEN WATER AND AMYL ALCOHOL. Biochem. Z. 185: 275-86.

(260) ---------- and SCHMITT, P.
1932. LACTIC ACID. V. DISTRIBUTION OF LACTIC, GLYCOLIC, AND ALPHA-HYDROXY-BUTYRIC ACIDS AS A BASIS FOR ANALYTICAL DETERMINATION OF THESE ACIDS. Z. Untersuch. Lebensm., 63: 369-91.

(261) ESPIL, L.
1934. USE OF METHYLAL AS SOLVENT IN ANALYTICAL CHEMISTRY. Bull. soc. chim. (5), 1: 1502-03.

(262) FREUDENBERG, W.
1932. PREPARATION OF SARCOLACTIC ACID. J. Biol. Chem. 99: 153-4.

(263) HAAG, I. L. and VANA, C. A.
1937. LACTIC ACID PURIFICATION. U. S. Patent 2,101,998, Dec. 14.

(264) JENEMANN, J. A. (Grasselli Chem. Co.).
1933. LACTIC ACID U. S. Patent 1,906,068, Apr. 25.

(265) KLAPPROTH, W.
1926. LACTIC ACID: PURIFICATION BY ETHER EXTRACTION. British Patent 281,969, Nov. 22.

(266) KOLOSOVSKII, N. A. and BEKTUROV, A.
1935. DISTRIBUTION OF MALONIC AND dl-LACTIC ACIDS BETWEEN WATER AND SATURATED MONOBASIC ALIPHATIC ALCOHOLS. J. Gen. Chem. (U.S.S.R.) 5: 69-72.

(267) ----------, KULIKOW, F. and BEKTUROW, A.
1935. PARTITION OF SATURATED ORGANIC ACIDS BETWEEN TWO LIQUID PHASES. Bull. Soc. chim. (5) 2: 490-79.

(268) LANDAU, M.
1915. MANUFACTURE OF PURE LACTIC ACID. U. S. Patent 1,157,402, Oct. 19.

(269) MÜLLER, J.
1941. METHOD OF RECOVERING CALCIUM LACTATE AND PRODUCING LACTIC ACID FROM FERMENTED MASHES. U. S. Patent 2,232,554, Feb. 18.

(270) SEIDELL, A.
1941. SOLUBILITIES OF ORGANIC COMPOUNDS. 3rd Ed., New York, Van Nostrand. Vol. 2, p. 194.

(271) SOC. ANON. DES DISTILLERIES DES DEUX-SÈVRES
1930. ESTERS. Fr. Patent 711,175, May 16.

(272) TINDALL, J. B. (Commercial Solvents)
1940. RECOVERY OF LACTIC ACID FROM CRUDE SOLUTIONS THEREOF. U. S. Patent 2,223,797, Dec. 3.

(273) TRIMBLE, F.
1941. FURFURAL AS A SOLVENT. Ind. Eng. Chem. 33: 660-2.

(274) VON LASZLOFFY, A.
1915. MANUFACTURE OF BY-PRODUCTS FROM DISTILLERY-SLOP. U. S. Patent 1,147,767, July 27.

(275) WAITE, C. N.
1901. PROCESS OF PURIFYING LACTIC ACID. U. S. Patent 686,170, Nov. 5.

(276) ZYKOVA, K I.
1940. PRODUCTION OF CONCENTRATED LACTIC ACID. Sbornik Nauch.-- Issledovatel. Rabot Sektora Org. Kislot Tsentral. Nauch.-Issle-dovatel. Lab. Brodil'noi Prom. 146-55; Khim. Referat. Zhur 1940, No. 9: 110.

C. AS THE ESTER

(277) CHEMISCHE FABRIK GÜSTROW, HILLRINGHAUS & HEILMAN
1906. LACTIC ACID: REVIEW OF PURIFICATION DIFFICULTIES, ETC., PURIFICATION THROUGH THE ETHYL ESTER. German Patent 171,835, March 25. Chem. Zentr. 1906: II, 470.

(278) FARBENINDUSTRIE, I. G., A-G.
1927. LACTIC ACID AND DERIVATIVES, British Patent 290,464, July 2.

(279) FILACHIONE, E. M. and FISHER, C. H.
1946. PURIFICATION OF METHYL LACTATE FROM AQUEOUS SOLUTIONS OF CRUDE ACID. Ind. Eng. Chem. 38: 228-232.

(280) ---------- ----------
1947. PURIFICATION OF LACTIC ACID. U. S. Patent 2,420,234, May 6.

(281) GENIN, G.
1940. THE MANUFACTURE OF PURE LACTIC ACID. Lait 20: No. 197, 412-17.

(282) LUTHER, M. and BELLER, H.
1930. LACTIC ACID AND ITS DERIVATIVES, (Ca LACTATE + MeOH). U. S. Patent 1,766,715.

(283) HARTWICH, FRANK (Schering-Kahlbaum A. G.)
1926. LACTIC ACID ESTERS. (Mg SALT + EtOH) . German Patent 518,388, Jan. 23.

(284) SCHOPMEYER, H. H. and ARNOLD, C. R.
1944. LACTIC ACID PURIFICATION. U. S. Patent 2,350,370, June 6.

(285) SMITH, L. T. and CLABORN, H. V.
1939. THE PRODUCTION OF PURE LACTIC ACID. Ind. Eng. Chem. News Ed. 17: 641.

(286) WEISBERG, S. M., CHAPPELL, F. L., STRINGER, W. E., STEVENS, S. and TREBLER, H. A.
1937. PROCESS OF MAKING LACTATE SALTS AND LACTIC ACID. U. S. Patent 2,071,368, Feb. 23.

(287) ---------- and STIMPSON, E. G.
1942. PREPARATION OF LACTIC ACID. U. S. Patent 2,290,926, July 28.

(288) ---------- ---------- and MILLER, A. L.
1945. ALKYL LACTATES. U. S. Patent 2,390,140, Dec. 4.

(289) WENKER, H.
1943. PURIFYING HYDROXY ALIPHATIC ACIDS. U. S. Patent 2,334,524, Nov. 16.

D. MISCELLANEOUS

(290) ANONYMOUS
1946. LACTIC ACID FOR THE PLASTICS INDUSTRY; METHODS OF PURIFICATION. Chem. Age (London) 55: 200 (Aug. 17).

(291) BLUMENTHAL, F. and CHAIN, M.
1904. LACTIC ACID PURIFICATION THROUGH THE ANILINE SALT. German Patent 169,992, Nov. 9.

(292) BURNS, G. R.
1929. PHOTOCHEMICAL DECOMPOSITION OF LACTIC ACID. J. Am. Chem. Soc. 51: 3165-71.

(293) DENNIS, W.
1944. DISTILLATION PROCESS. U. S. Patent 2,347,669, May 2.

(294) DIETLEN, O. and FELSER, H. (Byk, Guldenwerke chemische Fabrik A.-G.)
1934. LACTIC ACID. German Patent 593,657, March 1.

(295) DIETZ, A. A., DEGERING, E. F. and SCHOPMEYER, H. H.
1947. RECOVERY OF LACTIC ACID FROM DILUTE SOLUTIONS. Ind. Eng. Chem. 39: 82-5.

(296) GRASSELLI CHEMICAL CO.
1936. LACTIC ACID. German Patent 627,251, March 11.

(297) HAAG, I. L.
1935. LACTIC ACID PURIFICATION. U. S. Patent 2,013,096, September 3.

(298) ---------- and VANA, C. A.
1937. LACTIC ACID PURIFICATION. U. S. Patent 2,101,998, December 14.

(299) ---------- ---------- (E. I. du Pont de Nemours and Co., Inc.).
1940. PURIFICATION OF LACTIC ACID. U. S. Patent 2,205,256, June 18.

(300) HESLER, J. C. and BEHRMAN, A. S.
1947. PREPARATION OF ACIDS. U. S. Patent 2,415,558, Feb. 11.

(301) HUMMEL, VRATISLAV
1948. THE REFINING OF LACTIC ACID. Listy Cukrovar. 64: 203-6.

(302) KLAPPROTH, W.
1910. PROCESS OF MANUFACTURING LACTIC ACID. U. S. Patent 947,078, Jan. 18.

(303) MACALLUM, A. D.
1935. LACTIC ACID PURIFICATION. U. S. Patent 2,013,104, Sept. 3.

(304) OLSON, E. T.
1917. PROCESS FOR THE PRODUCTION OF LACTIC ACID. U. S. Patent 1,240,700, Sept. 18.

(305) PREISS, S.
1940. A METHOD FOR THE SEPARATION OF ACETIC, BUTYRIC, LACTIC AND d-GLYCONIC ACIDS. Biochem. Z. 306: 130-6.

(306) SCHATZKES, J.
1921. IMPROVED PROCESS OF PURIFYING LACTIC ACID. British Patent 173,479, Nov. 1.

(307) SCHEMING, G. and KRAUSS, W. (C. H. Boehringer Sohn).
1943. PURIFICATION OF LACTIC ACID. German Patent 744,755, Nov. 25.

(308) VANA, C. A.
1935. PURIFYING LACTIC ACID AND ITS DERIVATIVES. U. S. Patent 2,013,082, Sept. 3.

(309) VASILENKO, M. K., SEMONOV, S. V. and SHNAIDER, E. E.
1934. SEPARATING LACTIC FROM OLEIC AND ACETIC ACIDS. Russian Patent 36,404, May 31.

(310) ---------- ---------- ----------
1934. SEPARATING ACETIC, OLEIC AND LACTIC ACIDS. Russian Patent 36,405, May 31.

(311) VENGEROVSKII, B. S.
1933. CONCENTRATED SOLUTIONS OF LACTIC ACID. Russian Patent 33,146, Nov. 30.

(312) WEISSENBERGER, G., BAUMGARTEN, S. and HENKE, R.
1926. ADSORPTION UPON CHARCOAL FROM VISCOUS MEDIA. Monatsh. 46: 679-700.

E. CORROSION

(313) CHORMANN, O. I. and KROHA, G. F.
1944. PROPERTIES OF PFAUDLER GLASSES. OUTLINE OF CHEMICAL DURABILITY, PHYSICAL PROPERTIES AND THERMAL CONDUCTIVITY. The Class Lining, Published by the Pfaudler Co., Rochester 4, N. Y. 14: No. 4, 5-7, 17.

(314) FONTANA, M. G.
1948. CORROSION: NEW DEVELOPMENT OF WROUGHT CORROSION-RESISTANT ALLOY SHOULD FIND EXTENSIVE USE IN THE CHEMICAL INDUSTRY. Ind. Eng. Chem. 40: 87A-88A (Feb.)

(315) KLINOV, I. Y.
1937. CHEMICAL RESISTANCE OF SILICON AND CHROMIUM IRONS PRODUCED IN THE U.S.S.R. Khim. Machinostroenie 6: No. 6, 40-4. Chimie & Industrie 40: 680.

(316) PECKHAM, G. T., JR.
1944. THE COMMERCIAL MANUFACTURE OF LACTIC ACID. Chem. Eng. News 22: p. 440-443, 469. March 25.

(317) POE, CHARLES F. and VAN VLEET, E. M.
1949. **ACTION OF ORGANIC ACIDS ON STAINLESS STEEL.** Ind. & Eng. Chem. 41: (1) 208-10.

(318) VAN HEYNINGEN, J. A. N. B., and WAS, D. A.
1938. **THIN LAYERS OF TIN AND OTHER METALS. V. THE CORROSION OF TIN BY DILUTE ORGANIC ACIDS.** Prox. Acad. Sci. Amsterdam 41: 717-24.

IV. USES

A. FOODS AND BEVERAGES

(319) AMERICAN BOTTLERS OF CARBONATED BEVERAGES
1948. **BEVERAGES.** (Chapt. 5. Beverage Production and Plant Operation) 1128 16th St. N.W. Washington 6, D.C. 1948 Ed.

(320) BICKEL, W.
1938. **FOOD ACID.** French Patent 827,258, Apr. 22.

(321) E. I. du PONT de NEMOURS CO.
1937. **"BREAD".** British Patent 491,269, Feb. 15.

(322) ---------- and WOODHOUSE, J. C.
1943. **BAKING POWDERS AND LIKE LEAVENING COMPOSITIONS.** British Patent 550,539, Jan. 13.

(323) FABIAN, F. W.
1940. **ACETIC AND LACTIC ACID.** Fruit Products Journal 19: 263-70, 281.

(324) ---------- and WADSWORTH, C. K.
1939. **EXPERIMENTAL WORK ON LACTIC ACID IN PRESERVING PICKLES AND PICKLE PRODUCTS. I-III.** Food Research 4: 499-509.

(325) GROGGINS, P. H.
1945. **CHEMICALS AND FOOD PRODUCTION.** 115 pp. from the 19th Annual Priestly Lectures, Penn. State College, State College, Pa. Edwards Bros., Ann Arbor, Mich.

(326) KÜHLES, R.
1938. **INNOVATIONS IN THE USE OF LACTIC ACID.** Deut. Mineralwasser-Ztg. 42: 464-7. Chem. Zentral. 1938: II, 3758.

(327) LÜTJE, A.
1935. **ORGANIC ACIDS IN THE MINERAL WATER INDUSTRY.** Deut. Mineral-wasser-Ztg. 39: 770-3; Chem. Zentr. 1936: I, 216.

(328) MARGOLIS, E. T.
1943. **THE USE OF LACTIC ACID IN CARBONATED BEVERAGES.** Lactic Acid Symposium, Pittsburgh, Meeting American Chemical Society, Sept. 6-10.

(329) THOMSSEN, E. G. (J. R. Watkins Co.).
1926. **PRODUCT FOR DISSOLVING ESSENTIAL OILS.** U. S. Patent 1,602,183, Oct. 5.

(330) TWINING, F. E. and WALLING, M. E.
1937. **RESUME OF LITERATURE ON VALUE OF LACTIC ACID.** Western Canner & Packer 29: No. 4, 28-9; No. 6, 23-7.

(331) WADSWORTH, C. K. and FABIAN, F. W.
1939. **HOW TO USE LACTIC ACID IN FINISHING PICKLES AND PICKLE PRODUCTS.** Food Ind. 11: 252-3, 290-2, 324-5.

(332) WALTER, E.
1939. **LACTIC ACID IN THE BEVERAGE INDUSTRY,** Deut. Destillateur-Ztg. 60: 309. Chem. Zentr. 1940: II, 3286.

B. CHEMOTHERAPY

(333) ALBERT, A. and GLEDHILL, W.
1942. **IMPROVED SYNTHESIS OF AMINOACRIDINES. I. 3,9-DIAMINO-7-ETHOXYACRIDINE, THE BASE OF RAVANOL.** J. Soc. Chem. Ind. 61: 159-60.

(334) BALDACCI, V.
1936. **COMPARATIVE STUDIES OF SOME CALCIUM SALTS USED IN THERAPY. MINIMAL LETHAL AND INTRAVENOUS DOSE OF CALCIUM CHLORIDE, LACTATE, GLUCONATE, AND PYRUVATE.** Arch. farmacol, sper. 62: 91-107.

(335) BURSCHKIES, K.
1944. CHAULMOOGRYL AND HYDNOCARPYL ESTERS OF SEVERAL CINNAMOYL HYDROXY CARBOXYLIC ACIDS AND THEIR IMPORTANCE FOR THE CHEMOTHERAPY OF LEPROSY. Ber. 77B: 90-4.

(336) CHAMBERS, D. C. and BERNTON, H. S.
1944. THE ADMINISTRATION OF NICOTINIC ACID AND CALCIUM LACTATE IN UTICARIA. J. Allergy 15: (2) 141-3.

(337) CHEM. PHARM. FAB. HUBOLD & BARTSCH
1935. ANTISEPTICS, German Patent 616,119, July 20.

(338) CONANT, J. B., CRAMER, R. D., HASTINGS, A. B., KLEMPERER, F. W., SOLOMON, A. K. and VENNESLAND, B.
1941. METABOLISM OF LACTIC ACID CONTAINING RADIOACTIVE CARBOXYL CARBONS. J. Biol. Chem. 137: 557-66.

(339) CRAIG, F. N.
1946. RENAL TUBULAR REABSORPTION, METABOLIC UTILIZATION AND ISOMERIC FRACTIONATION OF LACTIC ACID IN THE DOG. Am. J. Physiol. 146: 146-59.

(340) DIGAUD, C.
1938. GERMICIDAL POWER OF MERCURY LACTATE. Ann. Hyg. Publ. Ind. Sociale 1938: 231-2.

(341) DOBROVOLSKAIA-ZAVADSKAIA, NADINE and MOMSIKOFF, VLADIMIR
1947. EFFECT OF THE LACTATES OF SODIUM AND CALCIUM ON THE MOUSE AND A COMPARISON TO THOSE OF PYRUVATE. Compt. rend. 224: 1658-60.

(342) FOX, C. L. and BAER, H.
1947. REDISTRIBUTION OF POTASSIUM, SODIUM AND WATER IN BURNS AND TRAUMA AND ITS RELATION TO THE PHENOMENA OF SHOCK. Amer. Jour. of Physiol. 151: 155.

(343) --------- JENSEN, O. J. and MUDGE, G. H.
1943. PREVENTION OF RENAL OBSTRUCTION DURING SULFADIAZINE THERAPY. J.A.M.A. 121: 1147.

(344) FOX, C. L., JR.
1944. ORAL SODIUM LACTATE IN TREATMENT OF BURN SHOCK. J. Amer. Med. Assoc. 124: 207-212, Jan. 22.

(345) FRASER, J. B., OWEN, L. N. and SHAW, G.
1947. BAL-INTRAV: A NEW NONTOXIC THIOL FOR INTRAVENOUS INJECTION IN ARSENICAL POISONING. II. CHEMICAL OBSERVATIONS. Biochem. J. 41: 328-3[illegible].

(346) GILLIGAN, D. R. and DINGWALL, J. A.
1944. PARENTERAL USE OF SODIUM LACTATE SOLUTION IN PREVENTION OF RENAL COMPLICATIONS FROM PARENTERALLY ADMINISTERED SODIUM SULFADIAZINE. Annals of Internal Med. 20: 604-18.

(347) HARKINS, H. N. et al.
1945. THE FLUID AND NUTRITIONAL THERAPY OF BURNS. J. of Amer. Med. Assoc. 128: 475-479.

(348) HARTMANN, A. F.
1939. CLINICAL STUDIES IN ACIDOSIS AND ALKALOSIS. USE AND ABUSE OF ALKALI IN STATES OF BICARBONATE DEFICIENCY DUE TO RENAL ACIDOSIS AND SULFANILIMIDE ALKALOSIS. Annals of Internal Med. 13: 949-56.

(349) ----------
1942. THERAPY OF THE ST. LOUIS CHILDREN'S HOSPITAL. II. TREATMENT OF SEVERE DIARRHEA IN INFANTS AND CHILDREN. Washington University Medical Alumni Quarterly, 6, (1): 45-48, Oct.

(350) ----------
1948. ACIDOSIS, ALKALOSIS AND KETOSIS HYPOGLYCEMIA. Brennemann's Practice of Pediatrics, Vol. I, Chap. 24.

(351) ---------- and ERGANIAN, J.
1947. TREATMENT OF DIABETIC ACIDOSIS. J. of Pediatrics, 31: 274.

(352) ---------- and MORTON, M.
1935. TREATMENT OF SEVERE DIABETIC ACIDOSIS. A COMPARISON OF METHODS WITH PARTICULAR REFERENCE TO THE USE OF RACEMIC SODIUM LACTATE. Archives of Internal Med. 56: 413-434.

(353) ---------- and SENN, M. J. E.
1932. METABOLISM OF SODIUM r-LACTATE. I. RESPONSE OF NORMAL HUMAN SUBJECTS TO THE INTRAVENOUS INJECTION OF SODIUM dl-LACTATE. J. of Clinical Investigations 11: 327.

(354) ---------- ----------
1932. METABOLISM OF SODIUM r-LACTATE. III. RESPONSE OF HUMAN SUBJECTS WITH LIVER DAMAGE, DISTURBED WATER AND MINERAL BALANCE, AND RENAL INSUFFICIENCY TO THE INTRAVENOUS INJECTION OF SODIUM dl-LACTATE. J. of Clinical Investigation 11: 345.

(355) ---------- et al.
1938. FURTHER OBSERVATIONS ON THE METABOLISM AND THE CLINICAL USES OF SODIUM LACTATE. J. of Pediatrics 13: 692.

(356) KLEIN, ROBERT
1946. PREVENTION OF EDEMA IN INFANTS UNDERGOING SULFONAMIDE TREATMENT. J. Pediatrics 28: 37-39.

(357) LASSNER, A.
1937. PHYSICOCHEMICAL CONSTITUTION AND THERAPEUTIC ACTIVITY OF VARIOUS CALCIUM COMPOUNDS. Z. ges. exptl. Med. 100: 350-9.

(358) LATVEN, A. R. and MOLITOR, H.
1939. COMPARISON OF THE TOXIC, HYPNOTIC AND IRRITATING PROPERTIES OF EIGHT ORGANIC SOLVENTS. J. Pharmacol. 65: 89-94.

(359) LEHR, D.
1943. ON METHODS WHICH INHIBIT OR PREVENT INTRARENAL PRECIPITATION OF COMPOUNDS OF THE SULFONAMIDE SERIES. A PROGRESS REPORT. Bull. New York Med. College 6: 70.

(360) --------- and ANTOPOL, W.
1941. TOXICITY OF SULFADIAZINE AND ACETYLSULFADIAZINE IN ALBINO RATS WITH SPECIAL REFERENCE TO RENAL LESIONS AND THEIR SIGNIFICANCE. Urologic and Cutaneous Review 45: 545-554.

(361) MATTICK, A. T. R. and HIRSCH, A.
1947. FURTHER OBSERVATIONS ON INHIBITORY SUBSTANCE (NISIN) FROM LACTIC STREPTOCOCCI. Lancet 253: 5-8, July 5.

(362) McCLURE, F. J. and RUZICKA, S. J.
1946. DESTRUCTIVE EFFECT OF CITRATE VERSUS LACTATE IONS ON RAT MOLAR TOOTH SURFACES IN VIVO. J. Dental Research 25: 1-12.

(363) MEADE, REGINALD E., POLLARD, HENRY L. and RODGERS, NELSON E. (to Western Condensing Co.).
1947. RIBOFLAVIN FROM LACTEAL MATERIAL. U. S. Patent 2,433,063, December 23.

(364) NEUBERG, C. and KOBEL, M.
1925. LACTIC ACID AND ITS IMPORTANCE IN CHEMISTRY AND PHYSIOLOGY. Z. angew. Chem. 38: 761-6.

(365) NICHOLSON, J. H.
1946. USE OF SULFADIAZINE IN PRESENCE OF HEMATURIA. New England J. Med. 235: 353.

(366) PREBLUDA, H. J. and PARKS, W. G.
1937. PREPARATION OF ORGANIC VANADIUM COMPOUNDS FOR CHEMOTHERAPY. Klin. Wochschr. 16: 1280-1.

(367) SCHONLE, H. A. and ROW, P. Q.
1921. NEW BENZYL ESTERS POSSESSING AN ANTISPASMODIC ACTION. J.A.C.S. 43: 381-5.

(368) SCHULZE, K. and HAUPT, W.
1938. DRUG INVESTIGATION. IV. Deut. Apoth. Ztg. 53: 796-8.

(369) ---------- and MELLE, A.
1939. DRUG INVESTIGATION. Deut. Apoth. Ztg. 54: 797-9, 856-7.

(370) WIELAND, H. (C. H. Boehringer Sohn, Chemisches Fabrik).
1930. ANTISEPTIC MIXTURES CONTAINING LACTIC ACID AND LACTATES. U. S. Patent 1,772,975, Aug. 12.

(371) YOUNG, E. G. and SMITH, R. P.
1941. LACTIC ACID: TOXICITY, LACTIC ACID: A CORROSIVE POISON. J. Am. Med. Assoc'n. 125: 1179-81.

C. SODIUM SALT AS GLYCEROL SUBSTITUTE

(372) ANONYMOUS
1948. USE OF POTASSIUM LACTATE AS HUMECTANT. Chem. Ind. 63: (2) 204n, (August).

(373) AITKINS, F.
1943. A NOTE ON GLYCERIN SUBSTITUTES. Pharm. J. 151: 122.

(374) BELANI, E.
1940. LACTOLIN IN PLACE OF GLYCEROL. Wochenblatt für Papierfabrikation 71: 375-8.

(375) ----------
1941. LACTOLIN AS SUBSTITUTE FOR GLYCEROL IN THE TEXTILE INDUSTRY. Monatschr. Textil-Ind. 56: 17-19, January (C.Z. 1941 II, p. 128).

(376) BURGIN, A.
1943. ORIENTATION OF GLYCEROL SUBSTITUTES. Pharm. Acta Helv. 18: 186-202.

(377) SCHLEISSING, H.
1939. GLYCEROL SUBSTITUTE. German Patent 684,233, Nov. 24.

(378) TUERCK, KARL, H. W. and LICHTENSTEIN, HANS J.
1948. GLYCEROL SUBSTITUTES. U. S. Patent 2,443,843, June 22.

D. MISCELLANEOUS

(378a) ANONYMOUS
1941. INDUSTRIAL USES FOR MILK. Sealtest Inc., New York, N.Y., November.

(379) ---------
1941. USES ACID COMPONENTS TO STABILIZE ZEIN SOLUTIONS. U.S.I. Chemical News, November. (Advertisement in Chemical & Metallurgical Engineering. November 1941. 20-11).

(380) ----------
1942. LACTIC ACID: USE AS SOLDERING FLUX. SPECIAL CORRESPONDENCE, BRITISH INCREASE RESEARCH IN FIELD OF FINE CHEMICALS AND PHARMACEUTICALS. Chem. Met. Eng. 49 (6) 125-7 (June).

(381) ----------
1943. NEW PRODUCT FOUND FOR HYDROCARBON-RESISTANT PUTTIES. Chem. Eng. News 21: 1814 (Nov. 10).

(382) ----------
1947. BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE, U. S. DEPT. OF AGRICULTURE. RESULTS OF SCREENING TESTS WITH MATERIALS EVALUATED AS INSECTICIDES, MITICIDES AND REPELLANTS AT THE ORLANDO, FLORIDA LABORATORY, APRIL 1942 TO [1947]. E-733, Sept. 1947, 235 pp.

(383) APEX CHEMICAL CO.
1944. OFFERING SALP, SODIUM ANTIMONY LACTOPHENATE FOR CONTROL OF THRIPS. (Notice only). Chem. Eng. News 22: 873 (May 25).

(384) BARAIL, L. C.
1946. TOXICITY OF GERMICIDE. Am. Dyestuff Reporter 35: 521 (Nov. 4).

(385) BJORKSTEN, J.
1943. LACTIC ACID DERIVATIVES AS INGREDIENTS IN TEXTILE FINISHING COMPOUNDS. Pittsburgh Meeting. Abstracts. American Chemical Society, Sept. 6-14, 1943: 19I.

(386) BOGIN, C. (Commercial Solvents Corp.).
1933. USE OF LACTATES IN BRUSHING LACQUERS. U. S. Patent 1,927,539, Sept. 19.

(387) BUCY, EDMUND H. (to Atlas Powder Co.).
1939. METHOD OF AND MEANS FOR PREVENTING OFFSET. U. S. Patent 2,142,666, Jan. 3.

(388) BURKE, C. E. and KRAMER, R. L.
1926. NITRATED ESTER. U. S. Patent 1,598,474, Aug. 31.

(389) COX, HERBERT
1939. DENTAL AND LIKE MOLDS. French Patent 838,842, Mar. 16.

(390) CROWE, J. M.
1942. CHEMURGY'S OPPORTUNITY Chem. Ind. 50: 508-510, 517 (April).

(391) DREYFUS, H.
1932. MANUFACTURE OF VINYL COMPOUNDS. British Patent 385,978, Dec. 30.

(392) FREUDENBERG, W., FREUDENBERG, H., FREUDENBERG, O. and FREUDENBERG, R.
1938. TREATING WHALE SKINS (LACTIC ACID AS SWELLING AGENT). British Patent 488,596, July 11.

(393) GARDNER, D. (to Gardner Thermal Corp.).
1945. OXIDATION OF ETHYLENE. U. S. Patent 2,366,724, Jan. 9.

(394) GENIN, G.
1940. UTILIZATION OF LACTIC ACID. Lait 20: 29-32.

(395) GRANETT, P, (National Carbon Co. Inc.).
1942. INSECT REPELLANT. U. S. Patent 2,273,860, Feb. 24.

(396) HASKINS, W.
1940. HECTOGRAPH MASS CONTAINING COLOR INTENSIFIERS. U. S. Patent 2,195,926, April 2.

