

ALKYD RESIN TECHNOLOGY, by T. C. Patton, (Interscience Publishers, John Wiley and Sons, 197 pp., 1962, \$9.75). The book contains a well organized and detailed table of contents and is logically dividing it into nine chapters each dealing with a separate phase or topic of alkyd technology. A subject index is included and provides a fairly complete cross index to enable the reader to readily locate specific subject references. A bibliography listing over 100 reference works used in the preparation of the text is appended and referenced throughout the text where necessary.

In the preface Temple Patton states the book is written to analyze previous articles and from these analyses to compile quantitative considerations to aid in calculated formulation of alkyd resins. The entire book is based upon these quantitative theories and makes no pretense of discussing the qualitative problems since, as Dr. Patton states, these have been adequately covered in earlier articles.

An attempt is made to cover the entire field of alkyd formulation, production, control, modification, and performance in 185 pages. As a consequence there are areas of the book in which desirable details are omitted for the sake of brevity. Although this makes the book concise it does make it somewhat more difficult to follow in some instances. This deficiency is, however, remedied by inclusion of many sample problems with their solutions thereby illustrating the points under discussion.

Dr. Patton has tried to integrate much information from numerous sources into precise mathematics in many instances where this has not been done previously. This is certain to create areas where other polymer chemists will disagree with his mode of interpretation, but his effort is a great step in a positive direction and should prove a great aid to interpretation of alkyd data.

"Alkyd Resin Technology" is a well done and thoughtful summary of the state of alkyd technology and should be a valuable addition to the libraries of those concerned with producing or using alkyd materials since performance and control criteria are covered as well as formulation and production details.

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STEREOCHEMISTRY OF CARBON COMPOUNDS, by Ernest L. Eliel (McGraw-Hill Book Co., Inc., 330 West 42nd St., New York 36, N. Y., 486 pp., 1962; \$15.00). At last the organic chemist has a compact text on stereochemistry which is (1) clearly presented (and therefore easy to understand), (2) comprehensive (but compact enough to be read), and (3) amazingly up-to-date. As a synthetic chemist not specifically working in the field of stereochemistry, I have found Eliel's book an excellent review of basic stereochemistry (e.g. absolute configuration, conformational analysis, etc.) as well as an introduction to more recent aspects of stereochemistry which the organic chemist would otherwise have to dig out of the primary literature (e.g. Brewster's semiempirical treatment of optical rotation data, Allinger's work on conformation of medium sized rings, n.m.r. approach to stereochemistry, etc.).

As emphasized by Dr. Eliel in the preface of his book, it is virtually impossible to discuss stereochemistry of carbon compounds without mentioning reactions and reaction mechanisms. However, the prime purpose of this text is to review the fundamental aspects of stereochemistry. Reactions and mechanistic principals are used as tools for discussion rather than as prime subject matter. Thus, Eliel's book would complement, rather than enroach upon, a text such as Newman's "Steric Effects in Organic Chemistry" or Gould's "Mechanism and Structure in Organic Chemistry."

"Stereochemistry of Carbon Compounds" is divided into 15 chapters. The introduction contains a most interesting, though necessarily brief, history of the development of stereochemistry; it sets the pace of a book which develops from classical concepts of optical isomerism in the first three chapters to the more thought provoking subject of atomic and conformational asymmetry as presented in the

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14th chapter. Optical resolution and absolute and relative configurations are the subject of the next two chapters. Chapters 6-11 discuss conformational analysis

of acyclic and cyclic structures. The conformation of small and medium rings is discussed but no mention of Prelog's recent work on the conformation of larger rings, i.e., cyclohexane, is mentioned. Chapter 12 is devoted to geometrical isomerism and stereochemistry of olefins. Chapter 13 describes stereochemical aspects of trivalent carbon (carbonium ions, carbanions, and free radicals). Divalent carbon (carbenes and methylenes) is included in the subject matter of olefin stereochemistry, a natural consequence of the ready addition of olefins by divalent carbon. Chapter 14 deals with the relationship of rotation and configuration. Although Djeassi has published an excellent text on "Optical Rotary Dispersion," this subject is also a necessary part of Eliel's books, in which it is reviewed in more concise form. The last chapter discusses stereoselective synthesis and stereoregulated polymerization. This chapter may prove embarrassing to a large number of authors (including this reviewer) who incorrectly interchange the terms "stereoselective" and "stereospecific" (p. 436).

It should be pointed out that this is the first text on stereochemistry published in recent years and consequently the only one up to date. It supercedes Freudenberg's "Stereochemie," Deutiche, Leipzig, 1933 and is more complete than any coverage found in standard texts such as Gilman's Organic Chemistry, or Fieser and Fieser's "Advanced Organic Chemistry," Reinhold, 1961. In contrast to de la Mare and Klyne's "Progress in Stereochemistry" the book is a text rather than a treatise and should be of great value to all organic chemists in every field for many years to come. The price, \$15.00, is not prohibitive.

