

Book review

Liquid Crystals; edited by F.D. Saeva, Dekker, New York and Basel, 1979, x + 491 pages, Swiss Fr. 106.00.

This monograph, sub-titled "The Fourth State of Matter", consists of a series of chapters by authorities on the various aspects of liquid crystals, and is essentially an introductory text. It is not quite as up-to-date as one would hope in view of the considerable volume of work in the field in recent years, and there are very few references after 1975, probably reflecting the usual delays in producing a multi-author volume. Since (as I learned to my surprise from the editor's preface), approximately 5% of all organic compounds exhibit liquid crystalline behaviour, it is perhaps surprising that so few liquid crystalline organometallic compounds seem to be known. No mention is made in this book of the unusual liquid crystal behaviour of $i\text{-Bu}_2\text{Si}(\text{OH})_2$, which has for so long defied classification, but which now appears to fall into the discotic category. A chapter is devoted, however, to characterization of the viscous crystalline and other physical phases of poly(diethylsiloxane) (by J.M. Pochan, M.F. Froix, A.E. Goedde, C.L. Beatty and D.F. Pochan).

Other chapters are: Structure and classification of thermotropic liquid crystals (A. de Vries); Nematic mesophases (F.D. Saeva); Cholesteric mesophases (H.W. Gibson); Smectic liquid crystals (S.E.B. Petrie); Polypeptide liquid crystals (D.B. Dupre and E.T. Samulski); Cholesteric liquid crystal-induced circular dichroism (F.D. Saeva); A structural interpretation of the rheo-optic properties of the cholesteric mesophase (J.M. Pochan); Liquid crystals and biological membranes (D. Chapman); Thermodynamics of mesophase transitions (E.M. Barrall II); Infra-red and Raman spectroscopy of liquid crystals (B.J. Bulkin); Applications of liquid crystals (J.A. Castellano).

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