(397) I. G. FARBENIND. A.-G. (Karl Schoenemann and Reinhold Fick, inventors).
1937. SAPONIFICATION OF AMINO NITRILES. German Patent 654,446, Dec. 17.

(398) ----------
1938. ADHESIVES. British Patent 494,007, Oct. 17.

(399) KOZIN, N. I. and SITNIKOVA, E. N.
1939. EFFECTS OF THE CONCENTRATION OF EMULSIFIERS AND OF THE STIRRING SPEED ON THE STABILITY OF OIL EMULSIONS. Voprosy Pitaniya 8: No. 4, 50-7.

(400) KROPA, EDWARD L. (to American Cyanamid Co.).
1948. POLYESTER-POLYAMIDE CONDENSATION PRODUCTS. U. S. Patent 2,240,516, April 27.

(401) KYRIDES, L. P.
1940. SAFETY GLASS. U. S. Patent 2,205,420, June 25.

(402) LEA, C. H.
1936. ANTIOXIDANTS AND PRESERVATION OF EDIBLE FATS. Dept. Sci. Ind. Research (Brit.), Food Invest. Board 1935: 29-30.

(403) LEWIS, RALPH W.
1948. MUTANTS OF NEUROSPORA REQUIRING SUCCINIC ACID OR A BIOCHEMICALLY RELATED ACID FOR GROWTH. Am. J. Botany 35: 292-5.

(404) LOHMANN, H. (to DuPont).
1940. CELLULOSIC PRODUCT AND PROCESS OF PRODUCING SAME. U. S. Patent 2,223,893, Dec. 3.

(405) LOLLAR, R. M.
1943. PRODUCTION AND USE OF LACTIC ACID AND LACTATES BY THE LEATHER INDUSTRY. Pittsburgh Meeting Abstracts. American Chemical Society, Sept. 6-14, 1943: 18I.

(406) MÜLLER, W. and LICHTENBERGER, S.
1939. DIRECTIONS FOR THE PREPARATION AND EXAMINATION OF LACTIC ACID RAW CASEIN. Deut. Molkerei-Ztg. 60: 1010-13.

(407) PECKHAM, G. T., JR. (Clinton Co., Clinton, Iowa).
1944. LACTIC ACID GOES TO WAR. Clinco News 5: (5) 1-3 (Dec.).

(408) PETERSEN, W. E. and SHAW, J. C.
1937. IN-VITRO SYNTHESIS OF LACTOSE. Science 86: 398.

(409) PRUTTON, C. F., SMITH, A. K. and FREY, D. R. (Lubri-Zol Corp.).
1944. STABILIZING AGENTS FOR HYDROCARBON COMPOSITIONS AND THE LIKE. U. S. Patent 2,365,291, Dec. 19.

(410) RANSHAW, G. S.
1942. LACTIC ACID IN TEXTILE AND LAUNDRY WORK. Silk and Rayon 16: 225-6.

(411) REED, M. C.
1938. CLARIFICATION OF VINYL RESINS WITH LACTIC ACID. U. S. Patent 2,137,627 Nov. 28.

(412) REITZ, O. and KOPP, JOHANNA
1939. ACID-AND BASE-CATALYSIS IN LIGHT AND HEAVY WATER. III. BROMINATION OF ACETONE CATALYZED BY UNDISSOCIATED ACIDS AND BY ACETATE IONS. Z. physik. Chem. A184: 429-45.

(413) SAKAGUCHI, KINICHIRO, ASAI, ISANOBU and IKEDA, YONOSUKE
1943. KOJIC ACID FERMENTATION. I. J. Agr. Chem. Soc. Japan 19: 711-18.

(414) SCHOONENS, JAC. G.
1940. USE OF LACTIC ACID INSTEAD OF CITRIC ACID TO PREVENT BROWNING OF FRUITS. Voeding 9: 155-61.

(415) SCHWARZ, H.
1937. THE USE OF LACTIC ACID IN HAIR TONICS. Seifensieder-Ztg. 64: 401.

(416) SENTER, C. H. and TAFT, R.
1939. ELECTRODEPOSITION OF ZINC IN PRESENCE OF ORGANIC ACIDS, Trans. Kans. Acad. Sci. 42: 237-40.

(417) SHAPIRO, CARL L. (to Lynnwood Laboratories, Inc.).
1948. COATING COMPOSITION COMPRISING A VINYL HALIDE RESIN AND A HYDROXY POLYCARBOXYLIC ACID. U. S. Patent 2,439,677, April 13.

(418) SHEFFIELD, D. H. (Hercules Powder Co.).
1943. TERPINEOL. U. S. Patent 2,336,575, Dec. 14.
LACTIC ACID: CATALYST IN HYDRATION OF OLEFINS.

(419) SMITH, L. T. and CLABORN, H. V.
1939. UTILIZATION OF LACTIC ACID. Ind. Eng. Chem. News Ed. 17: 370-1.

(420) STARECK, J. E.
1936. "COATING METAL". U. S. Patent 2,059,053, Oct. 27.
1937. "DECORATING METALS". U. S. Patent 2,081,121, May 18.
1943. METHOD OF DECORATIVELY COLORING ARTICLES IN GOLD COLORS AND THE PRODUCT THEREOF. U. S. Patent 2,313,455, Mar. 9.
1943. METHOD OF PRODUCING DECORATIVE COATINGS EXHIBITING PATTERNS OR DESIGNS AND PRODUCT. U. S. Patent 2,313,456, March 9.
1941. ELECTROCOLOR AND PATTERNPLATE. (Abstract of paper in Electroplaters debate year's developments. p. 44). Iron Age 148: 40-44; 92, July 3.

(421) VAN LINGE, R. A.
1940. MOLDING POWDER. Dutch Patent 47,637, Jan. 15.

(422) WELLMAN, R. H.
1948. SYNTHETIC CHEMICALS FOR AGRICULTURE. II. FUNGICIDES, NEMATOCIDES, RODENTICIDES AND WEED KILLERS. Chem. Ind. 63: 223 (August).

(423) WHITEHEAD, G. W. (Monsanto Chemical Co.).
1943. MOLDING COMPOSITION. U. S. Patent 2,323,363, July 6.

(424) WILDER, G. H. (E. I. du Pont de Nemours & Co.).
1938. PIGMENTATION OF RESINOUS CONDENSATION PRODUCTS. U. S. Patent 2,122,270, June 28.

(425) WITTWER, S. H., COULTER, L. L. and CAROLUS, R. L.
1947. A CHEMICAL CONTROL OF SEEDSTALK DEVELOPMENT IN CELERY. Science 106: 590, Dec. 12.

(426) WYLER, I. A. (to Trojan Powder Company).
1937. NITRATION OF SUGARS AND THEIR GLUCOSIDES. U. S. Patent 2,094,693, Oct. 5.

V. CHEMISTRY AND REACTIONS

A. IDENTIFICATION, CHARACTERIZATION AND DETERMINATION

(427) BORSOOK, H., HUFFMAN, H M and LIU, Y. P.
1933. THE PREPARATION OF CRYSTALLINE LACTIC ACID. J. Biol. Chem. 102: 449 60.

(428) CLABORN, H V. and PATTERSON, W. I.
1948. DETERMINATION AND IDENTIFICATION OF LACTIC AND SUCCINIC ACIDS IN FOODS. J. Assoc Offic. Agr. Chemists 31: 134-9.

(429) DIMLER, R. J. and LINK, K. P.
1942. THE CHARACTERIZATION OF LACTIC ACID AS THE BENZIMIDAZOLE DERIVATIVE. J. Biol. Chem. 143: 557 8 (Apr.).

(430) DONLEAVY, J. J.
1936. UTILIZATION OF S-BENZYL THIURONIUM CHLORIDE FOR THE ISOLATION AND IDENTIFICATION OF ORGANIC ACIDS. J. Am. Chem. Soc. 58: 1004 5.

(431) DRAKE, M. L. and BRONITSKY, J.
1930. p PHENYLPHENACYL BROMIDE, A REAGENT FOR IDENTIFYING ORGANIC ACIDS. J. Amer. Chem Soc 52: 3715-20.

(432) ENGLISH, J., JR , BARBER, G W. and LAPIDES, L. J.
1948. SUBSTITUTION PRODUCTS OF 5 CYCLOPENTYL-5-OXOPENTANOIC ACID AND 6-CYCLOHEXYL 6 OXOHEXANOIC ACID. J. Am. Chem. Soc. 70: 2859 63.

(433) FEARON, W. R.
1918. THE THIOPHENE TEST FOR LACTIC ACID. A COLOR TEST FOR ALDEHYDES. Biochem J 12: 179 183.

(434) FRIEDEMANN, T. E.
1928. ON THE DETERMINATION OF LACTIC ACID IN SUGAR SOLUTIONS DECOMPOSED BY ALKALI. J. Biol. Chem. 76: 75-87.

(434a) ----------, COTONIO, M and SHAFFER, P. A.
1927. THE DETERMINATION OF LACTIC ACID. J. Biol. Chem. 73: 335-358.

(435) FUCHS, P.
1944. SIMPLE ANALYSIS OF MIXTURES CONTAINING AQUEOUS VOLATILE FATTY ACIDS AND LACTIC ACID, SUCH AS IN FERMENTATION PRODUCTS AND OTHER MATERIALS. Chem. Ztg. 68: 163-5.

(436) GREIG, MARGARET E.
1947. MICROMETHOD FOR THE DETERMINATION OF l-(+) LACTIC ACID. Science 105: 665-66 (June 27).

(437) HUMMEL, VRATISLAV
1948. THE DETERMINATION OF LACTIC ACID. Chem. Obzor 23: 42-6.

(438) INTONTI, R. and GIACOMETTI, T.
1943. ANALYSIS AND CONSTITUTION OF PHARMACEUTICAL LACTIC ACID. Ann. chim. applicata 33: 164-73.

(439) JUDEFIND, W. L. and REID, E. E.
1920. IDENTIFICATION OF ACIDS. V. PARA-HALOGEN PHENACYL ESTERS. J. Am. Chem. Soc. 42: 1043-55.

(440) MARKUS, R.
1948. COLORIMETRIC DETERMINATION OF LACTIC ACID. Helv. Chim. Acta 31: 831-49.

(441) McNAIR, JAMES B.
1947. THE ANALYSIS OF FERMENTATION ACIDS. 290 pp. Westernlore Press, Los Angeles 41, California.

(442) PHELPS, I. K. and PALMER, H. E.
1917. THE IDENTIFICATION AND ESTIMATION OF LACTIC ACID IN BIOLOGICAL PRODUCTS. J. Amer. Chem. Soc. 39: 136-149.

(443) RATHER, J. B and REID, E. E.
1918. THE IDENTIFICATION OF ACIDS OF AGRICULTURAL PRODUCTS. Ark. Agr Expt. Sta. Bull. 156: 32 pp.

(444) ----------
1919. IDENTIFICATION OF ACIDS. IV. PHENACYL ESTERS. J. Amer. Chem. Soc. 41: 75-83.

(445) REID, E. E.
1917. THE IDENTIFICATION OF ACIDS. J.A.C.S. 39: (1), 124-136.

(446) WINNICK, THEODORE
1942. MICRODIFFUSION METHODS BASED ON THE BISULFITE REACTION. II. DETERMINATION OF LACTIC ACID BY OXIDATION WITH CERIC SULFATE. J. Biol. Chem. 142: 451-9.

B. OXIDATION, HALOGENATION AND DEHYDROGENATION

(447) BAER, E. and KATES, M.
1945. A NEW METHOD OF PREPARING PHENYLGLYOXYLIC ACID AND ITS METHYL ESTER. J. Am Chem. Soc. 67: 1482-83.

(448) BAGARD, M. P.
1907. ON A METHOD OF PREPARATION OF ACYCLIC ALDEHYDES. Bull. soc. chim. [4] 1: 307-320; 346-65.

(449) BAKER, J. W. and LAUFER, A. S.
1937. CONDENSATION OF METHYL PYRUVATE WITH METHYL MALONATE IN THE PRESENCE OF ANHYDROUS ZINC CHLORIDE. J. Chem. Soc. 1937: 1342-8.

(550) BHATTACHARYA, A. K. and DHAR, N. R.
1928. THE MEASUREMENT OF THE KINETICS, THE QUANTUM EFFECT AND THE INFLUENCE OF LIGHT INTENSITY ON THE REACTION BETWEEN CHROMIC AND SEVERAL ORGANIC ACIDS. Z. anorg. allgem. Chem. 169: 381-93.

(551) ----------
1928. INFLUENCE OF VARIATION OF THE INCIDENT ENERGY UPON THE VELOCITY OF SEVERAL PHOTOCHEMICAL REACTIONS. Z. anorg. allgem. Chem. 175: 357-66.

(552) BRADT, W. E. and FALLSCHEER, H. O.
1937. THE ELECTROCHEMICAL OXIDATION OF COPPER LACTATE. Trans. Electrochem Soc 71: 13 pp. (preprint).

(553) BURNS, G. R.
1930. PHOTOCHEMICAL OXIDATION OF LACTIC ACID. J. Am. Chem. Soc. 52: 5272-8.

(554) CARPENISEANU, G.
1934. THE ANODIC OXIDATION OF LACTATE ION TO THE PYRUVATE ION. Compt. Rend. 198: 460-462.

(555) CRIEGEE, R.
1934. THE SPECIFICITY OF OXIDIZING REAGENTS: A COMPARISON OF THE OXIDIZING ACTION OF LEAD TETRAACETATE AND PERIODIC ACID UPON POLYHYDROXY COMPOUNDS. Sitzber. Ges Beförder. ges. Naturw. Marburg 69: 25-47; Chem. Zent. 1934: II, 2515. C.A. 29: 6820.

(556) DEY, A. N. and DHAR, N. R.
1926. RELATIONS OF THE ORDER OF THE REACTION TO THE TEMPERATURE COEFFICIENT FOR REACTIONS OF SOME ORGANIC ACIDS WITH CHROMIC ACID AND POTASSIUM PERMANGANATE. Z Elektrochem 32: 586-96.

(557) EDSON, N. L.
1947. OXIDATION OF LACTIC ACID BY MYCOBACTERIUM PHLEI. Biochem. J 41: 145-51

(558) FERDMAN, D. L. and EPSTEIN, S. F.
1940. THE SYNTHESIS OF PHOSPHOPYRUVIC ACID ON OXIDATION OF LACTIC ACID. Science 91: 365-6.

(559) FLEURY, P. and BOISSON, S.
1937. ACTION ON PERIODIC ACID ON LACTIC AND PYRUVIC ACIDS. Compt. rend 204: 1264-6.

(560) ----------
1939. EFFECT OF PERIODIC ACID ON LACTIC ACID AND ITS DEGRADATION PRODUCTS. J. pharm. chim. 30: 145-62.

(561) FRANKLAND, P. F., GARNER, W. E.
1914. THE ACTION OF THIONYL CHLORIDE ON LACTIC ACID AND ON ETHYL LACTATE. J. Chem. Soc. 105: 1101-15.

(562) FÜRTH, O. and KAUNITZ, H.
1929. THE OXIDATION OF SOME PHYSIOLOGICAL SUBSTANCES THROUGH ANIMAL CHARCOAL Monatsh. 53-54: 127-145.

(563) GHOSH, J. C. and PURKAYASTHA, R. M.
1930. QUANTUM YIELD DURING PHOTOBROMINATION OF ORGANIC HYDROXY ACIDS AS A FUNCTION OF THE FREQUENCY OF THE ACTIVATING LIGHT. Z physik Chem. Abt. B. 9: 128-132.

(574) PURKAYASTHA, R. M.
1929. OXIDATION OF SOME HYDROXY ACIDS BY BROMINE. I. THE LIGHT REACTION. II. THE DARK REACTION. J. Indian Chemical Society 6: 375-83, 385-90.

(575) ---------- and GHOSH, J. C.
1930 THE REACTION BETWEEN BROMINE AND ORGANIC HYDROXY ACIDS. I. THE DARK REACTION. Z. physik. Chem., Abt. B, 7: 276-84, ibid., 285-91.

(576) SEMICHON, L. and FLANZY, M.
1932. APPLICATION OF CHROMIC OXIDATION TO SOME MONOBASIC ACIDS. Compt. rend. 194: 1827-9.

(577) SIMPSON, G. S.
1918. RELATIVE STABILITY OF HALOGEN-SUBSTITUTED ALIPHATIC ACIDS IN WATER SOLUTION. II. THE PROPIONIC AND BUTYRIC ACIDS SERIES. J. Am. Chem. Soc. 40: 674-83

(578) SMULL, J. G. and SUBKOW, P.
1923. PYRUVIC ACID FROM LACTIC ACID. Chem. Met. Eng. 28: 357-8.

(579) STRELL, M.
1939-40. THE ACTION OF ACTIVE CHLORINE ON THE PRINCIPAL CONSTITUENTS OF MILK AND DAIRY WASTES. Vom Wasser 14: 187-215.

(580) TOMMILA, E.
1935. ANODIC REACTIONS IN THE ELECTROLYSIS OF α-HYDROXY ACIDS. Suomen Kemistilehti 8B: 25.

(581) WAGNER, C.
1928. INTERMEDIATE PRODUCTS IN OXIDATION WITH CHROMIC ACID. Z. anorg. allgem. Chem. 168: 279-91.

(582) WALTON, J. H. and GRAHAM, D. P.
1928. A STUDY OF THE OXIDATION OF SOME DICARBOXYLIC ACIDS BY HYDROGEN PEROXIDE IN THE PRESENCE OF CERTAIN CATALYSTS. J. Am. Chem. Soc. 50: 1641-8.

(583) WIELAND, H. and FRANKE, W.
1927. MECHANISM OF THE OXIDATION PROCESS. XII. THE ACTIVATION OF HYDROGEN PEROXIDE BY IRON. Ann. 457: 1-70.

(593) ----------
1937. HYDROXY ACIDS AND THEIR DERIVATIVES. VI. CATALYTIC HYDROGENATION OF AMIDES OF ALPHA-HYDROXY ACIDS. Bull. Chem. Soc. Japan 12: 377-81.

(594) RITTMEISTER, W. (American Hyasol Corp.).
1941, PROCESS FOR THE REDUCTION OF FATTY ACIDS TO ALCOHOLS. U. S. Patent 2,248,465, July 8.

D. MISCELLANEOUS

(595) BEILSTEIN'S HANDBUCH DER ORGANISCHEN CHEMIE.
1934. LACTIC ACID. REACTION WITH ALDEHYDES. Ed. 4. XIX. p. 104.

(596) BLAISE, E. E.
1912. SYNTHESES BY MEANS OF MIXED ORGANOMETALLIC DERIVATIVES OF ZINC. MIXED CYCLOACETALS. Compt. rend. 154: 596-8.

(597) ---------- and MONTAGNE, M.
1922. THE ACTION OF THIONYL CHLORIDE ON ALPHA-HYDROXY ACIDS. Compt. rend. 174: 1173-74; 1553-5.

(598) BÖESEKEN, J.
1926. THE CONDENSATION PRODUCTS OF POLYHYDROXY COMPOUNDS WITH CHLORAL. Verslag Akad. Wetenschappen Amsterdam 35: 1084-9.

(599) BRAUN, J. V., ANTON, E. and WEISSBACH, K.
1930. METHYLATION OF ALCOHOLIC HYDROXYL FROM THE STANDPOINT OF THE ELECTRON THEORY. Ber. 63B: 2847-61.

(600) BRUSON, H. A., and RIENER, T. W.
1945. CHEMISTRY OF DICYCLOPENTADIENE. II. ADDITION-REARRANGEMENT WITH ACIDS J Am Chem Soc 67: 1178-80.

(601) CRAMER, R. D. and KISTIAKOWSKY, G. B.
1941. SYNTHESIS OF RADIOACTIVE LACTIC ACID. J. Biol. Chem. 137: 549-55.

(602) DALL'ACQUA, G.
1944. PRODUCTION OF FORMALDEHYDE FROM SOME ORGANIC MOLECULES. Chimica e industria (Italy) 26: 10.

(613) GRÜTER, R and POHL, H.
1915. PROCESS FOR THE MANUFACTURE OF ESTERS OF OXY FATTY ACIDS. U. S. Patent 1,160,595, Nov. 16.

(614) HENRY, L.
1874. ALCOHOL DERIVATIVES OF CHLORAL. Ber. 7: 762-65.

(615) HOLMBERG, B.
1926. STEREOCHEMICAL STUDIES. XII. CARBOTHIONOLACTIC ACIDS. Ber. 59: 1558-69.

(616) HUKUDA, SINOGU
1938. THE ROTATION OF d-LACTIC ACID AND ITS DERIVATIVES. I. THE ANHYDRIDE FORMATION OF MUSCLE LACTIC ACID UNDER ORDINARY TEMPERATURE. J. Biochem. (Japan) 27: 241-6. II. BENZOYLATION OF d-LACTIC ACID. Ibid. 247-9.

(617) IPATIEF, V. and RASUVAIEV, G.
1926. CONDENSATION OF LACTIC ACID TO METHYLSUCCINIC ACID UNDER THE INFLUENCE OF THE COMBINED ACTION OF CATALYSTS AT HIGH PRESSURES AND TEMPERATURES Ber. 59B: 2031-4.

(618) KIRK, PHILIP, M. and JONES, LOUIS C.
1942. PROCESS FOR PRODUCING UNSATURATED ALIPHATIC COMPOUNDS. U. S. Patent 2,303,842, Dec. 1.

(619) KIRKPATRICK, E. C.
1944. STABILIZATION OF ORGANIC COMPOUNDS. U. S. Patent 2,346,425, April 11.

(620) KOTON, M. M.
1941. REACTION OF TETRAPHENYLLEAD WITH MONOBASIC ORGANIC ACIDS. II. J. Gen. Chem. (U.S.S.R.) 11: 376-8.

(621) LIEBEN, F., LÖWE, L. and BAUMINGER, B.
1934. DECOMPOSITION OF HIGHLY POLYMERIC GLUCIDES AS WELL AS LACTIC AND PYRUVIC ACIDS IN THE LIGHT OF THE QUARTZ LAMP. Biochem. Z. 271: 209-12.

(622) LODER, D. J., GRESHAM, W. F, and KILLIAN, D. B.
1944. PREPARATION OF ACETALS. U. S. Patent 2,364,455, Dec 5.

(623) LOHMAR, R., DIMLER, R. J., MOORE, S., and LINK, K. P.
1942. CARBOHYDRATE CHARACTERIZATION. III. THE IDENTIFICATION OF HEXURONIC OR SACCHARIC ACIDS AS BENZIMIDAZOLE DERIVATIVES. J. Biol. Chem. 143: 551-6.

(624) MARPLE, K. E., SHOKAL, E. C. and EVANS, T. W.
1941. PROCESS FOR THE PRODUCTION OF DERIVATIVES OF EPIHALOHYDRINS. U. S. Patent 2,260,753, Oct. 28.

(625) McCOMBIE, H., SAUNDERS, B. C. and WILD, F.
1944. PREPARATION OF NITROETHANE. J. Chem. Soc. 1944: 24-25.

(626) MELDRUM, A. N., BHATT, D. M.
1934. CHLORALIDES OF ALPHA-HYDROXY CARBOXYLIC ACIDS. J. Univ. Bombay 3: 149-52.

(627) NEF, J. V.
1904. DISSOCIATION OF THE GLYCOLS AND OF THE GLYCEROLS. I. AND II. Ann. 335: 191-245, 247-333.

(628) NEUBERGER, W.
1913. ALKYLATION OF ALKYL LACTIC ACID ESTERS. German Patent 266,120, Jan. 3.

(629) NIEUWLAND, J. A., VOGT, R. R. and FOOHEY, W. L.
1930. A NEW METHOD OF PREPARING ACETALS. J. Am. Chem. Soc. 52: 1018-24.

(630) OEDA, H.
1935. ACETONE COMPOUNDS OF SOME ALPHA-HYDROXY ACIDS AND THEIR RAMAN SPECTRA. Bull. Chem. Soc. Japan 10: 187-92.

(631) PALOMAA, M. H., SALMI, E. J., WALLIN, L. and SIITONEN, T. A.
1935. ETHER LACTONES WITH FIVE-MEMBERED RINGS. Ber. 68B: 609-618.

(632) PAUL, T.
1922. PHYSICAL CHEMISTRY OF FOODSTUFFS. THE INVESTIGATION OF ACID TASTE. Z. Electrochem. 28: 435-46.

(633) PERKIN, W. H., JR.
1912. THE PRODUCTION AND POLYMERIZATION OF BUTADIENE, ISOPRENE, AND THEIR HOMOLOGUES. J. Soc. Chem. Ind. 31: 616-624.

(634) SHAH, N. M. and ALIMCHANDANI, R. L.
1934. ISOMERISM IN CHLORALIDES. Current Sci. 2: 383-384.

(635) SKOLNIK, H., MILLER, J. G. and DAY, A. R.
1943. THE ALLYLIC CHARACTER OF 2-(ALPHA-CHLOROALKYL)-BENZINIDAZOLES. J. Am Chem Soc. 65: 1854-58.

(636) STONE, WM. E.
1940. ACID-SOLUBLE PHOSPHORUS COMPOUNDS AND LACTIC ACID IN THE BRAIN. J. Biol. Chem. 135: 43-50.

(637) SZARVAS, P.
1941. ON THE ROTATORY DISPERSION OF ALPHA-HYDROXY ACIDS. OBSERVATION ON THE CONFIGURATION OF ALPHA-HYDROXY ACIDS. Z. physik Chem. 188A: 235-245.

(638) TOMMILA, E.
1935. ANODIC REACTIONS IN THE ELECTROLYSIS OF ALPHA-HYDROXY ACIDS. Suomen Kemistrilehti 8B: 25 pp.

(639) TRONOV, B. V. and KULEV, L. P.
1934. DETERMINATION OF HYDROGEN REACTIVITY IN ORGANIC COMPOUNDS BY ELECTROMOTIVE FORCE OF THE REACTION WITH METALLIC SODIUM. J. Gen. Chem. (U.S.S.R.) 4: 197-202.

(640) VILENSKII, V. A. and KOROLEV, A. YA.
1939. SOLVATATION OF PROTEINS IN AQUEOUS SOLUTIONS OF WEAK ACIDS AND BASES. I. INTERACTION OF CASEIN WITH AQUEOUS SOLUTIONS OF ACETIC, LACTIC AND CITRIC ACIDS. Colloid J. (U.S.S.R.) 5: 843-9; Compt. rend. acad. sci. U.R.S.S. 24: 52-5.

(641) VOLMAR, Y. and WEIL, E.
1938. ACTION OF ANTIMONY TRISULFIDE ON HYDROXY ACIDS. Compt. rend 206: 1904-5.

(642) WIEZEVICH, P. J.(name changed to Gaylor, P. J.).
1941. PROCESS OF PREPARING MIXED ESTER ANHYDRIDES. U. S. Patent 2,236,125, March 25.

VI. DERIVED PRODUCTS

A. ESTERS, GENERAL

(643) ALBERTO COLON, A. and WARNER, J. C.
1943. KINETICS OF THE HYDROLYSES OF ESTERS OF LACTIC ACID. I. THE NORMAL ALKYL ESTERS. Presented before the 106th Meeting of the American Chemical Society at Pittsburgh, Pa., Sept. 6-10.

(644) ----------
1943. MECHANISM AND KINETICS OF THE ESTER HYDROLYSIS. Bol. oficial asoc. quim. Puerto Rico 2: No. 2, 15-17.

(645) AWWERS, K.
1894. CRYOSCOPIC MOLECULAR WEIGHT DETERMINATIONS. Z. physikal. Chem. 15: 33-55.

(646) BAILEY, M. E. and HASS, H. B.
1941. NEW METHODS FOR RESOLUTION OF ENANTIOMORPHS. I. RECTIFICATION. J. Am. Chem. Soc. 63: 1969-70.

(647) BANNISTER, W. J.
1936. ALIPHATIC ESTERS OF CARBOXYLIC ACIDS. U. S. Patent 2,029,694, Feb. 4.

(648) BASS, S. L. and FENN, H. N.
1934. SECONDARY BUTYL LACTATES. U. S. Patent 1,956,972, May 1.

(648a) BERGER, G.
1924. CONSTITUTIVE INFLUENCES IN ESTER SAPONIFICATION CATALYZED BY ACIDS. Rev. trav. chim. 43: 163-77.

(649) BISCHOFF, C. A.
1899. SODIUM ETHYLATE AND ESTERS OF BROMO ALIPHATIC ACIDS. Ber. 32: 1755-61.

(650) BOWDEN, E. and ADKINS, H.
1934. HYDROGENATION OF OPTICALLY ACTIVE COMPOUNDS OVER NICKEL AND COPPER CHROMIUM OXIDE. J. Am. Chem. Soc. 56: 689-91.