Finally a few glowing comments and one minor criticism about the book should be mentioned. The text contains many explanatory footnotes and over 900 references, which cover the literature through 1961. Ample illustrations and diagrams are presented to facilitate easy reading. One criticism, which rests solely in the hands of the publisher, is the misplacement of illustrations. Thus Figs. 12-3, 12-4, and 12-5 pp. 320-321 are completely removed from the subject matter under discussion, while Figs. 12-14 and 12-15 are slightly misplaced.

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POLYHYDRIC ALCOHOLS, by Ibert Mellan (Spartan Books, 6411 Chillum Place, N.W., Washington 12, D. C., 208 pp., 1962, price to be announced). The first 17 pages of this book constitute a general discussion of polyhydric alcohols, including an elementary review of their chemical properties and some comparisons of their physical properties. The text of this discussion is shallow; most parts of it either deal with material already familiar to most chemists, or else are so sketchily presented as to require reference to the original literature for explanation. The discussion is padded with tables of data, most of which appear again later in the book—their inclusion in the general discussion section seems pointless, since most of them are not referred to in the accompanying text.

The remainder of the book treats individual polyhydric alcohols in detail. Ethylene glycol, propylene glycol, glycerol, sorbitol, and some 27 other alcohols, all of more or less commercial interest, are covered. The history, sources, and uses of each of the compounds is briefly described. Although the chemical properties of the various alcohols are not described, and very few of the derivatives which can be made from them are mentioned, there is an abundance of tables and graphs giving the physical properties of the polyhydric alcohols. Much of the data for the less familiar alcohols appears to have been taken from manufactures' data sheets, and no references to the literature are provided for these compounds.

Because it is primarily a compilation of detailed physical property data, this book should find some use as a "handbook" for workers who frequently need to look up infor-

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THE SEPARATION OF 19-NOR-STERIODS BY THIN-LAYER CHROMATOGRAPHY ON SILICA GEL. T. Golab and D. S. Layne (Worcester Foundation for Exp. Biology, Shrewsbury, Mass.). *J. Chromatog.* 9(11), 321-330 (1962). The separation of 19-nor-steroids by thin-layer chromatography on silica gel and subsequent identification of the individual compounds by spraying the chromatograms with antimony trichloride in chloroform is described. Chromatographic mobilities and colors developed are listed for thirty-eight 19-nor-steroids.

THIN-LAYER CHROMATOGRAPHY OF CORTICOSTEROIDS. R. D. Bennett and E. Heftmann (National Inst. of Arthritis and Metabolic Diseases, U. S. Dept. of Health, Education, and Welfare, Bethesda, Md.). *J. Chromatog.* 9, 348-52 (1962). The separation of eighteen corticosteroids and pregnane derivatives in submicrogram quantities by thin-layer chromatography is presented. Positional isomers, axial-equatorial hydroxyl epimers, and A/B *cis-trans* isomers were successfully resolved. Reversal of some relative mobilities were observed with two solvent systems.

ANALYSIS OF FECAL STEROLS BY GAS CHROMATOGRAPHY. R. S. Rosenfeld, M. C. Lebeau, S. Shulman, and J. Seltzer (Sloan-Kettering Inst. for Cancer Research, New York, N. Y.). *J. Chromatog.* 7, 293-96 (1962). The method presented permits quantitative analysis of cholesterol and coprostanol in feces by gas chromatography. The data obtained has been compared with column chromatographic methods and the technique appears to be useful in measuring these substances in sterol balance studies.

• Drying Oils and Paints

PERFORMANCE OF CLEAR FINISHES ON EXTERIOR TIMBER. K. R. Bussell and P. J. Goldstraw. *Dept. of Supply, Austral. Defence Sci. Service Defence Standards Laboratories* 1961, Rept. No. 251, 14 pp. Outdoor exposure at Maribyrnong, Victoria, of a number of clear finishes for wood indicates that those based on relatively newly developed polymers and resins show no greater durability than the more conventional alkyd and phenolic varnishes. All the clear finishes investigated are inferior to good-quality three-coat paint systems, affording less than half the protective life that may be expected from the latter. The pattern of breakdown and the problem of maintenance are discussed. The performance of butyl methacrylate polymer solutions and the improvement obtained by priming with linseed oil prior to clear finishing indicate promising lines for future work. (Rev. Current Lit. Paint Allied Ind.)

MATURING OF OIL PAINT SAMPLES. B. Svoboda. *Chem. Průmysl* 12/37(1), 48-53 (1962). The author studied the relations between adsorption of the binder, agglomeration of the pigment and maturing of dispersions of the pigments in linseed oil media. Maturing of the paint is explained as the achievement of an equilibrium between adsorption and agglomeration. In the presence of reactive pigments a chemical reaction occurs between the pigment and COOH groups of the medium. (Rev. Current Lit. Paint Allied Ind.)