(651) BORGLIN, J. N.
1943. TERPENE DERIVATIVE. U. S. Patent 2,312,684, March 2.

(652) ----------
1943. TERPENE DERIVATIVE. U. S. Patent 2,312,685, March 2.

(653) BOSE, E. and WILLERS, F. A.
1909. THE SO-CALLED ASYMMETRY PRODUCT. II. Z. physik. Chem. 65: 702-26.

(654) BRAUN, J. V., ANTON, E. and WEISSBACH, K.
1930. METHYLATION OF ALCOHOLIC HYDROXYL FROM THE STANDPOINT OF THE ELECTRON THEORY. Ber. 63B: 2847-61.

(655) BRITISH THOMSON-HOUSTON CO., LTD.
1942. IMPROVEMENTS IN SYNTHETIC RESINOUS COMPOSITIONS. British Patent 547,525, Sept. 1.

(656) BROOKS, B. T. (Standard Alcohol Co.).
1939. PRODUCTION OF HYDROXY ALIPHATIC ESTERS. U. S. Patent 2,176,201, Oct. 17.

(657) BROOKS, RICHARD E. (to E. I. du Pont de Nemours & Co.).
1948. ALKOXY-SUBSTITUTED ESTERS. U. S. Patent 2,436,286, Feb. 17.

(658) BRUSON, H. A. (Resinous Products & Chemical Co.).
1946. ETHERS OF HYDROXYDIHYDRONORPOLYCYCLOPENTADIENES. U. S. Patent 2,394,582, Feb. 12.

(659) BURKARD, O. and KAHOVEC, L.
1938. RAMAN EFFECT. LXXXII. NITROGEN COMPOUNDS. 10. Monatsh 71: 333 45.

(660) CARBIDE & CARBON CHEMICALS CORP.
1935. ESTERS OF HYDROXY ACIDS. French Patent 787,842, Sept. 30.

(661) CARRUTHERS, T. F. and BLAIR, C. M. (Carbide & Carbon).
1941. PLASTICIZER AND PLASTIC COMPOSITION. U. S. Patent 2,260,295, Oct. 28.

(662) CHEM. WERKE. VORM. H. & E. ALBERT
1938. AMINO ALCOHOLS. French Patent 828,495, May 18.

(663) CLEMMENSEN, E. and HEITMAN, A. H. C.
1909. UREIDES AND CYANAMIDES OF THE OXYFATTY ACIDS. Am. Chem. J. 42: 319-40.

(664) COFFMAN, D. D. (E. I. du Pont de Nemours & Co.)
1945. ETHER ESTERS, U. S. Patent 2,384,726, Sept. 11.

(665) COHEN, J. B. and WHITELEY, C. E.
1901. EXPERIMENTS ON THE PRODUCTION OF OPTICALLY ACTIVE COMPOUNDS FROM INACTIVE SUBSTANCES. J. Chem. Soc. 79: 1305-12.

(666) COOK, H. G., McCOMBIE, H. and SAUNDERS, B. C.
1945. ESTERS CONTAINING PHOSPHORUS. II. J. Chem. Soc. 1945: 873-4.

(667) CORBETT, E. G.
1935. IMPROVEMENT IN THE MANUFACTURE OF ESTERS FROM LACTIC, TARTARIC, OR STEARIC ACID. Australian Patent 20,517/34, Dec. 12.

(668) COX, H. L. and CARRUTHERS, T. F. (Carbide & Carbon Chemicals Corp.).
1935. ALKOXY ESTERS OF ACYLATED HYDROXY ACIDS. British Patent 437,790, Nov. 5.

(669) ----------(Union Carbide & Carbon Corp.).
1936. ALKOXY ESTERS OF ACYLATED HYDROXY CARBOXYLIC ACID ESTERS. U. S. Patent 2,046,150, June 30.

(670) DARZENS, G.
1911. ACTION OF THIONYL CHLORIDE IN THE PRESENCE OF A TERTIARY BASE ON ESTERS OF HYDROXY ACIDS. Compt. rend. 152: 1601-3.

(671) DEAN, E. W.
1913. HYDROLYSIS OF ESTERS OF SUBSTITUTED ALIPHATIC ACIDS. VI. Am. J. Sci. Ser. 4, 35: 605-10.

(672) DEEBEL, G. F. (Monsanto Chemical Co.).
1945. ESTERS OF 2-BUTENE-1,4-DIOL. U. S. Patent 2,366,667, Jan. 2.

(673) DOROUGH, G. L. (E. I. du Pont de Nemours & Co.).
1938. PROCESS FOR PREPARING RESINOUS MATERIAL AND PRODUCT. U. S. Patent 2,127,248, Aug. 16.

(674) DUPIRE, A.
1942. ESTERS OF ARSENIOUS ACID. Compt. rend. 214: 82-4.

(675) FEIN, M. L. and FISHER, C. H.
1944. ACETYLATION OF ALKYL LACTATES. METHYL AND ETHYL ALPHA-ACETOXYPROPIONATES. Ind. Eng. Chem. 36: 235-38.

(676) FELDMANN, LEONHARD and FISCHER, HERMANN O. L.
1947. ESTERS OF dl-LACTIC ACID WITH GLYCEROL AND FRUCTOSE. Arch. Biochem. 14: 117-24.

(677) FILACHIONE, E. M.
1946. PROCESS FOR ESTERIFYING ACYLOXY CARBOXYLIC ACIDS. U. S. Patent 2,402,129, June 18.

(678) ----------,COSTELLO, E. J. and FISHER, C. H.
1949. ESTERIFICATION OF AMMONIUM SALTS. PREPARATION OF LACTIC ESTERS FROM AMMONIUM LACTATE. Abstracts, 116th Meeting Am. Chem. Soc., page 45M (Sept.).

(679) ---------- and FISHER, C. H.
1944. PREPARATION OF METHYL ACETOXYPROPIONATE. PREPARATION FROM LACTIC ACID, ACETIC ACID AND METHANOL. Ind Eng. Chem 36: 472-75.

(680) ---------- ----------
1946. PROCESS FOR THE PRODUCTION OF DI-ESTERS OF HYDROXY CARBOXYLIC ACIDS. U. S. Patent 2,402,130, June 18.

(681) FISHER, C. H. and FEIN, M. L.
1945. PROCESS FOR ACYLATING ESTERS OF HYDROXY CARBOXYLIC ACIDS. U. S. Patent 2,374,428, April 24.

(682) FRANKLAND, P.
1899. SOME REGULARITIES IN THE ROTATORY POWER OF HOMOLOGOUS SERIES OF OPTICALLY ACTIVE COMPOUNDS. J. Chem. Soc 75: 347-371.

(683) ---------- and HENDERSON, J.
1895. SOME ETHEREAL DERIVATIVES OF SARCOLACTIC ACID. Proc. Chem. Soc., Vol. II, 54-55.

(684) FREUDENBERG, K., EICHEL, H. and LEUTERT, F.
1932. SYNTHESEN VON ABKOMMLINGEN DER AMINO-SÄUREN. Ber. 65: 1183-1191.

(685) ----------, KUHN, W. and BUMANN, I.
1930. DIE KONFIGURATION DER HALOGENPROPIONSÄUREN UND DES ALANINS. Ber. 63: 2380-2390.

(686) ---------- and MEISTER, M.
1935. STERIC SERIES. XXII. CONFIGURATION OF ALANINE. Ann. 518: 86-96.

(687) ---------- and RHINO, F.
1924, DIE KONFIGURATION DES ALANINS. Ber. 57: 1547-1557.

(688) GABRIEL, C. L. and BOGIN, C.
1928. NORMAL BUTYL LACTATE. U. S. Patent 1,668,806, May 8.

(689) GARDNER, D. (Lavoisier, H.).
1936. CARVACROL DERIVATIVES. French Patent 797,815, May 5.

(690) GENIN, G.
1941. PREPARATION AND PROPERTIES OF LACTIC ACID ESTERS. Lait 21: 361-7.

(691) GERRARD, W.
1939. STUDIES ON THE ESTERS OF SULPHUROUS, CHLOROSULPHINIC, AND CHLOROSULPHONIC ACIDS. I. J. Chem. Soc. 1939: 99-103.

(692) ----------
1940. STUDIES ON THE ESTERS OF SULPHUROUS, CHLOROSULPHINIC, AND CHLOROSULPHONIC ACIDS. II. J. Chem. Soc. 1940: 218-230.

(693) ----------
1945. INTERACTION OF HYDROXY COMPOUNDS AND PHOSPHORUS AND THIONYL HALIDES IN THE ABSENCE AND PRESENCE OF TERTIARY BASES. III. J. Chem. Soc. 1945: 848-53; IV. ibid, pp. 853-7.

(694) ---------- and FRENCH, K. H. V.
1947. INFLUENCE OF TERTIARY BASIS ON THE INTERACTION OF THIONYL CHLORIDE AND HYDROXY COMPOUNDS. Nature 159: 263-4.

(695) GLATTFELD, J. W. E. and MACMILLAN, D.
1936, LACTONES IN LIQUID AMMONIA. J. Am. Chem. Soc. 58: 898-901.

(696) GODCHOT, M. and VIELES, P.
1936. ACTIVE METHYLDIGLYCOLIC ACID AND ITS DERIVATIVES. Compt. rend. 202: 1358-60.

(697) GOMBERG, M. and BUCHLER, C. C.
1920. PREPARATION OF BENZYL ESTERS AND OTHER BENZYL DERIVATIVES FROM BENZYL CHLORIDE. J. Am. Chem. Soc. 42: 2059-72.

(698) GORGEOT, H.
1928 LACTIC ACID ESTERS. French Patent 678,627, Nov. 12.

(699) GOUDET, C. (Thesis, University of Geneva, 1897).
1903. THE PROPYL, BUTYL AND ISOBUTYL ESTERS WERE PREPARED FROM THE BARIUM SALT (according to Wassmer, E. & Guye, P. A.). J. Chim. Phys. 1: 257-88.

(700) GRAVES, G. D.
1932. ESTER INTERCHANGE WITH ORGANIC ACIDS. U. S. Patent 1,882,808, Oct. 18.

(701) ---------- (E. I. du Pont de Nemours & Co.).
1938. HYDROXY CARBOXYLIC ACID ESTERS OF LONG CHAIN ALCOHOLS. U. S. Patent 2,122,716, July 5.

(702) GRÜTER, R.
1941. COMPOUNDS OF THE LOWER HYDROXY ACIDS, GLYCOLIC ACID AND LACTIC ACID. Chem. Ztg. 65: 84.

(703) ----------and POHL, H.
1915. PROCESS FOR THE MANUFACTURE OF ESTERS OF OXY FATTY ACIDS. U. S. Patent 1,160,595, Nov. 16.

(704) HADDOCK, N. H. and KERSHAW, A. (Imperial Chemical Industries, Ltd.).
1936. AMINO DERIVATIVES OF O-NITRO-PHENYLLACTIC AND THIOLACTIC ACIDS. U. S. Patent 2,041,705, May 26.

(705) HARTWICH, F. (to Schering-Kahlbaum, A. G.).
1926. LACTIC ACID ESTERS. German Patent 518,388, January 23.

(706) HODGE, J. W.
1943. LOW PRESSURE CATALYTIC HYDROGENOLYSIS OF ESTERS. Thesis, Ph. D. Univ. of Missouri.

(707) HORENSTEIN, H. and PÄHLICKE, H.
1938. A NEW REARRANGEMENT REACTION AND ITS USE FOR THE PREPARATION OF ESTERS OF AMINO ALCOHOLS. Ber. 71B: 1644-57.

(708) HOUBEN, J. and FISCHER, W.
1931. PROCESS FOR THE CATALYTIC ESTERIFICATION OF ALCOHOLS IN ALKALINE SOLUTION. Ber. 64B: 240-7.

(709) HURTLEY, W. R. H. and WHEELER, T. S.
1930. LACTIC ESTERS. British Patent 346,486, Jan. 25.

(710) I. G. FARBENINDUSTRIE A. G.
(n.d.). ESTERS. (MANUFACTURING PROCEDURES FOR VARIOUS ESTERS OF GLYCOLIC, BUTYRIC, LACTIC, AND OXALIC ACIDS AND OF INDUSTRIAL SOLVENTS). Office of Technical Services, U. S. Dept. of Commerce, PB 32,535, 325 pp.

(711) INGOLD, C. K.
1921. THE MECHANISM UNDERLYING THE REACTION BETWEEN ETHYL CYANO-ACETATE AND TANTOMERIC SUBSTANCES OF THE KETO-ENOL TYPE. J. Chem. Soc. 119: 329-41.

(712) JUNGFLEISCH, E. and GODCHOT, M.
1907. ETHYL LACTYL-LACTATE. Compt. rend. 144: 425-427.

(713) ---------- ----------
1907. r-DILACTYLIC ACID... Compt. rend. 144: 979-981.

(714) ---------- ----------
1907. DIGLYCOLIC ACID AND ITS HOMOLOGUES. Compt. rend. 145: 70-73.

(715) KAUFMANN, H.
1933. PROCESS OF MAKING SILICYL COMPOUNDS. U. S. Patent 1,918,338, July 18.

(716) KLIMENKO, E.
1880. BEITRAGE ZUR GESCHICHTE DER MILCHSÄUREN. J. Russ. Chem. Soc. 12: 17-30; 96-105.

(717) KUHN, W. and BILLER, H.
1935. ROTATION OF CHROMOPHORIC GROUPS IN SIMILARLY CONSTRUCTED COMPOUNDS. Z. physik. Chem. B29: 1-41.

(718) KÜMMEL, P.
1938. LACTIC ACID ESTERS. Farbe u. Lacke 1938: 449-50.

(719) KYRIDES, L. P. (Monsanto Chemical Co.).
1933. OCTYL ALCOHOL ESTERS. U. S. Patent 1,923,938, Aug. 22.

(720) LEE, W. McC. (Sharples Solvents Corp.).
1936. ESTERIFICATION OF OLEFINES. U. S. Patent 2,041,193, May 19.

(721) LEVENE, P. A. and MARKER, R. E.
1933. OPTICAL ROTATIONS OF CONFIGURATIONALLY RELATED METHOXYPROPIONIC AND BETA-METHOXYBUTYRIC NITRILES. J. Biol. Chem. 102: 297-302.

(722) LOCK, R. H. (Howards & Sons, Ltd.).
1937. MANUFACTURE OF GLYCEROL MONOLACTATE. U. S. Patent 2,089,127, Aug. 3

(723) ----------
1938. GLYCEROL MONOLACTATE TRIACETATE AND PROCESS OF MAKING SAME. U. S. Patent 2,107,202, Feb. 1.

(724) MASON, F. S.
1911. SANTALOL COMPOUND. U S Patent 1,007,587, Oct. 31.

(725) ----------
1911. THE LACTIC ACID ESTERS OF SANTALOL AND OTHER SANTALOL COMPOUNDS. Am. J. Pharm. 83: 335-42.

(726) MENSCHUTKIN, N.
1882. ON THE ESTERIFICATION OF HYDROXY ACIDS. Ber. 15: 162-5.

(727) MICHAEL, W. and HAAG, W. (I. G. Farbin.).
1931. PRODUCTION OF ESTERS OF α-HYDROXY CARBOXYLIC ACIDS. U. S. Patent 1,831,025, Nov. 10.

(728) MICHEEL, F. and HAARHOFF, H.
1940. NEW SYNTHESIS OF REDUCTONES. Ann. 545: 28-32.

(729) ----------(Boehringer Corp.).
1943. PREPARATION OF OXY-TETRONIC ACIDS. U. S. Patent 2,314,946, March 30.

(730) MUSKAT, I. E. and STRAIN, F. (Pittsburgh Plate Glass Co.).
1945. COMPLEX ESTERS AND POLYMERS THEREOF. U. S. Patent 2,370,566, Feb. 27.

(731) ORTHNER, L. and HEUCK, C. (General Aniline Works, Inc.).
1938. ADDITION PRODUCTS OF GLYCIDE. U. S. Patent 2,131,142, Sept. 27.

(732) OTHMER, D. F., WHITE, R. E. and TRUEGER, E.
1941. LIQUID-LIQUID EXTRACTION DATA. Ind. Eng. Chem. 33: 1240-48. (Correction), Ind. & Eng. Chem. 33: 1941, p. 1513.

(733) PAULING, L.
1936. THE INTERPRETATION OF THE INFRARED ABSORPTION OF ORGANIC MOLECULES CONTAINING HYDROXYL AND IMINO GROUPS. J. Am. Chem. Soc. 58: 94-8.

(734) ----------
1945. NATURE OF THE CHEMICAL BOND AND THE STRUCTURE OF MOLECULES AND CRYSTALS. Second Edition, 450 pp., Cornell University Press, Ithaca, N.Y.

(735) PEYCHÈS, I.
1935. SPECTRES RAMAN DE QUELQUES ACIDES-ALCOOLS ET DE LEURS DÉRIVÉS. ESTERS ET SELS. Bull. soc. chim. (5) 2: 2195-2209.

(736) PURDIE, T. and WILLIAMSON, S.
1896. ETHEREAL SALTS OF OPTICALLY ACTIVE MALIC AND LACTIC ACIDS. J. Chem. Soc. 69: 818-839.

(737) RATHSBURG, H. and GAWLICK, H.
1941. INFLAMMABILITY UPON BRINGING TOGETHER ORGANIC COMPOUNDS AND KM_nO_4. Chem. Ztg. 65: 426-7.

(738) SABETAY, S.
1930. SOME ESTERS OF LACTIC ACID. Bull. soc. chim. (4) 47: 436.

(739) SALMI, E. J. and LAAKSONEN, E.
1940. THE ALKALINE SAPONIFICATION OF CYCLIC AND ACYCLIC ESTERS OF ALPHA-HYDROXYCARBOXYLIC ACIDS. Ann. Acad. Sci. Fennicae A54: (11) 10 pp.; Chem. Zentr. 1942: I, 328.

(740) ---------- and SUONPÄÄ, T.
1940. INVESTIGATIONS ON ETHER-LIKE COMPOUNDS. VII. INFLUENCE OF THE CHLORINE ATOM ON THE SPEED OF SPONTANEOUS HYDROLYSIS OF ESTERS. Ber. 73: 1126-1131.

(741) ---------- and LEIMU, R.
1947. THE EFFECT OF STRUCTURE ON THE RATE OF ALKALINE HYDROLYSIS OF ALIPHATIC ESTERS. Suomen Kemistilehti 20B: 43-8.

(742) SANTIAGO, S. and WEST, A, P.
1928. CHAULMOOGRYL DERIVATIVES OF LACTATES AND SALICYLATES. Philippine J. Sci. 35: 405-9.

(743) SCHMIDT, O. and NIEMANN, G. (I. G. Farbenindustrie A. G.).
1925. ESTERS OF LACTIC ACID. German Patent 544,499, September 25.

(744) SCHREINER, L.
1879. ON THE BOILING POINTS OF THE ESTERS AND ETHER ESTERS OF HYDROXY-ACIDS. Ann. 197: 1-26.

(745) SIMON, L. J.
1922. DIRECT OXIDATION BY OXYGEN OR AIR OF THE ESTERS OF ALCOHOL-ACIDS. Compt. rend. 175: 489-91.

(746) SMITH, A. W. and BOORD, C. E.
1926. INFRA-RED ABSORPTION IN ETHERS, ESTERS AND RELATED SUBSTANCES. J. Am. Chem. Soc. 48: 1512-20.

(747) SMITH, L. T. and CLABORN, H. V.
1940. LACTIC ESTERS. PREPARATION AND PROPERTIES. Ind. Eng. Chem. 32: 692-94.

(748) STRAIN, D. E. (E. I. du Pont de Nemours & Co.).
1938. ACRYLOXY CARBOXYLIC ACIDS AND THEIR ESTERS. U. S. Patent 2,141,546, Dec. 27.

(749) STRECKER, A.
1854. UEBER EINIGE NEUE VERBINDUNGEN DER MILCHSAURE. Ann. 91: 352-367.

(750) THURSTON, J. T. and GRIM, J. M. (American Cyanamid Co.).
1945. α-NAPHTHYLMETHYL ESTERS OF HYDROXY-ALIPHATIC ACIDS. U. S. Patent 2,383,897, Aug. 28.

(751) TRAUTNER, E. M. and POLYA, J. B.
1948. VARIATION OF THE SCHOTTEN-BAUMANN REACTION. Australian Chem. Inst. J. & Proc. 15: 52-4.

(752) URQUEHART, G. G.
1943. METHOD OF PRODUCING LACTIC ACID ESTERS. U. S. Patent 2,315,168, March 30.

(753) VANDERBILT, B. M. (Purdue Research Foundation).
1941. LACTATE OF A NITRO ALCOHOL. U. S. Patent 2,233,656, March 4.

(754) VON RICHTER, V., ANSCHUTZ, R. and REINDEL, F.
1934. ORGANIC CHEMISTRY OR CHEMISTRY OF THE CARBON COMPOUNDS. Nordemann Publishing Co., N.Y.C. V.I, pp. 415-421.

(755) WAGNER-JAUREGG, T. and GRIESSHABER, H.
1937. PYROPHOSPHORIC ESTERS AND CRYSTALLINE SALTS OF PHOSPHO-1-LACTIC ACID. Ber. 70B: 8-11.

(756) WALKER, J. W., SMILES, S. and DOVER, M. V.
1909. OPTICAL ACTIVITY AND THE PRODUCT OF ASYMMETRY. J. Phys. Chem. 13: 574-84.

(757) WASSMER, E. and GUYE, P. A.
1903. RECHERCHES PHYSICOCHEMIQUES SUR LES ETHERS ACTIFS LACTIQUES ET MALIQUES. J. Chim.Phys. 1: 257-288.

(758) WEISBERG, SAMUEL M. and STIMPSON, EDWIN G. (to National Dairy Research Labs., Inc.).
1948. ESTERIFICATION OF ALKALI METAL AND ALKALINE EARTH METAL LACTATES UNDER CONTROLLED pH CONDITIONS TO FORM ALKYL LACTATES. U. S. Patent 2,434,300, Jan. 13

(759) WOOD, C. E.
1927. ROTATORY DISPERSION OF CERTAIN DERIVATIVES OF HYDROXY ACIDS. J. Soc. Chem. Ind. 46: 424-7T.

(760) ----------, SUCH, J. E. and SCARF, F.
1923. ROTATORY DISPERSION OF THE ESTERS OF LACTIC ACID. I. NORMAL ESTERS. J. Chem. Soc. 123: 600-16.

(761) ----------
1926. ROTATORY DISPERSION OF THE ESTERS OF LACTIC ACID. II. THE ISOMERIC BUTYL ESTERS. J. Chem. Soc. 1926: 1928-38.

(762) WURTZ, A. and FRIEDEL, C.
1861. UNTERSUCHUNGEN ÜBER DIE MILCHSÄURE. Ann. 119: 369-75.

B. METHYL LACTATE

(763) ADKINS, H., FOLKERS, K. and CONNOR, R.
1937. HYDROGENATING ESTERS. U. S. Patent 2,091,800, Aug. 31.

(764) ANDERSON, J. G., HILL, R. and MORGAN, L. B.
1939. SYNTHETIC RUBBERLIKE MATERIALS. British Patent 514,912, Nov. 21.

(765) BAILEY, M. E. and HASS, H. B.
1941. NEW METHODS FOR RESOLUTION OF ENANTIOMORPHS. I. RECTIFICATION. J. Am. Chem. Soc. 63: 1969-70.

(766) BANNISTER, W. J. (to Commercial Solvents).
1928. PROCESS FOR THE MANUFACTURE OF ESTERS. U. S. Patent 1,695,449, December 18.

(767) ----------
1936. ESTERIFICATION PROCESS. U. S. Patent 2,029,694, Feb. 4.

(768) BEILSTEIN, F. K.
1921. BEILSTEINS HANDBUCH DER ORGANISCHEN CHEMIE. 4th Ed. Vol. III, pp. 264, 280. Julius Springer, Berlin.

(769) BROWNE, H. H.
1941. ETHYL ALCOHOL FROM FERMENTATION OF LACTOSE IN WHEY. Ind. Eng. Chem. News Ed. 19: 1272 (Nov.).

(770) BURKARD, O. and KAHOVEC, L.
1938. RAMAN EFFECT. LXXXII. NITROGEN COMPOUNDS. 10. ALPHA-AMINO AND HYDROXYPROPIONIC ACIDS AND THEIR ESTERS. Monatsh. 71: 333-45.

(771) BURNS, R., JONES, D. T. and RITCHIE, P. D.
1935. STUDIES IN PYROLYSIS. 1. THE PYROLYSIS OF DERIVATIVES OF ACETOXYPROPIONIC ACID AND RELATED SUBSTANCES. J. Chem. Soc. 1935: 400-6.

(772) BYK, H., CHEM. WERKE BYK.
1912. ESTERS OF HYDROXY FATTY ACIDS. German Patent 278,487, June 4.

(773) CHEMISCHE FABRIK AUF ACTIEN
1925. LACTIC ACID ESTERS. British Patent 256,587, August 7.

(774) CLIFFORD, A. M.
1942. COPOLYMERS OF BUTADIENES WITH UNSATURATED ALCOHOL ESTERS OF ACRYLIC ACIDS. U. S. Patent 2,279,293, April 14.

(775) CLOUGH, G. W.
1918. THE RELATIONSHIP BETWEEN THE OPTICAL ROTATORY POWERS AND THE RELATIVE CONFIGURATIONS OF OPTICALLY ACTIVE COMPOUNDS. J. Chem. Soc. 113: 526-554.

(776) ----------
1925. THE RELATIONSHIP BETWEEN THE ROTATORY POWERS AND THE RELATIVE CONFIGURATIONS OF OPTICALLY ACTIVE COMPOUNDS. II. J. Chem. Soc. 127: 2808-13.

(777) ----------
1926. RELATIONSHIP BETWEEN THE OPTICAL ROTATORY POWERS AND THE RELATIVE CONFIGURATIONS OF OPTICALLY ACTIVE COMPOUNDS. III. J. Chem. Soc. 1926: 1674-6.

(778) DE VERDA, G.
1891. NITRO-DERIVATIVE OF METHYL α-HYDROXYPROPIONATE. Gazz. chim. Ital. 21: II, 359-361.

(779) FILACHIONE, E. M. and FISHER, C. H.
1946. PROCESS OF MANUFACTURING VOLATILE ESTERS OF HYDROXY CARBOXYLIC ACIDS. U. S. Patent 2,405,646, Aug. 13.

(780) ----------, LENGEL, J. H. and FISHER, C. H.
1945. PREPARATION OF METHYL LACTATE. CONTINUOUS ALCOHOLYSIS OF LACTIC ACID POLYMERS. Ind. Eng. Chem. 37: 388-390.

(781) FISCHER, E. and SPEIER, A.
1895. PREPARATION OF ETHEREAL SALTS. Ber. 28: 3252-8.

(782) FISHER, C. H. and FEIN, M. L.
1945. PROCESS FOR ACYLATING ESTERS OF HYDROXY CARBOXYLIC ACIDS. U. S. Patent 2,374,428, April 24.

(783) FRAENKEL-CONRAT, H. and OLCOTT, H. S.
1945. ESTERIFICATION OF PROTEINS WITH ALCOHOLS OF LOW MOLECULAR WEIGHT. J. Biol. Chem. 161: 259.

(784) FRANKLAND, P. F. and HENDERSON, J.
1895. SOME ETHEREAL DERIVATIVES OF SARCOLACTIC ACID. J. Chem. Soc. Proc. II: 54-55.

(785) FREUDENBERG, K., BRAUNS, F. and SIEGEL, H.
1923. THE CONFIGURATION OF MANDELIC ACID AND OTHER HYDROXY ACIDS. Ber. 56: 193-200.

(786) ----------, KUHN, W. and BUMANN, I.
1930. THE CONFIGURATION OF THE HALOPROPIONIC ACIDS AND THE ALANINES. Ber. 63B: 2380-90.

(787) ---------- and RHINE, F.
1924. DIE KONFIGURATION DES ALANINS, Ber. 57: 1547-57.

(788) GERRARD, W.
1945. INTERACTION OF HYDROXY COMPOUNDS AND PHOSPHORUS AND THIONYL HALIDES IN THE ABSENCE AND PRESENCE OF TERTIARY BASES. III. J. Chem. Soc. 1945: 848; IV; ibid 853-7.

(789) GODCHOT, M. and VIELES, P.
1937. RACEMIC AND ACTIVE METHYLDIGLYCOLIC ACIDS AND THEIR DERIVATIVES. Bull. soc. chim. (5) 4: 937-944.

(790) GORGEOT, H.
1928. LACTIC ACID ESTERS. French Patent 678,627, Nov. 12.

(791) GRÜTER, R. and POHL, H.
1914. MANUFACTURE OF LACTID. U. S. Patent 1,095,205, May 5.

(792) ----------
1915. PROCESS FOR MANUFACTURE OF ESTERS OF OXY FATTY ACIDS. U. S. Patent 1,160,595, Nov. 16.

(793) HANSLEY, V. L. (E. I. du Pont de Nemours & Co.).
1944. ACYLATION OF LACTONITRILE. U. S. Patent 2,342,612, Feb. 22.

(794) ----------
1944. ACYLATION OF LACTONITRILE. U. S. Patent 2,342,613, Feb. 22.

(795) HARTWICH, F. (Schering-Kahlbaum A.-G.).
1926. LACTIC ACID ESTERS. German Patent 518,388, Jan. 23.

(796) HILLRINGHAUS and HEILMANN (Chemische Fabrik Güstrow).
1905, VERFAHREN ZUR DARSTELLUNG VON MILCHAUREESTERN UND CHEMISCH REINER MILCHSÄURE AUS MILCHSAUREN SALZEN. German Patent 171,835, March 25.

(797) I. G. FARBENINDUSTRIE
1927. LACTIC ACID. German Patent 472,914, Feb. 13.

(798) ----------(J. Y. Johnson).
1927. LACTIC ACID & DERIVATIVES. British Patent 290,464, July 2.

(799) ----------(Carpmael, Arthur).
1930-1931. PROCESS FOR THE MANUFACTURE OF MIXED RUBBER-LIKE MASSES. British Patent 360,822 (application date May 30, 1930; accepted date October 30, 1931).

(800) JACOBS, P. B.
1939. ALCOHOL FROM FARM PRODUCTS. Ind. Eng. Chem. 31: 162-165.

(801). LE BEL, J. A.
1893. OBSERVATIONS ON OPTICAL ROTATION, Bull. soc. chim. (3) 9: 674-80.

(802) LUTHER, M. and BELLER, H. (I. G. Farbenindustrie).
1930. PRODUCTION OF LACTIC ACID AND ITS DERIVATIVES. U. S. Patent 1,766,715, June 24.

(803) McKENZIE, A. and THOMPSON, H. B.
1905. RACEMISATION PHENOMENA DURING THE HYDROLYSIS OF OPTICALLY ACTIVE MENTHYL AND BORNYL ESTERS BY ALKALI. J. Chem. Soc. 87: 1004-1022.

(804) NEHER, H. T.
1936. ACRYLIC RESINS. Ind. Eng. Chem. 28: 267-71.

(805) PALOMAA, M. H.
1914. INFLUENCE OF THE POSITION OF THE OXYGEN ATOM IN THE CHAIN ON THE VELOCITY OF ESTER HYDROLYSIS. Ann. Acad. Sci. Fennicae (A) 4: 1-104; Chem. Zentr. 1913: II: 1956 (C. A. 8: 1772); II. VELOCITY OF HYDROLYSIS OF ESTERS OF THE TYPES $RO(CH_2)_nCO_2R'$, ETC. Ann. Acad. Sci. Fennicae A5:, No. 4, 1-23.

(806) PATTERSON, T. S. and FORSYTH, W. C.
1913. INFLUENCE OF SOLVENTS ON THE ROTATION OF OPTICALLY ACTIVE COMPOUNDS. XIX. ROTATION OF CERTAIN DERIVATIVES OF LACTIC ACID. J. Chem. Soc. 103: 2263-71.

(807) ---------- and LAWSON, A.
1929. THE INFLUENCE OF SOLVENTS AND OTHER FACTORS ON THE ROTATION AND THE ROTATION DISPERSION OF OPTICALLY ACTIVE COMPOUNDS. XXVII. DERIVATIVES OF LACTIC ACID. J. Chem. Soc. 1929: 2042-2051.

(808) PEYCHES, I.
1935. THE RAMAN SPECTRA OF SOME ACIDS AND ALCOHOLS AND THEIR DERIVATIVES. Bull. Soc. chim. (5) 2: 2195-2209.

(809) POWERS, E. J. (to Commercial Solvents Corp.).
1931. ACYLATED ESTERS OF HYDROXY ACIDS. Canadian Patent 310,854, April 28.

(810) PRESCOTT, S. C. and DUNN, C. G.
1940. INDUSTRIAL MICROBIOLOGY. McGraw-Hill Book Co., New York, 1940: 541 pp.

(811) PURDIE, T. and IRVINE, J. C.
1899. THE ROTATORY POWERS OF OPTICALLY ACTIVE METHOXY AND ETHOXY PROPIONIC ACIDS PREPARED FROM ACTIVE LACTIC ACID. J. Chem. Soc. 75: 483-493.

(812) RITCHIE, P. D.
1935. STUDIES IN PYROLYSIS. III. THE PYROLYSIS OF CARBONIC AND SULFUROUS ESTERS. J. Chem. Soc. 1935: 1054-61.

(813) ----------, JONES, D. T. and BURNS, R. (to Imperial Chemical Industries, Ltd.).
1935. UNSATURATED ESTERS AND NITRILES. British Patent 424,885, March 4.

(814) ----------
1939. METHYL METHACRYLATE AND RELATED COMPOUNDS. U. S. Patent 2,183,357, Dec. 12.

(815) ----------
1941. DERIVATIVES OF ALPHA, BETA-UNSATURATED MONOCARBOXYLIC ALIPHATIC ACIDS. U. S. Patent 2,265,614, Dec. 9.

(816) SALMI, E. J.
1937. THE INFLUENCE OF CHAIN LENGTH OF THE ACYL COMPONENT OF THE ESTER UPON THE VELOCITY OF ACID HYDROLYSIS OF ALIPHATIC CARBOXYLIC ACID ESTERS. Ann. Acad. Sci. Fennicae A48: No. 4, 17 pp.

(817) SCHERING-KAHLBAUM A. G.
1926. LACTIC ACID ESTERS. German Patent 518,388, Jan. 23.

(818) ----------
1928. LACTIC ACID ESTERS. British Patent 319,043, June 14.

(819) SCHREINER, L.
1879. UEBER DIE SIEDEPUNKTE DER ESTER UND AETHER-ESTER DER OXYSAUREN. Ann. 197: 1-26.

(820) STARKWEATHER, H. W. and COLLINS, A. M.
1940. RUBBERLIKE INTERPOLYMERS OF BUTADIENE AND METHYL METHACRYLATE AND PROCESS FOR MAKING SAME. U. S. Patent 2,218,362, Oct. 15.

(821) TAKAHASHI, M.
1908. ON THE DETECTION OF METHYL LACTATE. Bull. Coll. Agr. Tokyo 7: 565-6.

(822) VON DER BRÜGGEN, N.
1868. UEBER DEN DIÄTHYLÄTHER EINER DIMILCHSÄURE. Ann. 148: 224-35.

(823) WALKER, J. W.
1895. THE ETHEREAL SALTS OF THE OPTICALLY ACTIVE LACTIC, CHLOROPROPIONIC AND BROMOPROPIONIC ACIDS. J. Chem. Soc. 67: 914-25.

(824) ----------
1909. OPTICAL ACTIVITY AND THE PRODUCT OF ASYMMETRY. J. Phys. Chem. 13: 574-84.

(825) WEISBERG, S. M. and STIMPSON, E. G.
1942. PREPARATION OF LACTIC ACID. U. S. Patent 2,290,926, July 28.

(826) ----------and MILLER, A. L. (Sealtest Corp.).
1945. PREPARATION OF ALKYL LACTATES. U. S. Patent 2,390,140, Dec. 4.

(827) WENKER, H. (Apex Chemical Co. Inc.).
1943. PURIFYING HYDROXY ALIPHATIC ACIDS. U. S. Patent 2,334,524, Nov. 16.

(828) WILLIAMS, R. J., GABRIEL, A. and ANDREWS, R. C.
1928. THE RELATION BETWEEN THE HYDROLYSIS EQUILIBRIUM CONSTANT OF ESTERS AND THE STRENGTHS OF THE CORRESPONDING ACIDS. J. Am. Chem. Soc. 50: 1267.

(829) WOOD, C. E. and NICHOLS, S. D.
1928. A STUDY OF THE ANOMALOUS ROTATORY DISPERSION OF CONFIGURATIVELY RELATED COMPOUNDS. J. Chem. Soc. 1928: 1712-27.

(830) ----------, SUCH, J. E. and SCARF, F.
1923. ROTATORY DISPERSION OF ESTERS OF LACTIC ACID. I. NORMAL ESTERS. J. Chem. Soc. 123: 600-616.

(831) ZIEGLER, K.
1938. THE POLYMERIZATION OF BUTADIENE AND THE PREPARATION OF ARTIFICIAL RUBBER. Chem. Zeitung 62: 125-7. Rubber Chem. and Tech. 11: 501-07.

C. ETHYL LACTATE

(832) ARISTOW, V. and DEMJANOW, N.
1887. OXIDATION PRODUCTS OF THE α-HYDROXY-ACIDS OF THE FATTY SERIES. J. Russ. Phys. Chem. Soc. 1887 [1] 257-271.

(833) ASPELUND, H.
1939. FORMATION OF DIOXOÖXAZOLIDINES FROM ALPHA-HYDROXY ACID ESTERS. Acta Acad. Aboensis, Math. et Phys. 11: No. 14, 14 pp.

(834) ASTIN, S. and RILEY, H. L.
1934. SELENIUM DIOXIDE. A NEW OXIDIZING REAGENT. IV. PREPARATION AND PROPERTIES OF ETHYL KETOHYDROXY-SUCCINATE. J. Chem. Soc. 1934: 844-8.

(835) AUDRIETH, L. F. and KLEINBERG, J.
1938. ACID CATALYSIS IN LIQUID AMMONIA. III. THE EFFECT OF ALPHA-SUBSTITUENTS ON THE AMMONOLYSIS OF ESTERS. J. Org. Chem. 3: 312-16.

(836) BAI, K. S.
1940. RAMAN SPECTRA OF SOME CARBOXYLIC ACIDS. Proc. Indian Acad. Sci. 11A: 212-28.

(837) BANNISTER, W. J.
1928. PROCESS FOR THE MANUFACTURE OF ESTERS. U. S. Patent 1,695,449, Dec. 18.

(838) ---------- (Commercial Solvents Corp.).
1936. ESTERIFICATION PROCESS. U. S. Patent 2,029,694, Feb. 4.

(839) BEAN, C. M., KENYON, J. and PHILLIPS, H.
1936. WALDEN INVERSION REACTIONS OF d-(+)-ALPHA-p-TOLUENE-SULFONOXYPROPIONIC ACID AND AMIDE AND THEIR DERIVATIVES. J. Chem. Soc. 1936: 303-11.

(840) BERGER, G.
1924. CONSTITUTIVE INFLUENCES IN ESTER SAPONIFICATION CATALYZED BY ACIDS. Rev. trav. chim. 43: 163-77.

(841) BINGHAM, E. C. and FORNWALT, H. J.
1930. CHEMICAL CONSTITUTION AND ASSOCIATION. J. Rheol. 1: 372-417.

(842) BOGIN, C. and WAMPNER, H. L.
1942. NITROPARAFFINS AS SOLVENTS IN THE COATING INDUSTRY. Div. Paint, Varnish and Plastics Chemistry, Memphis Meeting, Am. Chem. Soc., April, Briefs pp. 9-16.

(843) BOWDEN, E. and ADKINS, H.
1934. HYDROGENATION OF OPTICALLY ACTIVE COMPOUNDS OVER NICKEL AND COPPER CHROMIUM OXIDE. J. Am. Chem. Soc. 56: 689-91.

(844) BROOKS, B. T.
1939. HYDROXY ALIPHATIC ESTERS. U. S. Patent 2,176,201, Oct. 17.

(845) BUTLEROW, A.
1861. UEBER DIE AETHYLMILCHSÄURE. Ann. 118: 325-330.

(846) CARPMAEL, A. (Schering-Kahlbaum A.-G.).
1928. PROCESS FOR THE MANUFACTURE OF LACTIC ACID ESTERS. British Patent 319,043, June 14.

(847) CHEMISCHE WERKE VORN. H. BYK.
1912. VERHAFAHREN ZUR DARSTELLUNG VON ESTERN DER OXYFETTSÄUREN. German Patent 278,487, June 4.

(848) CIOCCA, B. and SEMPRONI, A.
1935. ESTERIFICATION OF HYDROXY ACIDS AND POLYALCOHOLS. Ann. Chim. Applicata 25: 319-23.

(849) CIUSA, W.
1937. OXIDATION OF ALPHA-HYDROXY ACIDS. Atti accad. Lincei, Classe Sci. Fis., Mat. Nat. 25: 632-7.

(850) CLEMMENSEN, E. and HEITMAN, A.H.C.
1909. UREIDES AND CYANIMIDES OF THE OXYFATTY ACIDS. Ann. Chem. J. 42: 319-40.

(851) CORBETT, E. G.
1935. PREPARATION OF LACTIC ESTERS. Australian Patent 20,517/34, Dec. 12.

(852) DARZENS, G.
1911. ACTION OF THIONYL CHLORIDE IN THE PRESENCE OF A TERTIARY BASE ON ESTERS OF HYDROXY ACIDS. Compt. rend. 152: 1601-3.

(853) DICKEY, J. B. and McNALLY, J. G.
1941. CELLULOSIC COMPOSITIONS OF MATTER CONTAINING ORGANIC ESTER AMIDES. U. S. Patent 2,253,064, Aug. 19.

(854) DRUSHEL, W. A. and DEAN, E. W.
1913. HYDROLYSIS OF ESTERS OF SUBSTITUTED ALIPHATIC ACIDS. Am. J. Sci. (4) 35: 486-90.

(855) DURRANS, T. H. and DAVIDSON, D. G.
1936. PLASTICIZERS IN CELLULOSE ESTER PLASTICS. Chem. & Ind. 1936: 162-9.

(856) EBRING, H. and TAKEI, M.
1941. ASSOCIATION AND SOLVATION OF CELLULOSE ACETATE ACCORDING TO DIELECTRIC MEASUREMENTS. Kolloid-Z. 96: 336-40.

(857) EULER, H. V. and MARTIUS, C.
1933. ENZYMIC OXIDO-REDUCTION BY YEAST DEHYDROGENASE. Arkiv Kemi, Mineral, Geol. 11B: No. 22, 6 pp.

(858) FINDLAY, A. and HICKMANS, E. M.
1909. INFLUENCE OF HYDROXY- AND ALKOXY GROUPS ON THE VELOCITY OF SAPONIFICATION. II. J. Chem. Soc. 95: 1004-1011.

(859) FOURNEAU, E. and FLORENCE, G.
1939. SOME COMPOUNDS OF CHLORAL. Bull. Soc. Chim. (4), 47: 350-6.

(860) FRANKLAND, P. F. and GARNER, W. E.
1914. ACTION OF THIONYL CHLORIDE ON LACTIC ACID AND ON ETHYL LACTATE. J. Chem. Soc. 105: 1101-15.

(861) FREUDENBERG, K., EICHEL, H. and LEUTERT, F.
1932. SYNTHESES OF DERIVATIVES OF AMINO ACIDS. Ber. 65B: 1183-91.

(862) ---------- and HUBER, O.
1925. STERIC SERIES. V. TRANSFORMATION OF d-LACTIC ACID INTO l-ALANINE. Ber. 58B: 148-150.

(863) ---------- and MEISTER, M.
1935. STERIC SERIES, XXII. CONFIGURATION OF ALANINE. Ann. 518: 86-96.

(864) GARDNER, H. A.
1925. ETHYL LACTATE. PAINT MANUFACTURER'S ASSOC. OF U. S. Cir. No. 225, 176-8 (Jan.).

(865) GERRARD, W.
1939. ESTERS OF SULFUROUS, CHLOROSULFINIC, AND CHLOROSULFONIC ACIDS. I. J. Chem. Soc. 1939: 99-103.

(866) ----------
1940. THE ESTERS OF SULFUROUS, CHLOROSULFINIC, AND CHLOROSULFONIC ACIDS. III. J. Chem. Soc. 1940: 218-[illegible].

(867) ---------- KENYON, J. and PHILLIPS, H.
1937. REPLACEMENT OF THE HYDROXYL GROUP OF ETHYL (+) LACTATE BY HALOGENS AND THE MOLECULAR DISSYMMETRY OF DERIVATIVES OF ETHYL LACTATE WHICH CONTAIN THE SULFIN GROUP. J. Chem. Soc. 1937: 153-8.

(868) GLASOE, P. K. and AUDRIETH. L. F.
1939. ACID CATALYSIS IN AMINES. I. THE CATALYTIC EFFECT OF CYCLOHEXYLAMMONIUM SALTS ON THE REACTION BETWEEN CYCLOHEXYLAMINE AND ESTERS. J. Org. Chem. 4: 54-9.

(869) GLATTFELD, J. W. E. and MACMILLAN, D.
1936. LACTONES IN LIQUID AMMONIA. J. Am. Chem. Soc. 58: 898-901.

(870) GODCHOT, M. and VIELES, P.
1936. ACTIVE METHYLDIGLYCOLIC ACID AND ITS DERIVATIVES. Compt. rend. 202: 1358-60.

(871) ---------- ----------
1937. RACEMIC AND ACTIVE METHYL-DIGLYCOLIC ACID AND THEIR DERIVATIVES. Bull. Soc. Chim. (5) 4: 937-44.

(872) ---------- ----------
1938. AN ATTEMPT TO PREPARE AN OPTICALLY ACTIVE DIACID ETHER BY MEANS OF ASYMMETRIC COMPOUNDS. Bull. soc. chim. (5) 5: 1535-9.

(873) GORGEOT, M. H.
1928. PROCEDE DE PREPARATION DES ETHERS-SELS DE L'ACIDE LACTIQUE. French Patent 678,627, Nov. 12.

(874) GRAVES, G. D. (E. I. Du Pont de Nemours & Co.).
1932. ESTER INTERCHANGE WITH ORGANIC ACIDS. U. S. Patent 1,882,808, Oct. 18.

(875) HAUSSLER, A. (to C. H. Boehringer und Sohn Chemische Fabrik).
1927. MANUFACTURE OF ESTERS OF OXY ACIDS. U. S. Patent 1,614,195, Jan. 11.

(876) HILLRINGHAUS and HEILMANN (Chemische Fabrik Güstrow).
1905. VERFAHREN ZUR DARSTELLUNG VON MILCHSÄUREESTERN UND CHEMISCH REINER MILCHSAURE AUS MILCHSÄUREN SALZEN. German Patent 171,835, March 25.

(877) HODGE, J. W.
1942. THE LOW PRESSURE CATALYTIC HYDROGENOLYSIS OF ESTERS. Ph.D. Thesis, University of Missouri.

(878) HOMFRAY, I. and GUYE, P. A.
1904. SURFACE TENSION AND MOLECULAR COMPLEXITY OF ACTIVE HOMOLOGOUS COMPOUNDS. PHYSICAL CONSTANTS OF ET. J. Chim. Phys. 1904: I, 505-544.

(879) HOUBEN, J. and FISCHER, W.
1931. PROCESS FOR THE CATALYTIC ESTERIFICATION OF ALCOHOLS IN ALKALINE SOLUTION. Ber. 64B: 240-7.

(880) --------- and PFANKUCH, E.
1926. HYDROXIMIDO AND ALPHA-HYDROXYHYDROXIMIDO ACID ESTERS. Ber. 59B: 2397-2402.

(881) HURTLEY, W. R. H. (Imperial Chemical Industries, Ltd.).
1929. LACTIC ACID AND ITS ESTERS. British Patent 341,961, Oct. 25.

(882) ---------- and WHEELER, T. S. (Imp. Chem. Ind. Ltd.).
1930. LACTIC ESTERS. British Patent 346,486, Jan. 25.

(883) JONES, L. W. and NEUFFER, L.
1917. HYDROXAMIC ACIDS RELATED TO ALPHA-HYDROXY ACIDS AND TO ACRYLIC ACID, AND A STUDY OF THEIR REARRANGEMENTS. J. Am. Chem. Soc. 39: 659-668.

(884) JUNGFLEISCH, E. and GODCHOT, M.
1907. ETHYL LACTYL-LACTATE. Compt. Rend. 144: 425-427.

(885) ---------- ----------
1907. 4-DILACTYLIC ACID. Compt. Rend. 144: 979-981.

(886) ---------- ----------
1907. DIGLYCOLLIC ACID AND ITS HOMOLOGUES. Compt. Rend. 145: 70-73.

(887) KENYON, J., PHILLIPS, H. and TURLEY, H. G.
1925. INVESTIGATIONS ON THE DEPENDENCE OF ROTATORY POWER ON CHEMICAL CONSTITUTION. XXIV. FURTHER EXPERIMENTS ON THE WALDEN INVERSION. J. Chem. Soc. 127: 399-417.

(888) KEYES, D. B., SWANN, S. JR. and HOERR, H. W.
1928. CONDUCTIVITY OF ORGANIC SOLVENTS. Trans. Am. Electrochem. Soc. 54: (preprint) 7 pp.

(889) KIRKHGOF, G. A. and ZNAEVA, K. I.
1933. NEW METHOD OF PREPARATION OF ETHYL LACTATE. Khim. Farm. Prom. 1933: 280-1.

(890) KIRKPATRICK, E. C. (E. I. du Pont de Nemours & Co.).
1944. STABILIZATION OF ORGANIC COMPOUNDS. U. S. Patent, 2,346,425, April 11.

(891) KLIMENKO, H.
1880. ETHYL-d-LACTATE. J. Russ. Phys. Chem. Soc. 12, 25.

(892) KRIGE, G. J. R. and HOLLOW, K.
1934. INVESTIGATION OF REACTION VELOCITY BY MEANS OF THE HYDROGEN ELECTRODE. I. ALKALINE SAPONIFICATION OF ESTERS. Trans. Faraday Soc. 30: 644-8.

(893) KUEMMEL, F.
1938. LACTIC ACID ESTERS. Farbe & Lack, 449-450.

(894) KUHN, W. and BILLER, H.
1935. ROTATION OF CHROMOPHORIC GROUPS IN SIMILARLY CONSTRUCTED COMPOUNDS. Z. physik. Chem. B29: 1-41.

(895) KÜMMEL, P.
1938. LACTIC ACID ESTERS. Farbe u. Lack 1938: 449-50.

(896) LECAT, M.
1926. NEW AZEOTROPES. I AND III: Ann. soc. sci. Bruxelles 45: 169-76, 284-94.

(897) ---------
1946. INFLUENCE DUE NOYAU AROMATIQUE SUR L'AZEOTROPIE BINAIRE. Compt. rend. 223: 286 (Aug.).

(898) LEPAGE, S. H.
1844. UEBER EINIGE NEUE MILCHSÄURE SALZE. J. prakt. Chem. [1] 31: 377, (was referred to by Strecker (Ann. 91: 355, 1854) in connection with ethyl lactate).

(899) LEVENE, P. A. and HALLER, H. L.
1925. CONFIGURATIONAL RELATIONSHIP BETWEEN β-HYDROXYBUTYRIC ACID AND LACTIC ACID. Science 62: 356.

(900) ---------- ----------
1926. CONVERSION OF OPTICALLY ACTIVE LACTIC ACID INTO THE CORRESPONDING PROPYLENE GLYCOL. J. Biol. Chem. 67: 329-32.

(901) ---------- and HARRIS, S. A.
1936. CONFIGURATIONAL RELATIONSHIP OF METHYLCYCLOHEXYL CARBINOL TO METHYL HEXYL CARBINOL. J. Biol. Chem. 113: 55.

(902) ---------- and ROTHEN, A.
1934. WALDEN INVERSION. XVIII. ANALYSIS OF ROTATORY DISPERSION CURVES OF ALPHA-SUBSTITUTED NORMAL CARBOXYLIC ACIDS. J. Biol. Chem. 107: 533-53.

(903) MASUI, S.
1931. THE REACTIONS OF VARIOUS ESTERASES ON dl-ETHYL LACTATE. Acta Schol Med. Univ. Imp. Kioto 13: 339-53.

(904) MATHESON, H. W. and BLAIKIE, K. G.
1925. HYDROXY ACID ESTERS, British Patent 257,907, Sept. 3.

(905) ---------- ----------
1926. HYDROXY ACID ESTERS. British Patent 264,143, Jan. 11.

(906) ---------- ----------
1926. LACTIC ACID ESTER. Canadian Patent 263,186, Aug. 3.

(907) ---------- ----------
1927. LACTIC ACID ESTERS. U. S. Patent 1,650,950, Nov. 29.

(908) MORGAN, J. L. R. and GRIGGS, M. A.
1917. THE PROPERTIES OF MIXED LIQUIDS. III. THE LAW OF MIXTURES. I. J. Am. Chem. Soc. 39: 2261-75.

(909) ---------- and KRAMER, B. J.
1913. THE WEIGHT OF A FALLING DROP AND THE LAWS OF TATE. XVI. THE DROP WEIGHTS OF CERTAIN ORGANIC LIQUIDS AND THE SURFACE TENSIONS AND CAPILLARY CONSTANTS CALCULATED FROM THEM. J. Am. Chem. Soc. 35: 1834-45.

(910) MUMFORD, S. A. and PHILLIPS, J. W. C.
1929. EVALUATION OF INTERPRETATION OF PARACHORS. J. Chem. Soc. 1929: 2112-2133.

(911) PAULING, L.
1936. THE INTERPRETATION OF THE INFRARED ABSORPTION OF ORGANIC MOLECULES CONTAINING HYDROXYL AND AMINO GROUPS. J. Am. Chem. Soc. 58: 94-8.

(912) PETRENKO-KRITSCHENKO, P., ET. AL.
1928. THE LAW OF PERIODICITY. III. Ber. 61: 845.

(913) PHELPS, I. K. and PALMER, H. E.
1917. THE IDENTIFICATION AND ESTIMATION OF LACTIC ACID IN BIOLOGICAL PRODUCTS. First Paper. J. Am. Chem. Soc. 39: 136-149.

(914) PURDIE, T. and LANDER, G. D.
1898. THE ACTION OF ALKYL IODIDES ON SILVER MALATE AND ON SILVER LACTATE. J. Chem. Soc. 73: 287-301.

(915) ---------- and WILLIAMSON, S.
1896. ETHEREAL SALTS OF OPTICALLY ACTIVE MALIC AND LACTIC ACIDS. J. Chem. Soc. 69: 818-839.

(916) ROELEN, O. and LOCHMANN, K. (to RUHRCHEMIE A.-G.).
1942. COLD-PROOF MIXTURES OF BENZINE AND LACTIC ACID ETHYL ESTER. German Patent 727,750, October 8.

(917) RONA, P. and AMMON, R.
1930. ASYMMETRIC ESTERIFICATION BY MEANS OF PIG-PANCREAS ESTERASE. Biochem. Z. 217: 34-4[illegible].

(918) -------- and ITELSOHN-SCHECHTER, R.
1928. THE HYDROLYSIS OF ETHYL ESTERS OF LACTIC ACID BY LIVER ESTERASE Biochem. Z. 203: 293-7.

(919) ROSENHEIM, A. and LOWENSTAMM, W.
1902. COMPOUNDS OF ANTIMONY PENTACHLORIDE WITH ORGANIC ACIDS. Ber. 35: 1115-1130.

(920) SCHERING-KAHLBAUM, A. G. (Hartwich, F., inventor).
1926. LACTIC ESTERS FROM MAGNESIUM SALT. German Patent 518,388, Jan. 23.

(921) ---------- (Schwenk, E. and Hartwich, F., inventors).
1929. ESTERS. German Patent 548,371, Oct. 10.

(922) SCHNURMANN, R. and WARLOW-DAVIES, E.
1942. THE ELECTROSTATIC COMPONENT OF THE FORCE OF SLIDING FRICTION. Proc. Phys. Soc. (London) 54: 14-26.

(923) SCHWACKHAMER, F. S. (American Cyanamide Co.).
1942. PURIFYING ETHYL LACTATE. U. S. Patent 2,269,402, Jan. 6.

(924) SMITH, A. W. and BOORD, C. E.
1926. INFRA-RED ABSORPTION IN ETHERS, ESTERS AND RELATED SUBSTANCES. J. Am. Chem. Soc. 48: 1512-1520.

(925) STEFFENS, J. A. (U. S. Industrial Alcohol Co.).
1922. PROCESS FOR THE MANUFACTURE OF ESTERS. U. S. Patent 1,421,604, July 4.

(926) STOUGHTON, R. W.
1941. 5,5,-DIALKYL-2,4-OXAZOLIDINEDIONES. J. Am. Chem. Soc. 63: (9) 2376-9.

(927) STRECKER, A.
1854. UEBER EINIGE NEUE VERBINDUNGEN DER MILCHSAURE. Ann. 91: 352-67.

(928) THIELE, J. and DENT, F.
1898. ZUR KENNTNISS DER URETHANE. Ann. 302: 245-272.