LIMED OILS. E. Montorsi. *Pittura e Vernici* 38, 77-80 (1962). Limed oils are solutions in aliphatic solvents (about 40% solids) of the reaction products of stand oils and Ca(OH)₂. Their properties and applications in paints are described. (Rev. Current Lit. Paint Allied Ind.)

ISANO OIL. F. Pouliquen. *Peint. Pig. Vernis* 38(2), 69-76; (3), 129-37 (1962). Occurrence and properties are described. Particular attention is paid to extraction techniques for oils from different sources and their chemical compositions, which were studied by chromatographic and spectroscopic techniques. (Rev. Current Lit. Paint Allied Ind.)

RELATIONSHIP BETWEEN STRUCTURE AND SOME PERFORMANCE PROPERTIES OF SILICONE OILS. W. Krauss. *VI F.A.T.I.P.E.C. Congress, 1962*, 332-7. The investigations show that the properties of the silicone oils which are of interest for the surface coating industry can be adapted to the intended use by selecting products of appropriate composition. It is generally possible to predict their suitability from the knowledge of their influence on the surface tension of other media and their compatibility characteristics. The investigations particularly included their influence on the floating of pigments and the suitability of unsaturated polyester finishes for application by curtain coating. It has not yet been possible to interpret the effect of various silicone oils on the flow and adhesion of automotive repair finishes. (Rev. Current Lit. Paint Allied Ind.)

PHASES IN THE POLYMERIZATION OF DRYING OILS AND RESINS. M. Kronstein. *Paint, Var. Prod.*, 52(3), 26-9, 72 (1962). The

physical structure of linseed oil gels, *e.g.*, produced by heating the oil at 310C with a current of air passing through, fractions therefrom and dispersions, *e.g.*, in aromatic solvents, produced with the aid of Co linoleate have been studied by X-ray and electron microscope techniques. (Rev. Current Lit. Paint Allied Ind.)

MODERN PRINCIPLES OF FORMULATING PAINT MATERIALS. J. Korinsky. *Plaste u. Kautschuk* 9, 311 (1962). A summary of a paper presented at the Paint Symposium, Buda-Pest, 1961. Modern formulation is based on the volume principle. The most important relevant data of paint materials are pigment volume concentration (PVC), critical pigment volume concentration (CPVC) and solid content by volume (SC). Formulation based on PVC and SC is already taken up in the U.S.A. and work in the U.S.S.R. shows that by formulating on CPVC, the relevant properties are assured. This modern formulation standardizes paint materials and hence improves their quality. (Rev. Current Lit. Paint Allied Ind.)

PAINTS FOR ALL PURPOSES. Anon. *Munic. J., Lond.* 69, No. 3590, 3891-905 (1961). A review of (i) failures and defects in paints as reported by the London County Council, (ii) new trends in paint formulations, especially those based on polyurethane, (iii) anti-corrosive paints and primers, (iv) anti-chemical, water-proofing and timber-protective finishes, (v) thixotropic paints for ensuring economies in labor, (vi) facilities for choosing the right colors for paint schemes, (vii) coatings for preventing condensation in public baths, (viii) floor paints and sealers, (ix) cement paints for stone-effect finishes and (x) standards for paint strippers. (Rev. Current Lit. Paint Allied Ind.)

PIGMENTS AND DIELECTROGRAPHY. III. STRUCTURE OF PAINTS. K. M. Österle. *VI F.A.T.I.P.E.C. Congress 1962*, 341-55. Dielectrography is used to study the wetting conditions of pigments in vehicles. By variation of the frequency, characteristic curves can be obtained which enable two different types of wetting behavior to be distinguished, Coulomb-type and van der Waals. This is used to study milling processes in a number of systems. It seems that the determination of dielectric losses at different low frequencies is an appropriate method for obtaining at least a qualitative idea of the degree of wetting and efficiency of milling of a normal unthinned paint. (Rev. Current Lit. Paint Allied Ind.)

PIGMENT VOLUME CONCENTRATION. D. S. Newton. *J. Oil Col. Chem. Assoc.* 45, 180-99 (1962). A survey of published work (85 refs.) from 1920 showed that, whilst pigment volume concentration (PVC) could be correlated qualitatively with performance in paints, little information was available on the quantitative effect. Moreover no information on its constancy in a paint could be obtained. An attempt has been made to determine quantitatively the variability of the pigment volume concentration in a paint using zinc dust as a "model" pigment. Critical pigment volume concentration (CPVC) determination using a modified Asbeck and Van Loo filtration technique and enamel holdout tests show that the effective PVC within a paint is not constant and that it changes with time. Variations also occur between paints of identical formulation and manufacture. These changes vary in direction and magnitude according to the type of medium employed and are due to the difficulty of achieving a reasonably uniformly distributed and dispersed system. (Rev. Current Lit. Paint Allied Ind.)