(929) THOMSSEN, E. G.
1926. PRODUCT FOR DISSOLVING ESSENTIAL OILS. U. S. Patent 1,602,183, Oct. 5.

(930) TRAUBE, W.
1889. UEBER EINIGE DERIVATE DER ALLOPHANSÄURE. Ber. 22: 1572-9.

(931) ---------- and ASCHER, R.
1913. ÜBER DAS ISOHYDANTOIN z-AMINO-4-KETO-TETRAHYDROOXAZOL UND SEINE HOMOLOGEN. Ber. 46: 2077-2084.

(932) VIELES, P.
1935. DILACTIC ACIDS. Ann. chim. (11) 3: 143-224.

(933) VON DER BRÜGGEN, N.
1868. UEBER DEN DIÄTHYLÄTHER EINER DIMILCHSAURE. Ann. 148: 224-35.

(934) WALKER, J. W.
1895. THE ETHEREAL SALTS OF THE OPTICALLY ACTIVE LACTIC, CHLORO-PROPIONIC AND BROMOPROPIONIC ACIDS. J. Chem. Soc. 67: 914-25.

(935) WILLIAMS, R. J., GABRIEL, A. and ANDREWS, R. C.
1928. THE RELATION BETWEEN THE HYDROLYSIS EQUILIBRIUM CONSTANT OF ESTERS AND THE STRENGTHS OF THE CORRESPONDING ACIDS. J. Am. Chem. Soc. 50: 1267-71.

(936) WOOD, C. E., SUCH, J. E. and SCARF, F.
1926. ROTATORY DISPERSION OF THE ESTERS OF LACTIC ACID. II. THE ISOMERIC BUTYL ESTERS. J. Chem. Soc. 1926: 1928-38.

(937) WURTZ, A. and FRIEDEL, C.
1861. UNTERSUCHUNGEN ÜBER DIE MILCHSÄURE. Ann. 119: 369-375.

(938) WYLER, J. A.
1938. NITRATES OF MONOHYDRIC ALIPHATIC ALCOHOLS. U. S. Patent 2,105,802, Jan. 18.

D. PROPYL LACTATE

(939) McDERMOTT, F. A.
1930. ISOPROPYL LACTATE. Org. Syn. 10: 88-9.

(940) PURDIE, T. and LANDER, G. D.
1898. THE ACTION OF ALKYL IODIDES ON SILVER MALATE AND ON SILVER LACTATE. J. Chem. Soc. 73: 287-301.

(941) SILVA, R.
1872. UEBER ISOPROPYLÄTHER. Bull. soc. chim. (2) 17: 97.

(942) THOMAS, L. H.
1946. PREPARATION OF SIMPLE ORGANIC ORTHOBORATES. J. Chem. Soc. 1946: 820-22.

(943) WALKER, J. W.
1895. THE ETHEREAL SALTS OF THE OPTICALLY ACTIVE LACTIC CHLORO-PROPIONIC AND BROMOPROPIONIC ACIDS. J. Chem. Soc. 67: 914-25.

(944) WASSMER, E. and GUYE, P. A.
1903. ACTIVE LACTIC AND MALIC ESTERS. J. Chim. Phys. 1: 257-288.

E. BUTYL LACTATE

(945) BAILEY, M. E. and HASS, H. B.
1941. NEW METHODS FOR RESOLUTION OF ENANTIOMORPHS. I. RECTIFICATION. J. Am. Chem. Soc. 63: 1969-70.

(946) BASS, S. L. and FENN, H. N. (Commercial Solvents Corp.).
1934. SECONDARY BUTYL LACTATE. U. S. Patent 1,956,972, May 1.

(947) BOWDEN, E. and ADKINS, H.
1934. HYDROGENATION OF OPTICALLY ACTIVE COMPOUNDS OVER NICKEL AND COPPER-CHROMIUM OXIDE. J. Am. Chem. Soc. 56: 689-91.

(948) GABRIEL, C. L. and BOGIN, C. (Commercial Solvents Corp.).
1928. NORMAL BUTYL LACTATE. U. S. Patent 1,668,806, May 8.

(949) GUINOT, H. M. (Commercial Solvents Corp.).
1935. CONTINUOUS PROCESS OF PRODUCING ESTERS FROM AQUEOUS SOLUTIONS OF ALIPHATIC ACIDS. U. S. Patent 2,012,812, Aug. 27.

(950) HASS, H. B. (Purdue Research Foundation).
1945. RESOLUTION OF ENANTIOMORPHS. U. S. Patent 2,388,688, Nov. 13.

(951) HURTLEY, W. R. H. and WHEELER, T. S. (Imperial Chemical Industries, Ltd.).
1930. PROCESS OF PRODUCING LACTIC ACID ESTERS. British Patent 346,486, Jan. 25.

(952) KÜMMEL, P.
1938. LACTIC ACID ESTERS. Farbe u. Lack 1938: 449-50.

(953) MENSCHUTKIN, N.
1882. ON THE ESTERIFICATION OF HYDROXY ACIDS. Ber. 15: 162-5.

(954) OTHMER, D. F., WHITE, R. E. and TRUEGER, E.
1941. LIQUID-LIQUID EXTRACTION DATA. Ind. Eng. Chem. 33: 1240-8.

(955) SOCIETE ANONYME DES DISTILLERIES DES DEUX-SEVRES.
1930. PROCEDE CONTINU DE PREPARATION DES ESTERS A PARTIR DE SOLUTIONS AQUEUSES D'ACIDES ALIPHATIQUES. French Patent 711,175, May 16.

(956) SYM, E. A. and SWIATKOWSKA, W.
1937. ENZYMIC ESTER SYNTHESIS. Enzymologia 2: 79-80.

(957) WOOD, C. E., SUCH, J. E. and SCARF, F.
1926. ROTATORY DISPERSION OF THE ESTERS OF LACTIC ACID. II. THE ISOMERIC BUTYL ESTERS. J. Chem. Soc. 1926: 1928-38.

F. AMYL LACTATE

(958) BLAISE, E. E.
1912. SYNTHESES BY MEANS OF MIXED ORGANO-METALLIC DERIVATIVES OF ZINC. MIXED CYCLOACETALS. Compt rend. 154: 596-8.

(959) FORMAN, S. E., CARR, C. J., and KRANTZ, J. C., Jr.
1941. ALKYL NITRITES. VII. SYNTHESIS OF SOME ORGANIC NITRITES AND NITRATES. J Am. Pharm. Assoc. 30: 132-3.

(960) GREEN, H. F.
1938. LUBRICATING PREPARATION. U. S. Patent 2,104,641, Jan. 4.

(961) McKENZIE, A. and MÜLLER, H. A.
1909. STUDIES IN ASYMMETRIC SYNTHESIS. PT. VII. THE INFLUENCE OF THE D-AMYL GROUP. J. Chem. Soc. 95: 544-548.

(962) WACKER, A.
1937. LACTIC ESTERS AS WETTING AGENTS. British Patent 460,140, Jan. 18.

(963) WALDEN, P.
1895. OPTICALLY ACTIVE DERIVATIVES OF PHENYLACETIC ACID; OPTICAL SUPERPOSITION. Z. Phys. Chem. 17: 705-724. (see p. 721: Preparation of amyl d Lactates

G. PREPARATION OF ALLYL ESTERS AND ALLYL RESINS.

(964) BRUSON, H. A. (Resinous Products & Chemical Co.).
1945. ESTERS OF ENDOETHYLENE HYDROXYCYCLOPENTANOINDANE AND METHOD FOR THEIR PREPARATION. U. S. Patent 2,381,433, August 7.

(965) MUSKAT, I. E. and STRAIN, F. (Pittsburgh Plate Glass Co.).
1945. COMPOSITION OF MATTER. U. S. Patent 2,379,251, June 26.

(966) ----------
1945. UNSATURATED ESTERS AND POLYMERS THEREOF. U. S. Patent 2,384,117, Sept. 4.

(967) ----------
1945. POLYBASIC ACID-POLYHYDRIC ALCOHOL ESTERS AND POLYMERS THEREOF. U. S. Patent 2,384,115, Sept. 4.

(968) ----------
1945. UNSATURATED ESTERS AND POLYMERS THEREOF. U. S. Patent 2,384,116, Sept. 4.

(969) ----------
1945. COMPOSITION OF MATTER. U. S. Patent 2,384,118, Sept. 4.

(970) ----------
1945. UNSATURATED ESTER. U. S. Patent 2,384,119, Sept. 4.

(971) ----------
1945. UNSATURATED ESTERS AND POLYMERS THEREOF. U. S. Patent 2,384,120, Sept. 4.

(972) ----------
1945. UNSATURATED ESTERS AND POLYMERS THEREOF. U. S. Patent 2,384,121, Sept. 4.

(973) ----------
1945. UNSATURATED ESTERS AND POLYMERS THEREOF. U. S. Patent 2,384,124, Sept. 4

(974) MUSKAT, I. E. and STRAIN, F. (Pittsburgh Plate Glass Co.).
1945. UNSATURATED ESTERS AND POLYMERS THEROF. U S Patent 2,384,126, Sept. 4.

(975) ----------
1945. UNSATURATED ESTERS AND POLYMERS THEREOF. U. S. Patent 2,385,931, Oct. 2.

(976) ----------
1945. UNSATURATED ESTERS AND POLYMERS THEREOF. U. S. Patent 2,385,934, Oct. 2

(977) ----------
1945. UNSATURATED ESTERS AND POLYMERS THEREOF. U. S. Patent 2,387,931, Oct. 30.

(978) ----------
1945. COMPOSITION OF MATTER. U. S. Patent 2,387,932, Oct. 30.

(979) ----------
1946. UNSATURATED ESTERS AND POLYMERS THEREOF. U. S. Patent, 2,399,285-6-7, April 30.

(980) REHBERG, C. E. and FISHER, C. H.
1944. ALLYL AND METHALLYL ESTERS OF ALPHA-HYDROXY-ISOBUTYRIC AND ALPHA-ACETOXY-ISOBUTYRIC ACIDS. U. S. Patent 2,355,330, Aug 8

(981) ----------
1945. ALLYL AND METHALLYL ESTERS OF LACTIC AND ALPHA-ACETOXY-PROPIONIC ACIDS. U. S. Patent 2,367,798, Jan. 23.

(982) ----------
1945. ALLYL AND SUBSTITUTED ALLYL METHACRYLATES. U. S. Patent 2,390,326, Dec. 4.

(983) ----------
1946. ALLYL AND METHALLYL ESTERS OF LACTIC ACID AND ALPHA-ACETOXY-PROPIONIC ACID. U. S. Patent 2,410,551, Nov. 5.

(984) STRAIN, F. and KÜNG, F. E.
1945. VINYL ESTERS. U. S. Patent 2,384,143, Sept. 4.

H. PREPARATION OF ACRYLIC ESTERS AND RESINS

(985) ADKINS, H. and KRAUSE, A. C.
1922. ACTION OF ALUMINA, TITANIA, AND THORIA UPON ETHYL AND ISOPROPYL ACETATES. J. A. C. S. 44: 385-92.

(986) ALLEN, C. C. and HAURY, V. E.
1940. PREPARATION OF UNSATURATED CARBOXYLIC COMPOUNDS. U. S. Patent 2,225,542, Dec. 17.

(987) ANONYMOUS
1943. "LACTIC METHOD FOR MAKING METHYL ACRYLATE STUDIED". Oil, Paint & Drug Reporter 144: (11) 7, 53 (Sept. 13).

(988) BILGER, E. M. and HIBBERT, H.
1936. MECHANISM OF ORGANIC REACTIONS. IV. PYROLYSIS OF ESTERS AND ACETALS. J. Am. Chem. Soc. 58: 823-827.

(989) BURNS, R., JONES, D. T., and RITCHIE, P. D.
1935. PYROLYSIS. I. PYROLYSIS OF DERIVATIVES OF ALPHA-ACETOXY-PROPIONIC ACID AND RELATED SUBSTANCES. J. Chem. Soc. 1935: 400-406.

(990) CLABORN, H. V.
1940. TETRAHYDROFURFURYL ALPHA ACETOXY PROPIONATE. U. S. Patent 2,222,363, Nov. 19.

(991) ----------
1941. PROCESS FOR THE MANUFACTURE OF TETRAHYDROFURFURYL ACRYLATE AND ITS POLYMERS. U. S. Patent 2,229,997, Jan. 28.

(992) FEIN, M. L., RATCHFORD, W. P. and FISHER, C. H.
1944. PREPARATION AND PYROLYSIS OF LACTIC ACID DERIVATIVES, PRODUCTION OF BETA-ALKOXYETHYL AND TETRAHYDROFURFURYL ACRYLATES. J. Am. Chem. Soc. 66: 1201.

(993) FILACHIONE, E. M., LENGEL, J. H. and FISHER, C. H.
1944. PYROLYSIS OF LACTIC ACID DERIVATIVES. PRODUCTION OF PHENYL AND o-TOLYL ACRYLATE. J. Am. Chem. Soc. 66: 494.

(994) ----------
1946. PYROLYTIC PREPARATION OF ALPHA-CARBALKOXYALKYL ACRYLATES AND METHACRYLATES. J. Am. Chem. Soc. 68: 330.

(995) ----------, FEIN, M. L., LENGEL, J. H. and FISHER, C. H.
1948. PREPARATION OF ALPHA-CARBALKOXYETHYL METHACRYLATES BY PYROLYSIS OF THE CORRESPONDING ALPHA-CARBALKOXYETHYL ACETOXYISOBUTYRATES. J. A. C. S. 70: 526-9.

(996) FISHER, C. H., RATCHFORD, W. P. and SMITH, L. T.
1944. METHYL ACRYLATE PRODUCTION BY PYROLYSIS OF METHYL ACETOXY-PROPIONATE. Ind. Eng. Chem. 36: No. 3, 229-34 (Mar.).

(997) ----------,MAST, W. C., REHBERG, C. E. and SMITH, L. T.
1944. "LACTOPRENE"--NEW SYNTHETIC RUBBER. VULCANIZATION OF ACRYLIC RESINS. Ind. Eng. Chem. 36: No. 11, 1032-35 (Nov.).

(998) ----------, REHBERG, C. E. and SMITH, L. T.
1943. PYROLYSIS OF LACTIC ACID DERIVATIVES. PREPARATION OF ALLYL AND METHALLYL ACRYLATES. J. Am. Chem. Soc. 65: No. 5, 763-7, May.

(999) HURD, C. D.
1929. THE PYROLYSIS OF CARBON COMPOUNDS. Chemical Catalog Co., New York City, 807 pp.

(1000) ---------- and BLUNCK, F. H.
1938. PYROLYSIS OF ESTERS. J A. C. S. 60: 2419-25.

(1001) ---------- and FILACHIONE, E. M.
1937. PREPARATION AND PYROLYSIS OF SOME TRIPHENYLMETHYL ETHERS OF COMPLEX FUNCTION. J. Am. Chem. Soc. 59: 1949-52.

(1002) KIRK, P. M. and JONES, L. C.
1942. PROCESS FOR PRODUCING UNSATURATED ALIPHATIC COMPOUNDS. U. S. Patent 2,303,842, Dec. 1.

(1003) ----------(to American Cyanamid Co.).
1948. UNSATURATED ALIPHATIC COMPOUNDS. British Patent 600,653, April 15.

(1004) LICHTY, J. G.
1940. NITRILES OF ACRYLIC ACIDS. U. S. Patent 2,208,328, July 16.

(1005) MAST, W. C., DIETZ, T. J. and FISHER, C. H.
1945. RAPID VULCANIZATION OF SATURATED ACRYLIC ELASTOMERS. India Rubber World 113: No. 2, 223-228, 235 (Nov.).

(1006) ----------, SMITH, L. T. and FISHER, C. H.
1944. VULCANIZED ACRYLIC RESINS. COPOLYMERS OF ETHYL ACRYLATE AND ALLYL MALEATE. Ind. Eng. Chem. 36: No. 11, 1027-31 (Nov.).

(1007) ----------
1945. EMULSION POLYMERIZATION OF ACRYLIC ESTERS. Ind. Eng. Chem. 37: No. 4, 365-69 (April).

(1008) ----------, REHBERG, C. E., DIETZ, T. J. and FISHER, C. H.
1944. VULCANIZATION OF SATURATED ACRYLIC RESINS. Ind. Eng. Chem. 36: No. 11, 1022-27 (Nov.).

(1009) RATCHFORD, W. P. and FISHER, C. H.
1945. METHYL ACRYLATE BY PYROLYSIS OF METHYL ACETOXYPROPIONATE. EFFECT OF PRESSURES OF 1 TO 67 ATMOSPHERES. Ind. Eng. Chem. 37: No. 4, 382-7 (April).

(1010) ---------- ----------
1945. PROCESS FOR MANUFACTURING ACRYLIC ESTERS AND OTHER UNSATURATED COMPOUNDS BY THERMAL DECOMPOSITION. U. S. Patent 2,378,501, June 19.

(1011) ----------, REHBERG, C. E. and FISHER, C. H.
1944. PREPARATION OF ACRYLIC AND METHACRYLIC ACIDS BY PYROLYSIS OF THEIR ALKYL ESTERS. J. Am. Chem. Soc. 66: No. 11, 1864-66 (Nov.).

(1012) REHBERG, C. E. and FISHER, C. H.
1944. PREPARATION AND PROPERTIES OF THE n-ALKYL ACRYLATES. J. Am. Chem. Soc. 66: No. 7, 1203-07 (July).

(1013) ----------
1945. PREPARATION AND PYROLYSIS OF ALKYL ALPHA-ACETOXYPROPIONATES. EFFECT OF STRUCTURE ON YIELD OF ACRYLIC ESTER. J. Am. Chem. Soc. 67: No. 1, 56-57.

(1014) ----------
1945. ALLYL AND METHALLYL ESTERS OF LACTIC AND ALPHA-ACETOXY-PROPIONIC ACIDS. U. S. Patent 2,367,798, Jan. 23.

(1015) ----------
1945. BETA-CHLOROALLYL ACRYLATES. U. S. Patent 2,388,440, Nov. 6.

(1016) ----------
1945. ALLYL AND SUBSTITUTED ALLYL ACRYLATES. U. S. Patent 2,390,327, Dec. 4.

(1017) ----------
1946. ACRYLIC ESTERS OF GLYCOL MONO-ETHERS. U. S. Patent 2,396,434, March 12.

(1018) ----------, FAUCETTE, W. A. and FISHER, C. H.
1944. PREPARATION AND PROPERTIES OF SECONDARY AND BRANCHED CHAIN ALKYL ACRYLATES. J. Am. Chem. Soc. 66: No. 10: 1723-24 (Oct.).

(1019) ----------, DIXON, M. B. and FISHER, C. H.
1945. POLYMERIZABLE ESTERS OF LACTIC ACID. ALPHA-CARBALKOXYETHYL ACRYLATES AND METHACRYLATES. J. Am. Chem. Soc. 67: No. 2, 208-210 (Feb.).

(1020) RITCHIE, P. D.
1935. STUDIES IN PYROLYSIS. PART III. THE PYROLYSIS OF CARBONIC AND SULFUROUS ESTERS. J. Chem. Soc. 1935: 1054-1061.

(1021) ----------, JONES, D. T. and BURNS, R.
1935. IMPROVEMENTS IN OR RELATING TO THE MANUFACTURE OF DERIVATIVES OF UNSATURATED ACIDS. British Patent 424,885, March 4.

(1022) ----------
1939. MANUFACTURE OF DERIVATIVES OF UNSATURATED ACIDS. U. S. Patent 2,183,357, Dec. 12.

(1023) ----------(Imperial Chemical Industries Ltd.).
1941. MANUFACTURE OF DERIVATIVES OF UNSATURATED ACIDS. U. S. Patent 2,265,814, Dec. 9.

(1024) SMITH, L. T. and CLABORN, H. V.
1939. UTILIZATION OF LACTIC ACID. Ind. Eng. Chem. News Ed. 17: 370-1.

(1025) ----------, FISHER, C. H., RATCHFORD, W. P. and FEIN, M. L.
1942. PYROLYSIS OF LACTIC ACID DERIVATIVES. CONVERSION OF ALPHA-ACETOXYPROPIONATE TO METHYL ACRYLATE. Ind. Eng. Chem. 34: 473-479.

(1026) STOUTJESDIJK, JOHAN, W.
1948. UNSATURATED ACIDS BY THE REACTION OF A SALT OF A HYDROXY ACID AND AN ACID ANHYDRIDE OR KETENE. Dutch Patent 61,223, June 15.

(1027) STRAIN, D. E. (E. I. du Pont de Nemours & Co.).
1938. ACRYLOXY CARBOXYLIC ACIDS AND THEIR ESTERS (MOLDING, COATING, AND FILM-FORMING COMPOSITIONS, ETC.). U. S. Patent, 2,141,546, Dec. 27.

(1028) ----------
1939. RESINOUS PRODUCTS FROM ALDEHYDES AND ACRYLIC AMIDES. U. S. Patent 2,173,005, Sept. 12.

(1029) THOMSON-HOUSTON CO. LTD.
1942. SYNTHETIC RESINOUS COMPOSITIONS. British Patent 547,525, Sept. 1.

(1030) VAN PELT, A. J., JR. and WIBAUT, J. W.
1941. THE PREPARATION OF UNSATURATED HYDROCARBONS BY THE THERMAL DECOMPOSITION OF ACETATES. Second Communication. Rev. trav. chim. 60: 55-64.

(1031) WEISBERG, SAMUEL M. and STIMPSON, EDWIN G. (to National Dairy Research Laboratories, Inc.).
1948. PRODUCTION OF ALKYL ACRYLATES. U. S. Patent 2,442,716, June 1.

(1032) WIBAUT, J. P. and VAN PELT, A. J., JR.
1938. PREPARATION OF ALKENES BY THE THERMAL DECOMPOSITION OF ALKYL ACETATES. Rev. trav. chim. 57: 1055-1058.

I. PREPARATION OF ALKYD RESINS

(1033) ALLGEMEINE ELEKTRICITATS-GESELLSCHAFT IN BERLIN
1940. SYNTHETIC RESINS. German Patent 698,616, Oct. 17.

(1034) ANDERSON, BJORN and CAPRIO, AMERIGO, F.
1938. ESTERS OF POLYGLYCOLS AND THEIR ETHERS AND COMPOSITIONS CONTAINING THE SAME. U. S. Patent 2,115,700, May 3.

(1035) ANONYMOUS
1942. LACTIC ACID LACQUER FOR MILK CANS TESTED. Food Ind. 14: 87-8 (July).

(1036) ----------
1942. LACQUER SUBSTITUTE FOR TIN COATINGS. Chem. Eng. News 20: 848 (July 10).

(1037) ----------
1944-45. LACTIC ACID RESINS. Naval Stores Research, Research Line Project, BAIC-e-1-3-21, May 1, 1944 to March 31, 1945.

(1038) BISCHOFF, C. A.
1907. CYCLIC ESTERS FROM ETHYLENE GLYCOL AND FROM GLYCEROL. Ber. 40: 2803-13.

(1039) BRUSON, H. A.
1940. HIGHER POLYALKYLATED CYCLOHEXYL DERIVATIVE. U. S. Patent 2,198,375, April 23.

(1040) CARBIDE AND CARBON CHEMICALS CORP.
1935. ESTERS OF HYDROXY ACIDS. French Patent 787,842, Sept. 30.

(1041) CARRUTHERS, T. F. and BLAIR, C. M.
1936. HYDROXY CARBOXYLIC ACID ESTERS. U. S. Patent 2,046,150, June 30.

(1042) ----------(To Carbide and Carbon Chemicals Co.).
1939. ESTERS OF GLYCOL MONOESTERS AND ACYLATED HYDROXY ACIDS. U. S. Patent 2,151,185, March 21.

(1043) ----------
1939. ESTERS OF GLYCOL AND ACYLATED HYDROXY ACIDS. U. S. Patent 2,158,107, May 16.

(1044) CHEMISCHES WERK DR. KLOPFER G.m.b.H.
1940. SOLID PREPARATION CONTAINING LACTIC ACID. German Patent 686,019, January 2.

(1045) CHEM. WERKE V. DR. H. BYK
1912. ESTERS OF HYDROXY FATTY ACIDS. German Patent 278,487, June 4.

(1046) CRIEGEE, R.
1930. OXIDATION OF UNSATURATED HYDROCARBONS WITH LEAD TETRASALTS. Ann. 481: 263-302.

(1047) DAVIS, O. C. M.
1910. PREPARATION OF THE ACYL DERIVATIVES OF THE ALDEHYDE CYANOHYDRINS. II. Proc. Chem. Soc. 26: 89; J. Chem. Soc. 97: 949-53.

(1048) DEEBEL, GEORGE F. (Monsanto Chemical Co.).
1945. ESTERS OF 2-BUTENE-1, 4-DIOL. U. S. Patent 2,366,667, Jan. 2.

(1049) DOROUGH, G. L. (du Pont).
1935. POLYMERIC LACTIDE RESIN. U. S. Patent 1,995,970, March 26.

(1050) ----------
1938. PROCESS FOR PREPARING RESINOUS MATERIAL AND PRODUCT. U. S. Patent 2,127,248, Aug. 16.

(1051) DREYFUS, H.
1932. VINYL COMPOUNDS. French Patent 733,483, March 14.

(1052) ELLIS, C.
1935. THE CHEMISTRY OF SYNTHETIC RESINS. Reinhold Publishing Corp., N. Y. C.; see V. 1: p. 337; V. 2: p. 1003.

(1053) FILACHIONE, E. M. and FISHER, C. H.
1944. LACTIC ACID CONDENSATION POLYMERS - PREPARATION BY BATCH AND CONTINUOUS METHODS. Ind. & Eng. Chem. 36: 223.

(1054) FUSON, R. C. and RACHLIN, A. I.
1942. REDUCTIVE CLEAVAGE OF DIOXOLONES BY THE GRIGNARD REAGENT. J. Am. Chem. Soc. 64: 1567-71.

(1055) GRANETT, P.
1942. INSECT REPELLANT. U. S. Patent 2,274,267, Feb. 24.

(1056) GRAVES, G. D.
1938. AMINO ALCOHOL ESTERS OF ALPHA SUBSTITUTED ACRYLIC ACIDS. U. S. Patent 2,138,763, Nov. 29; AMINO ALCOHOL ACRYLATES, U. S. Patent 2,138,031, Nov. 29.

(1057) GROEBE, F. and SPENGLER, O. (To Allgemeine Elektricitats Gesellschaft).
1941. ALKYD RESINS CAPABLE OF BEING HARDENED. German Patent 714,657, Nov. 13.

(1058) ---------- and PFANNENSTIEL, A. (To Allgemeine Elektricitats Gesellschaft).
1940. SYNTHETIC RESINS. German Patent 698,616, Oct. 17.

(1059) ----------
1943. ALKYD RESINS. German Patent 734,418, March 18.

(1060) GROGGINS, P. H., STEARN, J. T. and MAKOWER, B.
1939. SYNTHETIC THERMOPLASTIC RESINS. U. S. Patent 2,181,231, Nov. 28.

(1061) HILL, ARTHUR and WALKER, ERIC EVERARD
1938. NEW SYNTHETIC RESINOUS MATERIAL. British Patent 495,043, November 7.

(1062) HOLMBERG, B.
1926. STEREOCHEMICAL STUDIES. XII. CARBOTHIONOLACTIC ACIDS. Ber. 59B: 1558-69.

(1063) HOVEY, A. G. and HODGINS, T. S.
1939. ACID-AMINE CONDENSATION PRODUCT. U. S. Patent 2,153,801, April 11.

(1064) ----------
1940. RESINOUS ACID-AMINE CONDENSATION PRODUCT AND PROCESS OF MAKING THE SAME. U. S. Patent 2,197,723, April 16.

(1065) I. G. FARBENINDUSTRIE A. G.
1928. ESTERS OF ALPHA-HYDROXY CARBOXYLIC ACIDS. British Patent 325,531, Oct. 20.

(1066) ----------
1938. SHEETS AND FILMS. French Patent 831,826, September 15.

(1067) ----------
1939. PLASTIC MATERIALS. French Patent 842,491, June 13.

(1068) ----------
1939. RESINOUS CONDENSATION PRODUCTS. British Patent 508,016, June 21.

(1069) JACOBSON, R. A. (E. I. du Pont).
1941. PRODUCTION OF RESINOUS COMPOSITIONS. British Patent 533,288, February 11.

(1070) ----------
1941. DIMETHYLOLUREA-ESTER RESINOUS REACTION PRODUCTS. U. S. Patent 2,232,609, Feb. 18.

(1071) JOHNSON, G. W. (I. G. Farbenindustrie A. G.).
1939. POLYHYDRIC ALCOHOL-POLYBASIC ACID CONDENSATION PRODUCTS. British Patent 508,016, June 21.

(1072) KALLE & CO.
1908. GLYCEROL MONO and DI-LACTATE. German Patent 216,917, Sept.

(1073) KARRER, P., NAGELI, C. and WEIDMANN, H.
1919. SYNTHETIC GLUCOSIDES AND CONSTITUTION OF INNER COMPLEX SALTS. Helv. Chim. Acta 2: 242-65.

(1074) LASHER, E. A. (California Flaxseed Prod. Co.).
1944. PROTECTIVE COATING COMPOSITION. U. S. Patent 2,344,708, March 21.

(1075) LEVINE, I. E. and LEE, D. D. (Standard Oil Co. of California).
1940. THERMOSETTING RESIN REACTION PRODUCT OF FURFURAL WITH A SATURATED OXY-CARBOXYLIC ACID. U. S. Patent 2,207,626, July 9.

(1076) LIGHT, L.
1940. LACTIC ACID RESINS. Paint Manuf. 10: 135.

(1077) LOCK, R. H.
1936. GLYCEROL MONOLACTATE. British Patent 456,525, Nov. 10.
1937. GLYCEROL MONOLACTATE. U. S. Patent 2,089,127, Aug. 3.
1937. GLYCEROL LACTATE TRIACETATE. British Patent 467,510, June 17.
1938. GLYCEROL MONOLACTATE TRIACETATE AND PROCESS OF MAKING SAME. U. S. Patent 2,107,202, Feb. 1.

(1078) MEYER, L. W. A. (Eastman Kodak Co.).
1941. CELLULOSE ORGANIC ACID ESTER COMPOSITIONS CONTAINING GLYCOL DILACTATES. U. S. Patent 2,231,729, Feb. 11.

(1079) MUSKAT, I. E. and STRAIN, F. (Pittsburgh Plate Glass Co.).
1945. COMPOSITION OF MATTER. U. S. Patent 2,379,251, June 26.

(1080) OEDA, H.
1935. ACETONE COMPOUNDS OF SOME ALPHA-HYDROXY ACIDS AND THEIR RAMAN SPECTRA. Bull. Chem. Soc. Japan 10: 187-92.

(1081) PAGE, I. H. and RUDY, H.
1930. FATTY ACID ESTERS OF CHOLESTEROL. Biochem. Z. 220: 304-26.

(1082) PUCKNER, W. A.
1914. THE CHEMICAL EXAMINATION OF DIANOLS. Rep. Lab. Am. Med. Assoc. 6: 75-9.

(1083) RAPPEN, L.
1941. CHEMICAL REACTIONS WITH CROTONALDEHYDE. J. Prakt. Chem. 157: 177-202.

(1084) SCHEIBER, J. and NOACK, W.
1928. PROCESS FOR THE PREPARATION OF A NEW TYPE OF SHELLAC SUBSTITUTES. U. S. Patent 1,660,094, Feb. 21.

(1085) SIEGFRIED, MAX
1889. UEBER DIE AETHYLENMILCHSÄURE. Ber. 22: 2711-7.

(1086) STEARN, J. J., MAKOWER, B, and GROGGINS, P. H.
1940. LACTIC ACID AS A COMPONENT OF SYNTHETIC RESINS. Ind. Eng. Chem. 32: 1335-1342.

(1087) TEETERS, W. O. (E. I. DuPont de Nemours & Co.).
1944. MODIFIED GLYCOLIDE RESINS. U. S. Patent 2,362,511, Nov. 14.

(1088) ULTEE, A. J.
1909. CYANHYDRINS. Rec. Trav. Chim. 28: 1-23; Rec. Trav. Chim. 28: 248-56, 257-60.

(1089) VANDERBILT, B. M.
1941. LACTATE OF A NITRO ALCOHOL. U. S. Patent 2,233,656, March 4.

(1090) WATSON, P. D.
1939. RESINOUS PRODUCT. U. S. Patent 2,144,352, January 17.

(1091) ----------
1944. COATING MATERIALS AND PROCESS FOR MAKING THEM. U. S. Patent 2,363,103, November 21.

(1092) ----------
1948. RESINS BASED ON LACTIC ACID. Chem. Eng. 55: (2) 262 (February) (Abstract).

(1093) WISLICENUS, J.
1865. STUDIEN ZUR GESCHICHTE DER MILCHSÄURE UND IHRER HOMOLOGEN. Ann. 133: 257-87.

(1094) ZIMMERMANN, E.
1917. VERFAHREN ZUR HERSTELLUNG EINES HARZPRODUKTES. German Patent 305,775, February 13.

J. PREPARATION OF MISCELLANEOUS RESINS

(1095) AGRICULTURAL & CHEMICAL PRODUCTS LTD. AND GUTMAN, JOSEF
1940. PLASTIC MATERIALS. British Patent 530,790, December 20.

(1096) ANONYMOUS
1939. RUBBER-LIKE PLASTIC FROM LACTIC ACID. Food Industries 11: (5) 285.

(1097) BECK, KOLLER & CO. LTD.
1940. RESINOUS CONDENSATION PRODUCTS. British Patent 525,881, Sept. 6

(1098) CSERNY, L.
1939. PHENOLIC CONDENSATION PRODUCT. U. S. Patent 2,175,793, October 10.

(1099) DEUTSCHE CELLULOID-FABRIK.
1942. RESINOUS CONDENSATION PRODUCTS. German Patent 717,168, January 15.

(1100) DOROUGH, G. L. (E. I. DuPont de Nemours & Co.).
1938. PROCESS FOR PREPARING RESINOUS MATERIAL AND PRODUCT. U. S. Patent 2,127,248, August 16.

(1101) HEIMANN, H. and BAYERL, A. (I. G. Farbenindustrie).
1929. PROCESS OF TREATING CELLULOSE WITH LACTIC ACID AND THE PRODUCT THEREOF. U. S. Patent 1,728,206, September 17.

(1102) HOVEY, A. and HODGINS, T.
1940. RESINOUS ACID-AMINE CONDENSATION PRODUCT AND PROCESS OF MAKING THE SAME. U. S. Patent 2,197,723, April 18.

(1103) ----------(Reichold Chemicals, Inc.).
1941. UREA-FORMALDEHYDE-ACID-AMINO CO-CONDENSATION PRODUCTS AND PROCESS OF MAKING THE SAME. U. S. Patent 2,261,084, October 28.

(1104) I. G. FARBENINDUSTRIE A-G.
1937. ALDEHYDE CONDENSATION PRODUCTS WITH DIETHYL AMINE LACTATE. British Patent 461,827, February 25.

(1105) ---------- (G. W. Johnson).
1937. PRODUCTION OF SYNTHETIC RESINS (FROM ALIPHATIC ALDEHYDES). British Patent, 470,280, August 12.

(1106) ----------
1938. PLASTIC MASSES FOR MAKING SHAPED ARTICLES. British Patent 488,997, July 15.

(1107) LAUTER, F.
1938. SYNTHETIC RESIN. U. S. Patent 2,108,341, February 15.

(1108) LEE, D. D. (Standard Oil Co. of Calif.).
1940. THERMOSETTING RESIN REACTION PRODUCT OF FURFURAL WITH OXYNAPHTHENIC ACID. U. S. Patent 2,207,624, July 9.

(1109) LEVINE, I. E. and LEE, D. D. (Standard Oil Co. of Calif.).
1940. THERMOSETTING RESIN REACTION PRODUCT OF FURFURAL WITH A SATURATED OXYCARBOXYLIC ACID. U. S. Patent 2,207,626, July 9.

(1110) MUSKAT, I. E. and STRAIN, F. (Pittsburgh Plate Glass Co.).
1945. UNSATURATED ESTERS AND POLYMERS THEREOF. U. S. Patent 2,370,572, February 27.

(1111) ROHM & HAAS
1937. RESINOUS PRODUCTS FROM DERIVATIVES OF DIPHENYLOLMETHANE. British Patent 464,762, April 23.

(1112) SIBATA, N.
1939. WATERPROOFING RAYON OR COTTON THREADS OR FABRICS. Japanese Patent 133,463, November 24.

(1113) THOMPSON, W. R.
1941. CAST PHENOLIC RESINS, THEIR MANUFACTURE AND APPLICATIONS, USE AS CATALYST IN MAKING CAST PHENOLICS. Chem. Ind. 48: (4) 450-456.

(1114) WERNTZ, J. H.
1937. POLYCARBOXYLIC ACID ESTERS OF POLYUNSATURATED HIGHER ALCOHOLS COMPATIBLE WITH VARIOUS CELLULOSE ESTERS AND ETHERS. U. S. Patent, 2,101,227, December 7.

K. PLASTICIZERS AND SOLVENTS

(1115) ALEXANDER, JAMES R., BURTON, DONALD AND HAUSMANN, FREDERIC (to Wm. Walker & Sons Ltd.).
1948. PLASTICIZED UREA RESIN. U. S. Patent 2,443,368, June 15.

(1116) ----------
1948. PLASTICIZED MELAMINE RESINS. U. S. Patent 2,446,991, August 17.

(1117) ANONYMOUS
1948. PLASTICIZERS FROM LACTIC ACID. Forecast 10: 368 (August).

(1118) BOGIN, C. (Commercial Solvents Corp.)
1933. USE OF LACTATES IN BRUSHING LACQUERS. U. S. Patent 1,927,539, September 19.

(1119) BUCHANAN, G. H. (American Cyanamid Co.).
1933. SOLVENT. U. S. Patent 1,926,510, September 12.

(1120) BUSH, E. R. (Chadeloid Chemical Co.).
1939. STAINS AND RELATED COMPOSITIONS. U. S. Patent 2,161,503, June 6.

(1121) CARRUTHERS, T. F. and BLAIR, C. M.
1939. ESTERS OF GLYCOL AND ACYLATED HYDROXY ACIDS. U. S. Patent 2,158,107, May 16.

(1122) ----------(Carbide and Carbon Chem. Co.).
1941. VINYL RESIN COMPOSITIONS FOR COATINGS, SHEETS, MOLDED ARTICLES, ETC. U. S. Patent 2,260,295, Oct. 28.

(1123) ----------
1943. PLASTICIZER AND PLASTIC COMPOSITION. Canadian Patent 411,766, April 13.

(1124) DICKEY, J. B. and McNally, J. G.
1941. CELLULOSIC COMPOSITIONS OF MATTER CONTAINING ORGANIC ESTER AMIDES. U. S. Patent 2,253,064, August 19.

(1125) DUNKLE, H. H. and FETTER, E. C.
1946. CHEMICAL AND HEAT RESISTANCE OF GASKET MATERIALS. Chem. Engineering 53: (11) 102 (November).

(1126) DURRANS, T. H.
1937. THE MANUFACTURE AND USE OF INDUSTRIAL SOLVENTS. Paint Mfg. 7: 371-5, 390.

(1127) GABRIEL, C. L. and BOGIN, C. (Commercial Solvents Corp.).
1928. NITROCELLULOSE-LACQUER COMPOSITION. U. S. Patent 1,673,111, June 12.

(1128) GEARHART, W. M. (Eastman Kodak).
1944. THERMOPLASTIC COMPOSITIONS OF OPALESCENT EFFECTS AS PLASTICIZERS FOR CELLULOSE ESTERS. U. S. Patent 2,343,658, March 7.

(1129) GERHARDT, O.
1931. BUTYL AND AMYL LACTATES AS SOLVENTS FOR CELLULOSE LACQUERS. Chem. Ztg. 55: 222.

(1130) GREIGOV, E. S.
1939. USE OF LACTATES AS SOLVENTS. Peintures, pigments, vernis 16: 141-3

(1131) HAHN, F. C, (E. I. duPont de Nemours & Co.).
1933. RESIN-LIKE ESTER. U. S. Patent 1,909,195, May 16.

(1132) HOWARDS & SONS, LTD. and LOCK, R. H.
1937. GLYCEROL LACTATE TRIACETATE. British Patent 467,510, June 17.

(1133) IMRAY, O. Y.
1929. MANUFACTURE OF ARTIFICIAL MATERIALS. British Patent, 322,157, November 22.

(1134) KAUFLER, F. and SCHMITZ, H. P.
1937. STABLE ASPHALT EMULSIONS. U. S. Patent 2,102,957, December 21.

(1135) KRATZ, E. M. (Kraft Cheese Co.).
1944. CASEIN SHEET. U. S. Patent 2,342,739, February 29.

(1136) KRAUS, A.
1939. SOLVENTS FOR NITROCELLULOSE. I. DETERMINATION OF THE RATE OF SOLUTION. Farben-Chem. 10: 236-7, 242, 301-4.

(1137) ----------
1941. SOLVENTS FOR NITROCELLULOSE. V. THE SOLVENT POWER OF CARBON DISULFIDE. Farben-Ztg. 46: 190.

(1138) KÜMMEL, P.
1944. SOLVENT FOR CHLORINATED RUBBER. U. S. Patent 2,338,948, Jan. 11.

(1139) LEE, W. M. and ERIKSON, C. R. (Arabol Mfg. Co.).
1943. CHEMICAL COMPOSITION. U. S. Patent 2,320,087, May 25.

(1140) MANLEY, R. H. and EVANS, C. D.
1943. BINARY SOLVENTS FOR ZEIN. Ind. Eng. Chem. 35: 661-5.

(1141) MARKS, B. M. (E. I. duPont de Nemours & Co.).
1938. MODIFIED RESIN COMPOSITION. U. S. Patent 2,109,573, March 1.

(1142) MARTIN, H. and SALMAN, E. S.
1934. THE FUNGICIDAL PROPORTION OF CERTAIN SPRAY FLUIDS. XI. SYNTHETIC SOLVENTS. J. Agr. Sci. 24: 469-90.

(1143) McNAIR, J. J. and JAHN, E. C.
1943. PROPERTIES OF LIGNIN ESTERS. Paper Trade J. 117: No. 8, 29-33.

(1144) MIGRDICHIAN, V. (Amer. Cyanamid Co.).
1944. PLANT RESPONSE COMPOSITION. U. S. Patent 2,358,727, Sept. 19.

(1145) MURDOCK, F. M. (Monsanto Chem. Co.).
1943. PHENOL ALDEHYDE RESIN. U. S. Patent 2,321,766, June 15.

(1146) MUSKAT, I. E. and STRAIN, F.
1945. PLASTICIZED CELLULOSE ESTER. U. S. Patent 2,381,511, August 7.

(1147) N.V. de BATAAFSCHE PETROLEUM MAATSCHAPPY.
1939. TREADING OIL WELLS. French Patent 844,998, August 7.

(1148) PALIT, S. R.
1947. SOLUBILITY OF SOAPS AND OF SOME SALTS IN MIXTURES OF SOLVENTS, ONE OF WHICH IS OF THE GLYCOLIC TYPE. J. Am. Chem. Soc. 69: 3120.

(1149) PITTSBURGH PLATE GLASS CO.
1947. COMPLEX MONOMERIC ESTERS. British Patent 592,172, September 10.

(1150) REHBERG, C. E., DIXON, M. B. and MEISS, P. E.
1948. PLASTICIZERS FROM LACTIC ACID. ESTERIFICATION OF POLYBASIC ACIDS WITH ALKYL LACTATES. Abstracts, Miniature Meeting, Philadelphia Section, Am. Chem. Soc. p. 11 (January).

(1151) ----------and FISHER, C. H.
1948. MIXED ESTERS OF LACTIC & CARBONIC ACIDS. REACTION OF CHLOROFORMATES WITH ESTERS OF LACTIC ACID. J. Org. Chem. 13: 254-264 (March).

(1152) ROBERTSON, H. F. (Carbide & Carbon Chemicals Corp.).
1940. PLASTIC COMPOSITION. U. S. Patent 2,222,490, November 19.

(1153) SARBACH, D. V. and GARVEY, B. S. JR.
1947. SOLUBILITIES OF UNVULCANIZED RUBBERS. India Rubber World 115: 798-801 (March).

(1154) SOC. POUR L'IND. CHIM. À BÂLE
1946. SALTS OF AMINOALKYL ESTERS AS TEXTILE ASSISTANTS. British Patent 581,325, October 9.

(1155) THOMPSON, W. R. (Catalin Corp. of Amer.).
1942. PHENOL FORMALDEHYDE RESIN COMPOSITION. U. S. Patent 2,301,799, November 10.

(1156) VAALA, G. T. (E. I. du Pont de Nemours & Co.).
1941. POLYMERIC MATERIALS. U. S. Patent 2,243,662, May 27.

(1157) WIGGAM, D. R.
1947. SOME TRENDS ON PROTECTIVE COATINGS. Official Digest, Federation Paint & Varnish Prod. Clubs, No. 273, 536-551 (October).

(1158) WEISBERG, S. M. and LEVIN, I. (Sealtest Inc.).
1945. ELECTROPOLISHING BATH. U. S. Patent 2,386,078, October 2.

L. SALTS

(1159) ANDERSEN, C. N. (Lever Bros. Co.).
1938. AROMATIC MERCURY ALCOHOLATES OF SALTS OF HYDROXY CARBOXYLIC ACIDS. U. S. Patent 2,114,012, April 12.

(1160) ANON,
1937. SURFACE TREATMENT AND FINISHING OF METALS. Steel 100: 56-57; 73 (March 22). Describes Brit. Pat. 452,464, Aug. 24, 1936 and U. S. Pat. 2,059,053, Oct. 27, 1936, by J. E. Stareck.

(1161) ----------
1937. COLOR PLATING. Product Engineering, Vol. 8, 317-20 (August). Describes patents issued to J. E. Stareck.

(1162) ----------
1941. ELECTROPLATERS DEBATE YEAR'S DEVELOPMENTS. Iron Age 148: 40-44; 92, July 3. (p. 44 abstracts paper by J. E. Stareck, Electrocolor and patternplate).

(1163) BAMAG-MEGUIN A.-G.
1934. LACTIC ACID. British Patent 406,092, February 22.

(1164) BANKS, C. K., CONTROULIS, J., WALKER, D. F. and SULTZABERGER, J. A.
1947. 3-AMINO-4-HYDROXYBENZENEARSONOUS ACID SALTS. I. SALTS AND STRUCTURAL CONSIDERATIONS. J. Am. Chem. Soc. 69: 5-11.

(1165) BERNE-ALLEN, A. JR.
1944. STABILIZATION OF VINYL ACETATE... U. S. Patent 2,343,950, March 14.

(1166) BHATNAGAR, S. S., KHANNA, M. L. and NEVGI, M. B.
1938. PARAMAGNETISM OF THE IRON GROUP. Phil. Mag. 25: 234-41.

(1167) BICKEL, W. (Heide, H. C.).
1940. PROCESS FOR THE PRODUCTION OF LACTIC ACID PREPARATIONS. British Patent 520,281. April 19.

(1168) ----------
1942. SOLID LACTIC ACID PREPARATIONS ($Zn_3(PO_4)_2$ COMPLEX). German Patent 728.802, November 5.

(1169) BUEHLER, C. A., CARSON, L. and EDDS, R.
1935. IDENTIFICATION OF CARBOXYLIC ACIDS AS CARBOXYLATES OF BENZYLAMINE AND α-PHENYLETHYLAMINE. J. Am. Chem. Soc. 57: 2181-2.

(1170) BYK-GULDENWERKE CHEM. FAB. A.-G. (G. A. Becker and A. Wolff, inventors).
1923. BISMUTH LACTATE SOLUTIONS. German Patent 469,516, April 24.

(1171) CANNAN, R. K. and KIBRICK, A.
1939. COMPLEX FORMATION BETWEEN CARBOXYLIC ACIDS AND BIVALENT METAL CATIONS. J. Am. Chem. Soc. 60: 2314-20.

(1172) CHEMISCHE FABRIK MARIENFELDE G.m.b.H. IN BERLIN-MARIENFELDE
1940. NONHYGROSCOPIC CALCIUM LACTATE AND CALCIUM CHLORIDE DOUBLE SALT. German Patent 689,765, March 14.

(1173) CHRISTENSEN, E. V.
1930. LACTIC ACID-SODIUM LACTATE BUFFER SOLUTION. Arch. Pharm. Chemi. 37: 33-6, 44-8, 62-70, 80-9, 109-115.

(1174) CHRISTIANSEN, W. G. and JURIST, A. E.
1943. BEHAVIOR OF SOLUTIONS OF MORPHINE SALTS WHEN STORED IN TIN CONTAINERS. J. Am. Pharm. Assoc. 32: 209-10.

(1175) CLARK, F. M. and RUSCETTA, R. A. (General Electric Co.).
1939. RESINOUS COMPOSITIONS AND CAPACITORS CONTAINING THE SAME. U. S. Patent 2,165,090, July 4.

(1176) COLMAN, J.
1926 DOUBLE SALTS OF CALCIUM LACTATE WITH CALCIUM HALIDES AS THERAPEUTIC AGENTS. British Patent 266,607, July 28.

(1177) DALE, J. K. (Royal Baking Powder Co.).
1936. ACID CALCIUM LACTATE COMPOUNDS. U. S. Patent 2,046,610, July 7.

(1178) DALY, R. E., WALSH, J. F., and NEEDLE, H. C.
1939. FERMENTATION PROCESS OF MAKING WHITE CALCIUM LACTATE. U. S. Patent 2,143,359, January 10.

(1179) DAVIES, C. W.
1938. THE EXTENT OF DISSOCIATION OF SALTS IN WATER. VI. SOME CALCIUM SALTS OF ORGANIC ACIDS. J. Chem. Soc. 277-81.

(1180) DIETZ, A. A., DEGERING, E. F. and SCHOPMEYER, H. H.
1941. PHYSICAL PROPERTIES OF SODIUM, POTASSIUM, AND AMMONIUM LACTATE SOLUTIONS. End. Eng. Chem. 33: 1444-47.

(1181) DONLEAVY, J. J.
1936. THE UTILIZATION OF S-BENZYL THIURONIUM CHLORIDE FOR THE ISOLATION AND IDENTIFICATION OF ORGANIC ACIDS. J. Am. Chem. Soc. 53: 1004-5.

(1182) DUVAL, C. and LECOMTE, J.
1942. ANALYSIS OF VIBRATION SPECTRA OF METALLIC SALTS (ACIDIC ALCOHOLS AND AMINO ACIDS). Compt. rend. 215: 131-3.

(1183) FERLA, F.
1939. CRYSTALLOGRAPHIC INVESTIGATION OF THE ZINC SALTS OF d-LACTIC ACID AND OF THE RACEMIC ACID. Periodico Mineral (Rome) 10: 25-32 (January). Chem. Zentralblatt 1939. II. 2909. C. A. 35: 5012.

(1184) FRY, E. M., WILSON, E. J., JR. and HUDSON, C. S.
1942. NOVEL TYPE OF CANNIZZARO REACTION. J. Am. Chem. Soc. 64: 872-3.

(1185) GLASS, N.
1933. VARIATION IN SOLUBILITY OF CALCIUM LACTATE. Quart. J. Pharm. Pharmacol. 6: 522-30.

(1186) GRAVE, T. B., HARRIS, S. E. and CHRISTIANSEN, W. G.
1936. PHENYLMERCURY NITRATE AND SOME OTHER PHENYLMERCURY SALTS. J. Am. Pharm. Assoc. 25: 752-6.

(1187) GROEBE, F. and SPENGLER, O.
1939. AMMONIUM LACTATE (ALLGEMEISSE ELECTRIKITÄTS-GESELLSCHAFT). German Patent 680,660, August 17.

(1188) HART, M. C. and ANDERSON, H. P.
1935. SOME ORGANIC MERCURIALS. J. Am. Chem. Soc. 57: 1059-61.

(1189) HÄUSSLER, A.
1940. LACTIC ACID IN SOLID FORM. Süddent, Apot.-Ztg. 80: 112-6.

(1190) HIRANO, S.
1939. THE THERMAL-DECOMPOSITION CURVES OF GALLIC ACID, POTASSIUM SODIUM TARTRATE, CALCIUM LACTATE, CALCIUM PHOSPHATE AND ZINC PHENOLSULFONATE AND THE DETERMINATION OF MOISTURE AND CRYSTAL WATER IN THESE COMPOUNDS. J. Soc. Chem. Ind. Japan 42: Suppl. binding 26.

(1191) IPATIEV, V. and RASUVAIEV, G.
1926. CONDENSATION OF LACTIC ACID TO METHYLSUCCINIC ACID UNDER THE INFLUENCE OF THE COMBINED ACTION OF CATALYSTS AT HIGH PRESSURES AND TEMPERATURES. Ber. 59B: 2031-4.

(1192) JENSEN, A. S. and UNANGST, M. R.
1941. CONDUCTIVITY OF CALCIUM SALTS. J. Chem. Phys. 9: 195.

(1193) JOHNSON, F. F.
1937. SOLUBILITY AND HYDROGEN-ION CONCENTRATION OF QUININE SALTS. I-II. J. Am. Pharm. Assoc. 26: 1227-1233.

(1194) JOSEPH, N. J.
1946. DISSOCIATION CONSTANTS OF ORGANIC CALCIUM COMPLEXES. J. Biol. Chem. 164: 529-41.

(1195) JUNGFLEISCH, E. and GODCHOT, M.
1906. l-LACTIC ACID. Compt. rend. 142: 515-8.

(1196) KARRER, P., NÄGELI, C. and WEIDMANN, H.
1919. SYNTHETIC GLUCOSIDES. III. A CONTRIBUTION TO THE CONSTITUTION OF INTERNALLY COMPLEX SALTS. Helv. Chim. Acta 2: 242-65.

(1197) KAUFMANN, H. P.
1928. ORGANIC SILICON COMPOUNDS. British Patent 343,165, November 16.

(1198) KAUFMANN, H.
1929. SILICYL COMPOUNDS. French Patent 684,814, November 13.

(1199) ----------
1933. PROCESS OF MAKING SILICYL COMPOUNDS. U. S. Patent 1,918,338, July 18.

(1200) KILDE, G.
1936. DETERMINATION OF THE CONCENTRATION OF CALCIUM IONS. II. DETERMINATION OF THE DISSOCIATION OF CALCIUM LACTATE. Z. anor. allgem. Chem. 229: 321-36.

(1201) KOTON, M. M.
1939. DECOMPOSITION OF $RH_gC_6H_5$ (WHERE R IS AN ACID RADICAL) IN ALCOHOLS. J. Gen. Chem. (U.S.S.R.) 9: 1622-5.

(1202) ----------
1939. REACTION OF DIPHENYL MERCURY WITH ORGANIC MONOBASIC ACIDS. J. Gen. Chem. (U.S.S.R.) 9: 912-6.

(1203) KÜMMEL, P. (to Byk Guldenwerke, Chemische Fabrik A.-G,).
1942. PUTTY RESISTANT TO CARBOHYDRATES. German Patent 729,025, November 12.

(1204) ----------
1943. PRODUCTION OF SOFTENING AGENTS. U. S. Patent 2,316,258, April 13.

(1205) MacKENZIE, D. E.
1942. SURGICAL PROBLEMS IN THE ROYAL CANADIAN NAVY. Canadian Medical Association. Journal 47: 443-447. November. (describes Jelly for gloves as a new rubber-saving-wrinkle).

(1206) MACLAY, W. D., HANN, R. M. and HUDSON, C. S.
1939. ROTATORY POWER OF ZINC LACTATE. J. Am. Chem. Soc. 61: 3234-5.

(1207) MACMORRAN, G. H.
1933. THE SOLUBILITY OF CALCIUM LACTATE. Pharm. J. 130: 245; Chemist and Druggist 118: 419.

(1208) MERCK INDEX
1940. EUCAINE LACTATE. Fifth Edition, page 229, Merck & Co., Inc. Rahway, New Jersey.

(1209) MORGAN, W. L. and GOODMAN, A. H. (American Maize Products Co.).
1939. PURIFIED SODIUM LACTATE. U. S. Patent 2,143,361, January 10.

(1210) MÜLLER, J.
1941. METHOD OF RECOVERING CALCIUM LACTATE AND PRODUCING LACTIC ACID FROM FERMENTED MASHES. U. S. Patent 2,232,554, February 18.

(1211) ----------
1941. IMPROVED METHOD OF RECOVERING CALCIUM LACTATE AND LACTIC ACID FROM FERMENTED MASHES. British Patent 538,060, July 18.

(1212) NICCOLINI, P.
1932. PHARMACOLOGIC STUDY OF THE RARE EARTHS. BIOLOGICAL TESTS WITH GLUCONATES OF NEODYMIUM AND CALCIUM, SAMARIUM AND CALCIUM, AND SAMARIUM LACTATE. Boll. Soc. ital. biol. sper. 7: 998-1002.

(1213) NIEDERCORN, J. G. and DAWSON, W. O. (American Cyanamid Co.).
1943. ALUMINUM SALT OF HYDROXY CARBOXYLIC ACIDS. U. S. Patent 2,327,815, August 24.