CONVEYANCE OF ELECTROSTATIC AND ELECTROKINETIC CHARGES: SOME FACTS, CONSIDERATIONS AND CONCLUSIONS. F. Sjöllema and D. Radielovic. *VI F.A.T.I.P.E.C. Congress, 1962*, 356-66. Of some alkyd resin fractions obtained through fractional precipitation a low-molecular, highly polar fraction (about 10% of the original resin) shows distinctly different properties, which also manifest themselves in the charge transport. With pigmented enamels, charge transport is already effected electrokinetically because of the presence of electric double layers. Here, too, the special position of the most polar alkyd resin fraction becomes evident. There is a relation between electrokinetic charge transport and the results of sedimentation tests with TiO₂ in highly diluted alkyd resin solutions. It was found that in dispersing TiO₂ in alkyd resin, selective adsorption of the most polar constituents occurs. A fraction with a very high A.V. is bound most strongly. Reference is also made to the relation between instability of ready-made paints and building up of colloid-chemical equilibria at the pigment surface. (Rev. Current Lit. Paint Allied Ind.)

PRIMING PAINTS WITH THIXOTROPIC PROPERTIES. J. Huisz. *Plaste u. Kautschuk* 9, 311 (1962). A summary of a paper presented at the Paint Symposium, Buda-Pest, 1961. Usually a

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mation about the properties of the 31 polyhydric alcohols covered. The less specialized reader will find in the book little to interest or inform him.

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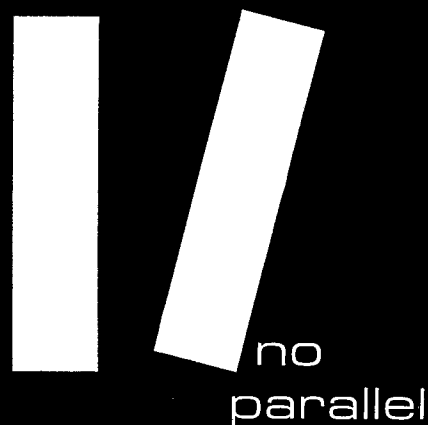
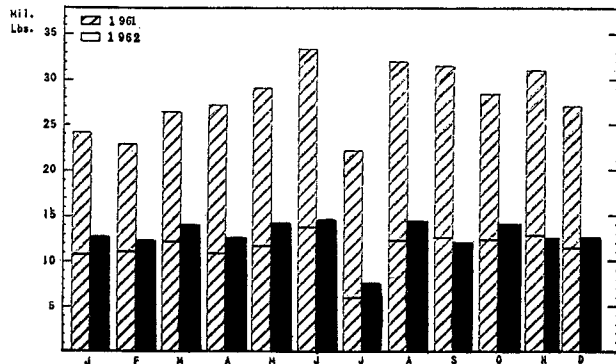
GAS CHROMATOGRAPHY, D. Ambrose and Barbara A. Ambrose (D. Van Nostrand and Co., Inc., New York, 220 pp., 1962, \$6.75). This volume is a descriptive and elementary text on gas chromatography. It is characterized by a great deal of detailed information on the construction of detectors, detection circuits, flow meters, columns and other accessories. A final, short chapter describes a few items which can be built for use in classroom or laboratory instruction in gas chromatography. In the chapter on separations and selective solubility one is left with the impression that separation of unsaturated from saturated fatty acid methyl esters either has not been attained or at best only partially realized whereas by the use of polyester partition liquids the separations are excellent and rapid. I point out this example as a small shortcoming but not one which destroys the value of the book. This text should serve as a good introduction to the field for a person just starting, using the references given to obtain further details on any particular subject, or as a general survey for someone who is interested but who will not necessarily be directly involved in gas chromatography.

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GAS CHROMATOGRAPHY ABSTRACTS 1961, ed. C. E. H. Knapman and C. G. Scott, (Butterworth Inc., Washington, D. C., 219 pp., 1962, \$8.50). This fourth volume in the series continues with the same high standards as its predecessors. In this volume there are 883 abstracts of articles, papers and items. On the basis of a very limited sampling about 20 percent of the original articles are dated 1961, slightly less than 1 percent are dated 1959 and the bulk remaining are dated 1960. A list of 188 journals regularly abstracted during 1961 is given just following the introduction. In this reviewer's opinion the coverage is complete enough that no major paper concerning the theory or application of gas chromatography should be missed. The subject index is most complete and extensive. As this series continues to grow, the next logical step is a scheme for mechanization of searches. This volume and the other members of the series are invaluable to anyone involved in the field and their acquisition is highly recommended.

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