(1214) OTOLSKI, S.
1935. COMPOSITION OF INOSITOLPHOSPHATES. II. COMPOUNDS OF IRON INOSITOLPHOSPHATE WITH AMMONIUM, POTASSIUM, AND SODIUM CITRATES, MALATES, AND LACTATES. Roczniki Chem. 15: 99-104.

(1215) PERKINS, R. P.
1939. PHENYLMERCURIC ALIPHATIC HYDROXY CARBOXYLATES. U. S. Patent 2,157,009, May 2.

(1216) PHELPS, I. K. and Palmer, H. E.
1917. THE IDENTIFICATION AND ESTIMATION OF LACTIC ACID IN BIOLOGICAL PRODUCTS. FIRST PAPER. J. Am. Chem. Soc. 39: 136-149.

(1217) PINK, L. (Hermann Meffert).
1932. QUININE PREPARATION. U. S. Patent 1,865,953, July 5.

(1218) POLLARD, C. B., ADELSON, D. E. and BAIN, J. P.
1934. DERIVATIVES OF PIPERAZINE. II. UTILIZATION IN IDENTIFICATION OF FATTY ACIDS. J. Am. Chem. Soc. 56: 1759-60.

(1219) PREBLUDA, H. J.
1938. VANADYL LACTATE AS ANTISEPTIC. U. S. Patent 2,135,111, November 1.

(1220) PRUTTON, C. F. and SAVAGE, R. L.
1945. SOLUBILITY OF CARBON DIOXIDE IN CALCIUM CHLORIDE-WATER SOLUTIONS AT 75, 100, 120° AND HIGH PRESSURES. J. Am. Chem. Soc. 67: 1550-54.

(1221) ROSENTHALER, L.
1931. DETECTION OF ORGANIC COMPOUNDS. VII. DISTILLATION OF NH_4 SALTS OVER P_2O_5. Pharm. Ztg. 76: 1301-2.

(1222) ROTINI, O. T. and NEUBERG, C.
1935. THE SPECIFICITY OF PHOSPHATASE. THE PHOSPHATIC HYDROLYSIS OF PHOSPHO-I-(+)-LACTIC ACID. Biochem. Z. 279: 453-8.

(1223) SCHAUM, K. and SCHEID, O.
1937. ULTRAMICROSCOPE OBSERVATIONS OF LIGHT-SENSITIVE CRYSTALS. IV. Z. wiss. Phot. 36: 121-40.

(1224) SCHMIDT, H. (Winthrop Chemical Co.).
1935. COMPLEX METALLIC COMPOUND OF SATURATED ALIPHATIC HYDROXY CARBOXYLIC ACIDS CONTAINING THE METAL IN ITS HIGHER STATE OF VALENCY AND A PROCESS OF MAKING THE SAME. U. S. Patent 2,018,811, October 29.

(1225) SEIDELL, A.
1940. SOLUBILITIES OF INORGANIC AND ORGANIC COMPOUNDS. D. Van Nostrand Co., New York, Ed. 3, Vol. I, 1698 pp.

(1226) SIMONDS, H. R.
1937. METAL FINISHING ECONOMICS. The Iron Age 140: 32-35 (October 7).

(1227) STARECK, J. E.
1936. THE PRODUCTION OF COLOR BY ELECTROLYSIS. Electrochem. Soc. Trans. 69: Preprint 7: 89-94.

(1228) ----------
1936. COATING METAL. U. S. Patent 2,059,053, October 27.

(1229) ----------
1937. DECORATING METALS. U. S. Patent 2,081,121, May 18.

(1230) ----------
1943. METHOD OF DECORATIVELY COLORING ARTICLES IN GOLD COLORS AND THE PRODUCT THEREOF. U. S. Patent 2,313,455, March 9.

(1231) ----------
1943. METHOD OF PRODUCING DECORATIVE COATINGS EXHIBITING PATTERNS OR DESIGNS AND PRODUCT. U. S. Patent 2,313,456 March 9.

(1232) STENZL, H. (J. R. Geigy A. G.).
1943. DOUBLE SALTS OF FERROUS SALTS AND PYRIDINE CARBOXYLIC ACID AMIDE. U. S. Patent 2,317,309, April 20.

(1233) TRAVERS, J. T. (Ohio Sanitary Engineering Corporation).
1932. PROCESS FOR RECOVERING CALCIUM LACTATE FROM WHEY. U. S. Patent 1,850,643, March 22.

(1234) VALETTE
1930. MONO- AND POLYALKYL- OR HALOGEN SUBSTITUTED DERIVATIVES OF BENZOHYDRYLAMINE AND SYMMETRICAL DIPHENYLETHYLAMINE. Bull. soc. chim. 47: 289-300.

(1235) WAGNER-JAUREGG, T.
1935. PHOSPHO-I-LACTIC ACID. Ber. 68B: 670-3.

(1236) WAITE, C. N.
1891. PROCESS OF MANUFACTURING LACTIC ACID. U. S. Patent 455,078, June 30.

(1237) WALSH, J. F.
1939. SODIUM LACTATE. U. S. Patent 2,143,362, January 10.

(1238) WARD, G. E. and TABENKIN, B.
1943. METHOD FOR THE PURIFICATION OF LACTIC ACID. U. S. Patent 2,331,948, October 19.

(1239) WEISBERG, S. M., CHAPPELL, F. L., STRINGER, W. E., STEVENS, S. and TREBLER, H. A. (Sealtest System Laboratories, Inc.):
1937. PROCESS OF MAKING LACTATE SALTS AND LACTIC ACID. U. S. Patent 2,071,368, February 23.

(1240) WEISS, J.
1938. PHOTOSENSITIZING ACTION AND THE FLUORESCENCE OF URANIUM SALTS. Trans. Faraday Soc. 34: 451-6.

(1241) WERBEL, B., DIBELER, V. H. and VOSBURGH, W. C.
1943. COMPLEX IONS. VI. THE MAGNETIC MOMENTS OF SOME IRON (III) COMPLEX IONS. J. Am. Chem. Soc. 65: 2329-34.

(1242) WHEELER, A. S. and KING, T. L.
1931. p-CYMENE STUDIES, XIV. 2-p-CYMYLHYDRAZINE. J. Am. Chem. Soc. 53: 809-10.

(1243) WHITTAKER, D. (Imperial Chemical Industries Ltd.).
1944. HALOGENATED POLYTHENES. U. S. Patent 2,364,410, December 5.

(1244) WULFING, G. A. R. and ROSSKOTHEN, E. M. H.
1939. ORGANIC CALCIUM SALT SOLUTIONS. British Patent 510,118, July 27.

M. INORGANIC LACTIC ESTERS

(1245) BLAISE, E. E. and MONTAGNE, M.
1922. THE ACTION OF THIONYL CHLORIDE ON ALPHA-HYDROXY ACIDS. Compt. rend. 174: 1553-5.

(1246) I. G. FARBEN, A. G.
1937. SULFURIC ACID ESTERS OF CARBOXYLIC ACID AMIDES. German Patent 640,581, January 7.

(1247) JANTSCH, G.
1927. ADDITION AND SUBSTITUTION PRODUCTS OF ZIRCONIUM CHLORIDE. J. prakt. Chem. 115: 7-23.

(1248) KAUFMANN, H.
1929. SILICYL COMPOUNDS. French Patent 684,814, November 13.

(1249) ----------
1933. ORGANIC SILICYL COMPOUNDS. U. S. Patent 1,918,338, July 18.

(1250) ----------
1937. SILICYL COMPOUNDS. German Patent 641,075, January 21.

(1251) ROSENHEIM, A. and LOEWENSTAMM, W.
1902. COMPOUNDS OF ANTIMONY PENTACHLORIDE WITH ORGANIC ACIDS. Ber. 35: 1115-1130.

N. AMIDES

(1252) ASPELUND, H.
1939. FORMATION OF DIOXOOXAZOLIDINES FROM α-HYDROXY ACID ESTERS. Acta Acad. Aboensis, Math. et Phys. 11: No. 14, 14 pp.

(1253) AUDRIETH, L. F. and KLEINBERG, J.
1938. ACID CATALYSIS IN LIQUID AMMONIA. III. THE EFFECT OF ALPHA-SUBSTITUENTS IN THE AMMONOLYSIS OF ESTERS. J. Org. Chem. 3: 312-16.

(1254) AULT, R. G., HAWORTH, W. N. and HIRST, E. L.
1934. ACTION OF SODIUM HYPOCHLORITE ON α-METHOXY AMIDES. J. Chem. Soc. 1934: 1722-26.

(1255) BEAN, C. M., KENYON, J. and PHILLIPS, H.
1936. WALDEN INVERSION REACTIONS OF d-(+)-ALPHA-p-TOLUENESULFONOXYP PROPIONIC ACID AND AMIDE AND THEIR DERIVATIVES. J. Chem. Soc. 1936: 303-11.

(1256) DEMOLIS, A. and KON, G. A. R.
1932. IDENTIFICATION OF α-ETHOXYPROPIONIC ACID. J. Chem. Soc. 1932: 2283.

(1257) D'IANNI, J. and ADKINS, H.
1939. HYDROGENATION OF HYDROXYAMIDES. J. Am. Chem. Soc. 61: 1675-81.

(1258) ELBS, K.
1911. LACTYL COMPOUNDS OF PRIMARY AROMATIC AMINES. I. J. prakt. Chem. 83: 1-21.

(1259) FREUDENBERG, K., BRAUNS, F. and SIEGEL, H.
1923. CONFIGURATION OF MANDELIC ACID AND OTHER α-HYDROXY ACIDS. Ber. 56B: 193-200.

(1260) ---------- and MARKERT, L.
1927. STERIC SERIES. VIII. THE CONFIGURATION OF ALPHA-BROMO-PROPIONIC ACID. Ber. 60B: 2447-58.

(1261) ---------- and RHINO. F.
1924. CONFIGURATION OF ALANINE. Ber. 57B: 1547-57.

(1262) ----------, KUHN, W. and BUMANN, I.
1930. CONFIGURATION OF HALOPROPIONIC ACIDS AND OF ALANINE. Ber. 63: 2380-90.

(1263) GEROMONT, F.
1893. LACTYL-PARAPHENCTIDID AND PROCESS OF MAKING IT. U. S. Patent 503,743, August 22.

(1264) GLASOE, P. K. and AUDRIETH, L. F.
1939. ACID CATALYSIS IN AMINES. I. THE CATALYTIC EFFECT OF CYCLOHEXYLAMMONIUM SALTS ON THE REACTION BETWEEN CYCLOHEXAMINE AND ESTERS. J. Org. Chem. 4: 54-9.

(1265) GORDON, M., MILLER, J. G. and DAY, A. R.
1948. EFFECT OF STRUCTURE ON REACTIVITY IN THE AMMONOLYSIS OF ESTERS. Abstracts, Miniature Meeting, Philadelphia Section, Am. Chem. Soc. p. 21 (January).

(1266) ----------
1948. EFFECT OF STRUCTURE ON REACTIVITY. I. AMMONOLYSIS OF ESTERS WITH SPECIAL REFERENCE TO THE ELECTRON-RELEASE EFFECTS OF ALKYL AND ARYL GROUPS. J. Am. Chem. Soc. 70: 1946-53.

(1267) GRESHAM, WM. F. (to E. I. du Pont de Nemours & Co.).
1947. α-KETO ALIPHATIC AMIDES. U. S. Patent 2,429,877, October 28.

(1268) GRETHER, E. F.
1933. ACYL DERIVATIVES OF 4,4'-DIAMINE DIPHENYL OXIDE. U. S. Patent 1,900,442, March 7.

(1269) GUCKER, F. T., JR. and ALLEN. T. W.
1942. THE DENSITIES AND SPECIFIC HEATS OF AQUEOUS SOLUTIONS OF dl-a-ALANINE, BETA-ALANINE, AND LACTAMIDE. J. Am. Chem. Soc. 64: 191-9.

(1270) HARRASS, PAUL
1903. LACTAMIDE, N,N-di-et: DISTRIBUTION BETWEEN H_2O AND OLIVE OIL. Arch. intern. Pharmacodynamic et Therapie 11: 431-63.

(1271) HARTMANN, M.
1918. THERAPEUTICALLY-VALUABLE DERIVATIVES OF PARA-AMINOPHENOL. U. S. Patent 1,263,238, April 16.

(1272) HOUBEN, J. and PFANKUCH, E.
1926. HYDROXIMIDO AND α-HYDROXYHYDROXIMIDO ACID ESTERS. Ber. 59B: 2397-98.

(1273) I. G. FARBENINDUSTRIE
1937. SULFURIC ACID ESTERS OF CARBOXYLIC ACID AMIDES. German Patent 640,581, January 7.

(1274) INGHAM, B. H.
1927. MECHANISM OF REACTIONS INDUCED BY HYDROGEN CHLORIDE BETWEEN AROMATIC ALDEHYDES AND ALDEHYDECYANOHYDRINS IN SOLUTION. J. Chem. Soc. 1927: 692-700.

(1275) IRVING, H.
1936. ACTION OF AMINES UPON ESTERS. J. Chem. Soc. 1936: 797-801.

(1276) KENYON, J., PHILLIPS, H. and TURLEY, H. G.
1925. DEPENDENCE OF ROTATORY POWER ON CHEMICAL CONSTITUTION. XXIV. FURTHER EXPERIMENTS ON THE WALDEN INVERSION. J. Chem. Soc. 127: 399-417.

(1277) KLEINBERG, J. and AUDRIETH, L. F.
1941. LACTAMIDE. Org. Syntheses 21: 71-3.

(1278) MERTENS, O.
1878. SOME CYAMIDES OF ACID RADICLES. J. prakt. Chem. (2) 17: 1-38.

(1279) MICHEEL, F, and KRAFT, K.
1934. HOFMANN DEGRADATION OF α-METHOXY ACIDS. Ber. 67B: 841-44.

(1280) MICHEL, J.
1939. METHODS AND APPARATUS IN USE AT THE BUREAU OF PHYSICOCHEMICAL STANDARDS. X. THE RATE OF CRYSTALLIZATION AS A CRITERION OF PURITY OF ORGANIC COMPOUNDS. Bull. soc. chim. Belg. 48: 105-57.

(1281) OEDA, H.
1936. ACTION OF LIQUID AMMONIA UPON ACETONE COMPOUNDS OF ALPHA-HYDROXY ACIDS. Bull. Chem. Soc. Japan 11: 385-9.

(1282) PAQUIN, ALFRED M. (I.G.F.A.-G., Hochst a.M.).
1946. REACTIONS OF UREA WITH ALCOHOLS. Z. Naturforsch. 1: 518-23.

(1283) RATCHFORD, W. P. and FISHER, C. H.
1946. PREPARATION OF N-ALKYL ACRYLAMIDES AND METHACRYLAMIDES BY PYROLYSIS OF THE CORRESPONDING ACETOXY AMIDES. Presented before the Division of Organic Chemistry at the Chicago Meeting of the American Chemical Society, September.

(1284) SKOLNIK, H., MILLER, J. G. and DAY, A. R.
1943. THE ALLYLIC CHARACTER OF 2-(α-CHLOROALKYL)-BENZIMIDAZOLES. J. Am. Chem. Soc. 65: 1854-58.

(1285) STOUGHTON, R. W.
1941. 5,5-DIALKYL-2,4-OXAZOLIDINEDIONES. J. Am. Chem. Soc. 63: 2376-9.

(1286) THURSTON, J. T.
1940. PRODUCTION OF MELAMINE. U. S. Patent 2,223,333, November 26.

(1287) TRAUBE, W.
1889. DERIVATIVES OF ALLOPHANIC ACID. Ber. 22: 1572-9.

(1288) ---------- and ASCHER, R.
1913. ISOHYDANTOIN. 2-IMINO-4-KETO-TETRAHYDROOXAZOL AND ITS HOMOLOGUES. Ber. 46: 2077-2084.

(1289) TRUSLER, R. B.
1925. SULFATES OF ORGANIC AMIDES. British Patent 255,886, July 22.

(1290) TURNER, W. E. S. and MERRY, E. W.
1910. MOLECULAR COMPLEXITY, IN THE LIQUID STATE, OF TERVALENT NITROGEN COMPOUNDS. J. Chem. Soc. 97: 2069-2083.

(1291) VERHULST, J.
1931. ACTION OF CONCENTRATED SULFURIC ACID ON THE ALDEHYDE CYANOHYDRINS. Bull. soc. chim. Belg. 40: 475-96.

(1292) VIELES, P.
1934. THE SPONTANEOUS RESOLUTION OF dl-DILACTYL DIAMIDE IN AQUEOUS SOLUTION. Compt. rend. 198: 2102-4.

(1293) ---------- and GASQUET, G.
1943. METHYLDIGLYCOLIC ACID MONOAMIDE. Bull. soc. chim. (5) 10: 231.

(1294) WALLINGFORD, V. H.
1944. PROCESS OF MAKING OXAZOLIDINEDIONES. U. S. Patent 2,338,220, January 4.

(1295) ----------, THORPE, M. A. and STOUGHTON, R. W.
1945. ALKYL CARBONATES IN SYNTHETIC CHEMISTRY. VI. CONDENSATION WITH HYDROXY AMIDES. A NEW METHOD FOR PREPARING 2,4-OXAZOLIDIONES. J. Am. Chem. Soc. 67: 522-23.

(1296) WOODHOUSE, J. C.
1941. CELLULOSIC STRUCTURE AND PROCESS FOR PRODUCING SAME. U. S. Patent 2,234,016, March 4.

O. ETHERS

(1297) BARDAN, D.
1931. RECHERCHES SUR LES ETHERS-OXYDES ETHYLIQUES DES ALPHA-GLYCOLS. Bull. soc. chim. (4) 49: 1426-34.

(1298) BIRCH, H. F., FLYNN, D. G., ROBERTSON, A.
1936. USNIC ACID. PT. IV. THE SYNTHESIS OF 4:6-DIMETHOXY-3:5-DIMETHYLCOUMARONE-2-ACETIC ACID. J. Chem. Soc. 1936: 1834-7.

(1299) BISCHOFF, C. A.
1899. STUDIEN UBER VERKETTUNGEN. XXXVI. NATRIUMMETHYLATE UND α-BROMOFETTSAUREÄTHYLESTER. Ber. 32: 1748.

(1300) ----------
1907. CYCLIC ESTERS FROM ETHYLENE GLYCOL AND FROM GLYCEROL. Ber. 40: 2803-13.

(1300a) BRUSON, H. A. (to the Resinous Products and Chemical Co., Phila., Pa.)
1937. PROCESS FOR REPORTING ETHER ACIDS. U. S. Patent 2,068,905, January 26.

(1301) BURKARD, O. and KAHOVEC, L.
1938. RAMAN EFFECT. LXXXII. NITROGEN COMPOUND. Monatsh. 71: 333-45.

(1302) DEMOLIS, A. and KON, G. A. R.
1932. IDENTIFICATION OF ALPHA-ETHOXYPROPIONIC ACID. J. Chem. Soc. 1932: 2283.

(1303) FREUDENBERG, K. and WOLF, A.
1926. ACETONE-SUGARS. IX. CONSTITUTION OF THE ACETONE COMPOUNDS OF RHAMNOSE AND MANNOSE. Ber. 59B: 836-40.

(1304) ---------- and MARKERT, L.
1927. DIE KONFIGURATION DER ALPHA-BROMOPROPIONSAURE. Ber. 60: 2447-58.

(1305) GODCHOT, M.
1923. SYNTHESIS OF DIBASIC ACIDS WITH AN ETHEREAL STRUCTURE. Compt. rend. 177: 1224.

(1306) ---------- and VIELES, P.
1936. ACTIVE METHYLDIGLYCOLIC ACID AND ITS DERIVATIVES. Compt. rend. 202: 1358-60.

(1307) ----------
1938. AN ATTEMPT TO PREPARE AN OPTICALLY ACTIVE DIACID ETHER BY MEANS OF ASYMMETRIC COMPOUNDS. Bull. soc. chim. (5) 5: 1535-9.

(1308) HENKE, C. O. (E. I. du Pont de Nemours & Co.).
1945. HYDROXY ACID DERIVATIVES OF CAMPHENE. U. S. Patent 2,382,313, August 14.

(1309) HENRY, L.
1895. METHYLENIC LACTATE. Compt. rend. 120: 333-335.

(1310) HENZE, H. R. and MURCHISON, J. T.
1933. ALPHA-SUBSTITUTED ETHYL BUTYL ETHERS. J. Am. Chem. Soc. 55: 4255-9.

(1311) I. G. FARBENIND. A-G.
1943. ETHERS OF α-HYDROXYPROPIONITRILE. Belgian Patent 449,536, April.

(1312) ISOM, D. L. and HUNT, H.
1946. THE SEPARATION OF DIASTEREOISOMERS BY ADSORPTION FROM THE VAPOR PHASE. J. Phys. Chem. 50: 28.

(1313) JOHNSON, E. L. and FREESE, L. R.
1941. PLANT RESPONSE TO ALPHA- AND BETA-NAPHTHOXYACETIC ACID AND α-(β-NAPHTHOXY) PROPIONIC ACID. Proc. Trans. Texas Acad. Sci. 25: 51.

(1314) JUNGFLEISCH, E. and GODCHOT, M.
1908. NEW HOMOLOGUES OF DIGLYCOLIC ACID. Compt. rend. 146: 26-29.

(1315) KARVONEN, A.
1916. INFLUENCE OF POSITION AND ACCUMULATION OF SUBSTITUENTS ON SPECTROCHEMICAL BEHAVIOUR. IV. SPECTROCHEMICAL BEHAVIOUR OF ETHER-ESTERS $RO-(CH_2)_nCO_2R$. Ann. Acad. Sci. Fenn. [A] 10: No. 6, 14 pp.

(1316) LEVENE, P. A. and MARKER, R. E.
1933. OPTICAL ROTATIONS OF CONFIGURATIONALLY RELATED METHOXY-PROPIONIC AND β-METHOXYBUTYRIC NITRILES. J. Biol. Chem. 102: 297-302.

(1317) ---------- and ROTHEN, A.
1934. ON WALDEN INVERSION. XVIII. ANALYSIS OF ROTATORY DISPERSION CURVES OF α-SUBSTITUTED NORMAL CARBOXYLIC ACIDS. J. Biol. Chem. 107: 533-53.

(1318) ---------- and HARRIS, S. A.
1936. CONFIGURATIONAL RELATIONSHIP OF METHYLCYCLOHEXYLCARBINOL TO METHYLHEXYLCARBINOL. J. Biol. Chem. 113: 55-9.

(1319) ---------- and KUNA, M.
1936. SYNTHESIS OF ALPHA-AMINO-BETA-HYDROXYPROPANE. J. Biol. Chem. 113: 153-6.

(1320) MARKOWNIKOW, W. and KRESTOWNIKOW, A.
1881. TETRYLENDICARBONSÄURE (HOMOITAKONSÄURE). Ann. 208: 333-349.

(1321) MOUSSERON, M.
1945. SOME ALICYCLIC ETHER ACIDS. Compt. rend. 220: 462.

(1322) NIEMANN, C., BENSON, A. A. and MEAD, J. F.
1943. THE CONTIGUOUSLY SUBSTITUTED DIHYDROXYAMINOALKANES. I. THE SYNTHESIS OF 1-AMINO-2,3-DIHYDROXY-n-HEXANE AND 1,2-DIHYDROXY-3-AMINO-n-HEXANE. J. Org. Chem. 8: 397-404.

(1323) PALOMAA, M. H.
1913. DER EINFLUSZ DER LAGE DES SAUERSTOFFATOMS IN DER KETTE AUF DIE GESCHWINDIGKEIT DER ESTERHYDROLYSE. Annal. Acad. Scient. Fenniae, A., 4, Nr. 2, 104 pp.

(1324) ---------- and JARVENKYLA, Y. T.
1932. STUDIEN ÜBER ÄTHER-ARTIGE VERBINDUNGEN, VI. MITTEIL: SYNTHESE DER ÄTHER-LACTONE VERMITTELST DER DIÄTHER-SÄUREN. Ber. 65B: 923-5.

(1325) ---------- and SIITONEN, T. A.
1936. ETHER-LIKE COMPOUNDS. XVII. THE CONSTITUTIVE FACTORS IN ESTERIFICATION AND SAPONIFICATION. Ber. 69B: 1338-53.

(1326) ----------, SALMI, E. J. and WALLIN, L.
1935. STUDIEN UBER ATHER-ARTIGE VERBINDUNGEN. XV. MITT: ZUR KENNTNIS DER ATHER-LACTONE MIT FUNFRING. Ber. 68B: 609-618.

(1327) PATTERSON, T. S. and FORSYTHE, W. C.
1913. THE INFLUENCE OF SOLVENTS ON THE ROTATION OF OPTICALLY ACTIVE COMPOUNDS. PT. XIX. THE ROTATION OF CERTAIN DERIVATIVES OF LACTIC ACID. J. Chem. Soc. 103: 2263-2271.

(1328) PURDIE, T. and LANDER, G. D.
1898. OPTICALLY ACTIVE ALKYLOXYPROPIONIC ACIDS. J. Chem. Soc. 73: 862-878.

(1329) ---------- and IRVINE, J. C.
1899. THE ROTATORY POWERS OF OPTICALLY ACTIVE METHOXY- AND ETHOXY-PROPIONIC ACIDS PREPARED FROM ACTIVE LACTIC ACID. J. Chem. Soc. 75: 483.

(1330) RAPPEN, L.
1941. CHEMICAL REACTIONS WITH CROTONALDEHYDE. J. prakt. Chem. 157: 177-202.

(1331) RODEWALD, Z. and PLAZEK, E.
1935. SYNTHESIS OF "ALKEINES" DERIVED FROM α-ALKOXYPROPIONIC ACID. Roczniki Chem. 15: 81-7.

(1332) SYNERHOLM, M. and ZIMMERMAN, P. W.
1945. PREPARATION OF SOME SUBSTITUTED PHENOXY ALKYL CARBOXYLIC ACIDS AND THEIR PROPERTIES AS GROWTH SUBSTANCES. Contrib. Boyce Thompson Inst. 14: 91.

(1333) ZIMMERMAN, P. W.
1943. PRESENT STATUS OF PLANT HORMONES. Ind. Eng. Chem. 35, 596-601.

P. ACYL DERIVATIVES

(1334) ANSCHÜTZ, R. and BERTRAM, W.
1904. UEBER DIE ACETYL-GÄHRUMGSMILCHSÄURE. Ber. 37: 3971-4.

(1335) AUGER, VICTOR
1905. ACETYL-LACTIC α-ACETOXYPROPIONIC ACID. Compt. rend. 140: 938-939.

(1336) BEAN, C. M., KENYON, J. and PHILLIPS, H.
1936. WALDEN INVERSION REACTIONS OF d-(+)-α-p-TOLUENESULFONOXY-PROPIONIC ACID AND AMIDE AND THEIR DERIVATIVES. J. Chem. Soc. 1936: 303-11.

(1337) BLAISE, E. E.
1914. SYNTHESIS BY MEANS OF ORGANOMETALLIC ZINC DERIVATIVES: ALDEHYDES. Bull. soc. chim. (Ser. 4) 15: 661-6.

(1338) CLABORN, H. V.
1940. TETRAHYDROFURFURYL ALPHA-ACETOXYPROPIONATE. U. S. Patent 2,222,363, November 19.

(1339) ----------
1944. ESTERS OF ACETYLLACTYLLACTIC ACID AND PROCESS FOR MAKING SAME. U. S. Patent 2,359,388, June 6.

(1340) ---------- and SMITH, L. T.
1939. THE ACETYLATION OF LACTIC ESTERS BY KETENE. J. Am. Chem. Soc. 61: 2727-8.

(1341) FEIN, M. L. and FISHER, C. H.
1944. ACETYLATION OF ALKYL LACTES. METHYL AND ETHYL ALPHA-ACETOXY-PROPIONATES. Ind. Eng. Chem. 36: 235.

(1342) ----------
1948. ACETYLATION OF ALKYL LACTATES AND SIMILAR HYDROXY ESTERS WITH ACETIC ACID, Ind. Eng. Chem. 40: 534-8.

(1343) ----------
1948. ALKANOYL DERIVATIVES OF BUTYL AND TETRAHYDROFURFURYL LACTATES. J. Am. Chem. Soc. 70: 52-6.

(1344) FILACHIONE, E. M. and FISHER, C. H.
1944. PREPARATION OF METHYL ACETOXYPROPIONATE. PREPARATION FROM LACTIC ACID, ACETIC ACID AND METHANOL. Ind. Eng. Chem. 36: 472.

(1345) ----------
1946. PROCESS FOR MANUFACTURING ACYLOXY CARBOXYLIC ACIDS. U. S. Patent 2,399,595, April 30.

(1346) FISCHER, E. and FISCHER, H. O. L.
1914. CARBOMETHOXY DERIVATIVES OF GLYCOLIC ACID AND LACTIC ACID. Ber. 47: 768-780.

(1347) FREUDENBERG, K. and MARKERT, L.
1927. STERIC SERIES. VIII. THE CONFIGURATION OF ALPHA-BROMOPROPIONIC ACID. Ber. 60B: 2447-58.

(1348) HELFERICH, B. and KEINER, L.
1924. PREPARATION OF HIGHER KETONES. Ber. 57B: 1616-20.

(1349) HODGE, J. W.
1942. LOW PRESSURE CATALYTIC HYDROGENOLYSIS OF ESTERS. Univ. Missouri. Ph.D. Thesis 75 pp.

(1350) HOUBEN, J. and FISCHER, W.
1931. PROCESS FOR THE CATALYTIC ESTERIFICATION OF ALCOHOLS IN ALKALINE SOLUTION. Ber. 64B: 240-7.

(1351) HOWARDS & SON, LTD., LOCKE, R. H. and ADCOCK, L. H.
1947. ACYLOXY CARBOXYLIC ACIDS & SALTS THEREOF. British Patent 594,800, November 19.

(1352) HUKUDA, S.
1938. BENZOYLATION OF d-LACTIC ACID. J. Biochem. (Japan) 27: 247-9.

(1353) HURD, C. D., CASHION, F. W. and PERLETZ, P.
1943. CONSIDERATION OF GENERAL METHODS FOR THE FORMATION OF KETENES. J. Org. Chem. 8: 367-72.

(1354) KENYON, J., PHILLIPS, H. and TURLEY, H. G.
1925. INVESTIGATIONS ON THE DEPENDENCE OF ROTATORY POWER ON CHEMICAL CONSTITUTION. XXIV. FURTHER EXPERIMENTS ON THE WALDEN INVERSION. J. Chem. Soc. 127: 399-417.

(1355) MELLANDER, A.
1938. RACEMIZATION OF OPTICALLY ACTIVE ALPHA-ALKYLSULFONYL-PROPIONIC ACIDS. Arkiv Kemi, Mineral. Geol. 13A: No. 3, 30 pp.

(1356) MICHEEL, F. and HAARHOFF, H.
1943. HOMOLOGS OF HYDROXYTETRONIC ACID. U. S. Patent 2,314,946, March 30.

(1357) NATIONAL RESEARCH COUNCIL
1928. INTERNATIONAL CRITICAL TABLES. Vol. III, p. 154, McGraw-Hill Book Co., Inc., New York.

(1358) PATTERSON, T. S. and FORSYTH, W. C.
1913. THE INFLUENCE OF SOLVENTS ON THE ROTATION OF OPTICALLY ACTIVE COMPOUNDS. PT. XIX. THE ROTATION OF CERTAIN DERIVATIVES OF LACTIC ACID. J. Chem. Soc. 103: 2263-2271.

(1359) POWERS, E. J. (Commercial Solvents Corp.).
1931. PRODUCTION OF ACYLATED ESTERS OF HYDROXY ACIDS. Canadian Patent 310,854, April 28.

(1360) ----------
1933. PROCESS FOR PRODUCING ACYLATED ESTERS OF HYDROXY-ACIDS. U. S. Patent 1,927,295, September 19.

(1361) RAPPEN, L.
1941. CHEMICAL REACTIONS WITH CROTONALDEHYDE. J. prakt. Chem. 157: 177-202.

(1362) RATH, J.
1907. ON THE HYDROLYTIC DECOMPOSITION OF ACETYLATED HYDROXY-CARBOXYLIC ACIDS. Ann. 358: 98-125.

(1363) REHBERG, C. E., FAUCETTE, W. A. and FISHER, C. H.
1944. PREPARATION OF METHYL ACETOXYPROPIONATE. REACTION OF LACTIC ACID WITH METHYL ACETATE. Ind. Eng. Chem. 36: 489.

(1364) REUTER, F. and WELCH, R. B.
1939. DERIVATIVES OF TETRONIC ACID. J. Proc. Roy. Soc. N. S. Wales 72: 120-8.

(1365) SABETAY, S.
1930. SOME ESTERS OF LACTIC ACID. Bull. soc. chim. (4) 47: 436.

(1366) SANTIAGO, S. and WEST, A. P.
1928. CHAULMOOGRYL DERIVATIVES OF LACTATES AND SALICYLATES. Philippine J. Sci. 35: 405-9.

(1367) SCHOBERL, A. and KRUMEY, F.
1942. ACTION OF KETENE ON CASEIN. Beiheft Z. Ver. Deut. Chem. No. 45: Die Chemie 55: 63-4.

(1368) SENTER, G. and WOOD, H.
1916. REACTIVITY OF THE HALOGENS IN ORGANIC COMPOUNDS. IX. INTERACTION OF ALKALIS AND ALKALI BROMOACETATES AND BROMOPROPIONATES IN ETHYL-ALCOHOLIC SOLUTION. J. Chem. Soc. 109: 681-689.

(1369) SMITH, L. T., FISHER, C. H., FILACHIONE, E. M., RATCHFORD, W. P. and FEIN, M. L.
1942. PYROLYSIS OF LACTIC ACID DERIVATIVES. II. METHYL LACTATE, ACETOXYPROPIONIC ACID. ACETOXYPROPIONYL CHLORIDE, AND ALKYL ACETOXYPROPIONATES. Presented at the Memphis, Tenn. Meeting of the American Chemical Society, April.

(1370) THIELE, J. and DENT, F.
1898. URETHANES. Ann. 302: 245-272.

(1371) WASSMER, E. and GUYE, P. A.
1903. LACTIC ACID AND MALIC ESTERS. J. Chim. Phys. 1: 257-288.

(1372) WISLICENUS, J.
1863. STUDIEN ZUR GESCHICHTE DER MILCHSÄURE UND IHRER HOMOLOGEN. Ann. 125: 41-70.

(1373) WURTZ, C. A.
1860. LACTIC ACID - ACYLOXY. Ann. chim. phys. (3) 59: 161-191.

(1374) ---------- and FRIEDL, C.
1861. LACTIC ACID - ACYL DERIV. Ann. Chim. Phys. (3) 63: 101-124.

O. MISCELLANEOUS DERIVATIVES

(1375) CURRLIN, E. N.
1942. CONDENSATION OF RESORCINOL WITH ACYCLIC ACIDS. Anais da Associacao Quimica do Brazil 1: 88-95.

(1376) DORÉE, CHARLES
1947. THE METHODS OF CELLULOSE CHEMISTRY. Second Ed., 543 pp. D. Van Nostrand Co., Inc. New York. See p. 301.

(1377) EVDOKIMOV, A. G.
1940. THE ACTION OF ACETIC AND LACTIC ACIDS ON ETHYLENE GLYCOL. Priroda 1940: No. 11, 68-70.

(1378) FAURHOLT, C., NOIESEN, K. and RATH, F.
1937. MONOALKYL CARBONATES. VI. ALKYL CARBONATES OF LACTIC ACID. Dansk. Tids. Farm. 11: 267-76.

(1379) FREDGA, A.
1944. FORMATION OF "ACTIVE RACEMATES" BETWEEN ORGANIC COMPOUNDS OF SULFUR AND SELENIUM. Arkiv Kemi, Mineral. Geol. 17A: No. 17, 15 pp.

(1380) ---------- and TENOW, M.
1943. RESOLUTION OF α-XANTHOPROPIONIC ACID INTO OPTICALLY ACTIVE ISOMERIDES. Arkiv. Kemi, Mineral. Geol. 17B: No. 3, 5 pp.

(1381) GLEASON, A. H.
1940. USE OF KETENE IN PREPARING ANHYDRIDES. U. S. Patent 2,178,752, November 7.

(1382) GODCHOT, M. and VIELES, P.
1937. RACEMIC AND ACTIVE METHYL-DIGLYCOLIC ACID AND THEIR DERIVATIVES. Bull. soc. chim. [5], 4: 937-44.

(1383) ----------
1938. AN ATTEMPT TO PREPARE AN OPTICALLY ACTIVE DIACID ETHER BY MEANS OF ASYMMETRIC COMPOUNDS. Bull. Soc. Chim. [5], 5: 1535-9.

(1384) HADDOCK, N. H., KERSHAW, A. (to Imp. Chem. Ind. Ltd.).
1936. AMINO DERIVATIVES OF o-NITRO-PHENYL-LACTIC AND -THIOLACTIC ACIDS. U. S. Patent 2,041,705, May 26.

(1385) HANSLEY, V. L. (to E. I. du Pont de Nemours & Co. Inc.).
1947. STABILIZATION OF CYANOHYDRINS. U. S. Patent 2,416,624, February 25.

(1386) HOLLO, E.
1928. INFLUENCE OF THE OXYGEN ATOM OF THE RING ON THE REACTION VELOCITY OF SEVERAL LACTONES. Ber. 61B: 895-906.

(1387) I. G. FARBENIND. A.-G.
1937. SULFURIC ACID ESTERS OF CARBOXYLIC ACID AMIDES. German Patent 640,581, January 7.

(1388) ----------
1939. UNSATURATED NITRILES. German Patent 673,427, March 22.

(1389) KAUFMANN, H. P.
1937. SILICYL COMPOUNDS. German Patent 641,075, January 21.

(1390) LEVENE, P. A. and WALTI, A.
1931. POLYMERIZATION AND CONDENSATION. VII. POLYMERIZATION OF THE α-HYDROXY ALDEHYDES. J. Biol. Chem. 94: 353-60.

(1391) ---------- and KUNA, M.
1936. SYNTHESIS OF α-AMINO-BETA-HYDROXYPROPANE. J. Biol. Chem. 113: 153-6.

(1392) LIEBEN, A.
1870. UEBER ENTSTEHUNG VON JODOFORM UND AN WENDUNG DIESER REACTION IN DER CHEMISCHEN ANALYSE. Ann. Supplement 7: 218-236 (see p. 229). (Beilstein's Handbuch, 4th edition, Vol. III, 273 (1921)).

(1393) LUTHER, M. and BELLER, H.
1930. LACTIC ACID AND ITS DERIVATIVES. U. S. Patent 1,766,715, June 24.

(1394) ODA, RYOHEI
1933. REESTERIFICATION. VII. REACTION BETWEEN CASTOR OIL AND MONO- AND TRI-CHLOROACETIC ACID. J. Soc. Chem. Ind. Japan 36: Suppl. Binding 496-7.

(1395) PASSERINI, M.
1926. ISONITRILES. XV. REACTIONS WITH ALIPHATIC ISONITRILES. Gazz. chim. ital. 56: 826-9.

(1396) PATTERSON, T. S. and FORSYTH, W. C.
1913. THE INFLUENCE OF SOLVENTS ON THE ROTATION OF OPTICALLY ACTIVE COMPOUNDS. PART XIX. THE ROTATION OF CERTAIN DERIVATIVES OF LACTIC ACID. J. C. S. 103: 2263.

(1397) PUCKNER, W. A.
1914. THE CHEMICAL EXAMINATION OF DIANOLS. Rept. Lab. Am. Med. Assoc. 6: 75-9.

(1398) PURDIE, T. and LANDER, G. D.
1898. OPTICALLY ACTIVE ALKYLOXYPROPIONIC ACID. J. C. S. 73: 862-878.

(1399) RATCHFORD, W. P. and REHBERG, C. E.
1948. AN IMPROVED TENSIMETER-STILL. Abstracts, Miniature Meeting, Philadelphia Meeting, Am. Chem. Soc. p. 44 (January).

(1400) WAGNER-JAUREGG, T.
1935. PHOSPHO-1-LACTIC ACID. Ber. 68B: 670.

(1401) WALKER, J. W.
1895. THE ETHEREAL SALTS OF THE OPTICALLY ACTIVE LACTIC, CHLORO-PROPIONIC AND BROMOPROPIONIC ACIDS. J. C. S. 67: 914.

R. POLYLACTIC ACID AND DERIVATIVES

(1402) ANONYMOUS
1942. TIN SUBSTITUTE FROM COWS MILK. The Chemurgic Digest 1: 84 (June 15).

(1403) ANDERLINI, F.
1895. ATOMIC REFRACTION OF OXYGEN. Gazz. chim. ital. 25: II, 127-162.

(1404) BAMANN, E., SCHWEIZER, E. and SCHMELLER, M.
1933. KINETICS OF ESTER HYDROLYSIS BY ENZYMES. V. THE BEHAVIOR OF ESTERASES TOWARD ESTER ANHYDRIDES OF THE LACTIDE AND LACTYLLACTIC ACID TYPE. THE CAUSE OF THE RELATIVE SPECIFICITY OF LIPASES. Z. physiol. Chem. 222: 121-130.

(1405) BEAN, C. M., KENYON, J. and PHILLIPS, H.
1936. WALDEN INVERSION REACTIONS OF d-(+)-ALPHA-p-TOLUENESULFONOXY-PROPIONIC ACID AND AMIDE AND THEIR DERIVATIVES. J. Chem. Soc. 1936: 303-311.

(1406) BERTHOLET, M. and DELEPINE, M.
1899. L'ACIDE LACTIQUE. LACTIDE. Compt. rend. 129: 920-6.

(1407) BESSON, A. A.
1910. THE DETERMINATION OF LACTIC ANHYDRIDE IN LACTIC ACID. Collegium 1910: 73-9.

(1408) ----------
1911. THE QUESTION OF LACTIC ANHYDRIDE. Chem. Ztg. 35: 26-7.

(1409) BEZZI, S.
1939. VISCOSITY AND SOLVATION. I. Att. mem. accad. sci. Padova 55: 85-9.

(1410) ---------- and ANGELI, B.
1938. THE TRANSFORMATION OF CYCLIC ESTERS INTO LINEAR POLYESTERS. Gazz. chim. ital. 68: 215-24.

(1411) ----------, RICCOBONI, L. and SULLAM, C.
1937. THE PRODUCTS OF ANHYDRIFICATION OF LACTIC ACID AS TYPE OF THE TRANSFORMATION OF CYCLIC ESTERS INTO LINEAR POLYESTERS. Mem. accad. Italia, Classi sci. fis., mat. nat. 8: 127-213.

(1412) BISCHOFF, C. A.
1894. VII ERGEBNISSE DER STUDIEN UBER DIE DERIVATE DER EIN- UND ZWEIBASISCHEN ALPHA-OXYSAUREN. Ann. 279: 153-188.

(1413) ---------- and Walden, P.
1893. UEBER DAS GLYCOLID UND SEINE HOMOLOGEN. Ber. 26: 262-5.

(1414) ----------
1894. UEBER DIE AETHYLENESTER DER GLYCOL UND OXALSÄURE UND DIE ANHYDRIDE ALPHA-HALOGENISIRTER FETTSAUREN. Ber. 27: 2939-2952.

(1415) ----------
1894. II. UEBER DERIVATE DER MILCHSAURE. Ann. 279: 71-99.

(1416) ----------
1894. III. UEBER DERIVATE DER BEIDEN ALPHA-OXYBUTTERSAUREN. Ann. 279: 100-118.

(1417) BORSOOK, H., HUFFMAN, H. M. and LIU, Y. P.
1933. THE PREPARATION OF CRYSTALLINE LACTIC ACID. J. Biol. Chem. 102: 449-460.

(1418) CAROTHERS, W. H.
1937. LINEAR CONDENSATION POLYMERS. U. S. Patent 2,071,250, February 16.

(1419) ---------- and HILL, J. W.
1932. STUDIES OF POLYMERIZATION AND RING FORMATION. XII. LINEAR SUPERPOLYESTERS. J. Am. Chem. Soc. 54: 1559-66.

(1420) ----------, DOROUGH, G. L. and VAN NATTA, F. J.
1932. REVERSIBLE POLYMERIZATION OF SIX-MEMBERED CYCLIC ESTERS. J. Am. Chem. Soc. 54: 761-772.

(1421) CHEM. WERKE v. H. BYK
1912. MANUFACTURE OF LACTIDE. German Patent 267,826, February 29.

(1422) ----------
1912. ESTERS OF HYDROXY FATTY ACIDS. German Patent 278,487, June 4.

(1423) ----------
1913. LACTIDE. British Patent 8,771, April 14.

(1424) ----------
1913. LACTIDES. French Patent, 456,824, April 18.

(1425) ----------
1915. LACTIDE. Aust. Patent 70,776, December 27.

(1426) CLABORN, H. V.
1944. ESTER OF ACETYLLACTYLLACTIC ACID AND PROCESS FOR MAKING SAME. U. S. Patent 2,350,388, June 6.

(1427) DIETZEL, R. and KRUG, R.
1925. CHEMICAL EQUILIBRIUM BETWEEN LACTIC ACID AND ITS ANHYDRIDES IN AQUEOUS SOLUTION. Ber. 58B: 1307-14.

(1428) ---------- and TAUFEL, K.
1925. ULTRA-VIOLET SPECTROSCOPY AND ITS SIGNIFICANCE IN FOOD CHEMISTRY. Z. Nahr. Genussm. 49: 65-75.

(1429) DOROUGH, G. L. (to du Pont).
1938. PROCESS FOR PREPARING RESINOUS MATERIAL AND PRODUCT. U. S. Patent 2,127,248, August 16.

(1430) DUQUENOIS, P.
1935. AUTOESTERIFICATION OF LACTIC ACID. J. Pharm. Chim. 22: 251-4.

(1431) EDER, R. and KUTTER, F.
1926. EQUILIBRIUM BETWEEN LACTIC ACID AND LACTIC ANHYDRIDE IN COMMERCIAL LACTIC ACID. Helv. Chim. Acta 9: 355-64.

(1432). FEIN, M. L. and FISHER, C. H.
1946. ESTERS OF LACTYLLACTIC ACID. J. Am. Chem. Soc. 68: 2631.

(1433) FILACHIONE, E. M. and FISHER, C. H.
1944. LACTIC ACID CONDENSATION POLYMERS. PREPARATION BY BATCH AND CONTINUOUS METHODS. Ind. Eng. Chem. 36: 223.

(1434) ----------
1948. CONTINUOUS PROCESS OF CONVERTING LACTIC ACID TO POLYLACTIC ACID. U. S. Patent 2,438,208, March 23.

(1435) GEHRKE, M. and WILLRATH, H. H.
1929. THE EQUILIBRIUM BETWEEN HYDROXY ACIDS AND THEIR ANHYDRIDES. Z. physik. Chem. Abt. A., 142: 301-8.

(1436) GODCHOT, M. AND VIELES, P.
1931. DILACTIC ACIDS. Compt. rend. 193: 1430-2.

(1437) ----------
1937. RACEMIC AND ACTIVE METHYLDIGLYCOLIC ACIDS AND THEIR DERIVATIVES. Bull. soc. chim. (5) 4: 937-44.

(1438) GRAVES, GEORGE De W. (to E. I. du Pont de Nemours & Co.).
1938. ACETIC PYRUVIC ANHYDRIDE, ETC. U. S. Patent 2,135,709, November 8.

(1439) GRÜTER, R.
1941. COMPOUNDS OF THE LOWER HYDROXY ACID GLYCOLIC ACID AND LACTIC ACID. Chem. Ztg. 65: 84. Chem. Zentr. 1941, 2612-3. (C. A. 38: 2012).

(1440) ---------- and POHL, H.
1914. MANUFACTURE OF LACTIDE. U. S. Patent 1,095,205, May 5.

(1441) HENRY, L.
1874. UEBER DAS LACTIDE. Ber. 7: 753-6.

(1442) HUBBUCH, L.P. and JOHNSON, W. C.
1948. INTERIOR COATING OF TUBULAR CONTAINERS. Ind. Eng. Chem. 40: 297.

(1443) HUKUDA, S.
1938. THE ROTATION OF d-LACTIC ACID AND ITS DERIVATIVES. I. THE ANHYDRIDE FORMATION OF MUSCLE LACTIC ACID UNDER ORDINARY TEMPERATURE. J. Biochem. (Japan) 27: 241-6.

(1444) JELÍNEK, Z. K.
1948. POLAROGRAPHIC DETERMINATION OF POLYCONDENSATION OF LACTIC ACID. Chem. Obzor 23: 61-3.

(1445) JOHANSSON, H. and SEBELIUS, H.
1919. SAPONIFICATION OF GLYCOLIDE AND LACTIDE IN ACID SOLUTION. Ber. 52B: 745-52.

(1446) JUNGFLEISCH., E. and GODCHOT, M.
1905. SUR L'ACID LACTYLLACTYLLACTIQUE ET LE DILACTIDE DE L'ACIDE LACTIQUE INACTIF. Compt. rend. 140: 502-5.

(1447) ----------
1905. SUR L'ACIDE LACTIQUE DROIT. Compt. rend. 140: 719-21.

(1448) ----------
1905. SUR LE DILACTIDE DROIT. Compt. rend. 141: 111-113.

(1449) ----------
1906. SUR L'ACIDE LACTIQUE GAUCHE. Compt. rend. 142: 515-8.

(1450) ----------
1906. SUR LE DILACTIDE DE L'ACIDE LACTIQUE GAUCHE. Compt. rend. 142: 637-639.

(1451) ----------
1907. SUR LE LACTYLLACTATE D'ETHYLE, LACTIC ACID POLYMERS. Compt. rend. 144: 425-7.

(1452) ----------
1907. SUR L'ACIDE DILACTYLIQUE INACTIF. Compt. rend. 144: 979-81.

(1453) KAHOVEC, L. and KOHLRAUSCH, K. W. F.
1944. STUDIEN ZUM RAMAN-EFFEKT. MITTEILUNG 148: STICKSTOFFKÖRPER XXVII: NITRILE VON AMINOSÄUREN UND VERWANDTES. Z. physikal. Chem. 193: 188-195.

(1454) KRÄFFT, F. and DYES, W. A.
1895. UEBER CONSTANT SIEDENDE UND KRYSTALLISIRBARE GÄHRUNGSMILCHSAURE. Ber. 28: 2589-97.

(1455) LIGHT, L.
1940. LACTIC ACID RESINS. Paint Mfg. 10: 135-6.

(1456) LYCAN, W. H. and ADAMS, R.
1929. OMEGA-HYDROXY ALIPHATIC ACIDS. SYNTHESIS OF SABINIC ACID. J. Am. Chem. Soc. 51: 625-9.

(1457) ----------
1929. OMEGA-HYDROXY ALIPHATIC ACIDS. II. CONVERSION OF OMEGA-HYDROXY DECANOIC ACID TO CHAIN POLY-INTERMOLECULAR ESTERS AND TO A DIMERIC CYCLIC ESTER. J. Am. Chem. Soc. 51: 3450-64.

(1458) McKENZIE, A.
1905. THE ASYMMETRIC SYNTHESIS OF l-LACTIC ACID. THE OPTICAL ACTIVITY OF FERMENTATION LACTIC ACID. J. Chem. Soc. 87: 1373-83 (September).

(1459) MONIN, L.
1910. SOURCES OF ERROR IN THE DETERMINATION OF THE STRENGTH OF LACTIC ACID. Rev. gen. mat. color. 14: 279-81.

(1460) MOSS, W. H. (to Celanese Corporation of America).
1932. COATING COMPOSITION AND FILM PRODUCED THEREBY. U. S. Patent 1,849,108, March 15.

(1461) ----------
1932. SYNTHETIC RESIN AND METHOD OF MAKING THE SAME. U. S. Patent 1,849,107, March 15.

(1462) ----------
1932. LAMINATED GLASS AND METHOD OF MAKING SAME. U. S. Patent 1,871,725, August 16.

(1463) MÜLLER, J. A.
1896. VOLATILISATION OF LACTIC ACID AND ITS ANHYDRIDES AT THE ORDINARY TEMPERATURE; VOLATILISATION OF LACTIC ACID WITH WATER VAPOUR. Bull. Soc. Chim. (3) 15: 1206.

(1464) NEF, J. U.
1914. DISSOCIATION PROCESSES IN SUGAR GROUP. III. Ann. 403: 204-383.

(1465) PAULI, W., KÖLBL, W. and LINSKER, A.
1937. THE CONSTITUTIVE PRINCIPLES OF THE ELECTROCHEMICAL CHARACTERISTIC OF THE PUREST ACIDOID SOLS OF PLANT GUMS. Kolloid-Z. 79: 273-86.

(1466) PELOUZE, J.
1845. UEBER DIE MILCHSÄURE. Ann. 53: 112-124.

(1467) PHILIP, M.
1906. ANALYSIS OF COMMERCIAL LACTIC ACID. Collegium, 88, Amer. Leather Chem. Assoc. Jour, v. 1, 1906, pp. 189-191.

(1468) POUCHET, BERNARD, L. and ROGER, E. P.
1931. THE USE OF LACTYLLACTIC ACID IN LACTIC ACID TREATMENT. Bull. acad. med. 103: 619-21.

(1469) RINGER, O. and SKRABAL, A.
1923. HYDROLYSIS OF LACTIC ACID LACTIDE. Monatsh. 43: 507-23.

(1470) SMITH, R. C. and HOWARD, H. C.
1936. MOLECULAR WEIGHTS OF POLYMERIC SUBSTANCES IN CATECHOL AND THEIR BEARING ON THE NATURE OF COAL AND DERIVED PRODUCTS. J. Am. Chem. Soc. 58: 740-2.

(1471) SOKOLOFF, B.
1940. LACTIC ACID CONDENSATION PRODUCT. British Patent 516,518, January 4.

(1472) SPENGLER, R. and GROEBE, F. (to Allgemeine Elektricitäts.-Ges.).
1939. LACTIC ACID AND ITS ANHYDRIDE. German Patent 678,428, July 17.

(1473) THOMPSON, F. C. and SUZUKI, K.
1918. DETERMINATION OF LACTIC ANHYDRIDES IN LACTIC ACID. J. Soc. Leather Trades Chem. 2: 115-21. J. Am. Leather Chem. Assoc. 13: 334-41.

(1474) THURMOND, G. I. and EDGAR, G.
1924. EQUILIBRIUM BETWEEN LACTIC ACID AND ITS ANHYDRIDES. Ind. Eng. Chem. 16: 823-6.

(1475) ULLMANN'S ENZYKLOPÄDIE DER TECHMSCHEN CHEMIE VIII.
1920. MILCHSÄURE. pp. 129-136.

(1476) VIELES, P.
1934. THE DILACTYLIC ACIDS AND THEIR ANHYDRIDES. Compt. rend. 198: 1044-6.

(1477) VON DER BRÜGGEN, N.
1868. UEBER DEN DIÄTHYLÄTHER EINER DIMILCHSÄURE. Ann. 148: 224-35.

(1478) WATSON, P. D.
1940. FRACTIONATING RESINOUS PRODUCTS. U. S. Patent 2,189,572, February 6.

(1479) ----------
1940. COMPOSITION OF LACTIC ACID. PRODUCTION OF A HIGHLY CONCENTRATED ACID. Ind. Eng.. Chem. 32: 399-401.

(1480) ----------
1944. COATING MATERIALS AND PROCESS FOR MAKING THEM. U. S. Patent 2,363,103, November 21.

(1481) ---------- (to the United States of America, as represented by the Secretary of Agriculture).
1947. POLYLACTYLIC ACID RESINS. U. S. Patent 2,433,721, December 30.

(1482) ---------- (Dept. of Agr., Washington., D. C.).
1948. LACTIC ACID POLYMERS AS CONSTITUENTS OF SYNTHETIC RESIN AND COATINGS.. Ind. Eng. Chem. 40: 1393-7.

(1483) WISLICENUS, J.
1863. STUDIEN ZUR GESCHICHTE DER MILCHSÄURE UND IHRER HOMOLOGEN. Ann. 128: 1-67.

(1484) ----------
1865. POLYLACTIC ACID AND AMMONIA. Ann. 133: 257-87.

(1485) ----------
1872. BEOBACHTUNGEN ÜBER DIE SOGENANNTEN ANHYDRIDE DER MILCHSÄURE. Ann. 164: 181-196.

(1486) ----------
1873. UEBER DIE ISOMEREN MILCHSÄUREN. Ann. 167: 302-346.

(1487) WURTZ, A, and FRIEDEL, C.
1861. UNTERSUCHUNGEN UBER DIE MILCHSÄURE. Ann. 119: 369-375.

(1488) ZYKOVA, K. I.
1940. THE EFFECT OF VARIOUS PHYSICAL AND CHEMICAL FACTORS ON THE FORMATION OF ANHYDRIDES IN LACTIC ACID. Sbornik Nauch.-- Issledovatel, Rabot Sektora Org. Kislot Tsentral. Nauch.-- Issledovatel. Lab. Brodil'noi Prom. 156-60. (Khim. Referat. Zhur. 1940: No. 9, 110). (C.A. 37: 869).