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Book Reviews

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Order In Thin Organic Films by R. H. Tredgold , Cambridge University Press, 1994; ISBN 0 521 39484 8; xii + 199 pages; \$49.95.

This is a good book, especially for those who intend to investigate structure in thin films. However, it suffers from a number of negatives, which are discussed below.

In chapter 2 (section 2.1), a definition of what is hexatic structure should be given. This reviewer has seen a number of contradictory definitions of that term and would like to know what the author's definition is.

Accurate thickness (section 2.2) measurements can be made by X-ray methods, either knowing the number of layers with diffraction or by X-ray reflection (Fresnel fringes).

In many cases one must point out that electron diffraction does not yield the a^*b^* net as implied in section 2.5. As a matter of fact, anytime the c axis is tilted with respect to the film normal the electron diffraction plane is not a^*b^* .

In 3.1 on equipment, teflon coated metal troughs are more useful than indicated by the author, but they must be recoated periodically.

A good laminar flow hood can be obtained that is class 100 (100 particles per cubic foot) and certainly easier to use than a glove box.

The section on troughs and pressure measurement does not consider the Lauda type pressure transducer.

In section 3.3 the perpetuation of the misuse of the term "distorted hexagonal" structure for a hydrocarbon acid monolayer is unfortunate since the hexagonal structure must be an order-disorder structure or an orthorhombic structure. If it is the former than the "distorted" structure is more ordered than its precursor. If it is the latter it should be called "distorted orthorhombic." I prefer monoclinic or triclinic as the case may be.

In section 4.1 layers, which underwent one type of deposition but rearranged to a stable structure, were discussed with the statement that the turnaround is not understood. The rearrangement at least in the case of the Y deposition of vinyl stearate to the X structure occurs on the uptrips and can be eliminated if polymerization is carried out beneath the water surface before the uptrip (Enkelmann *et al.*, *J. Polymer Science*, **15**, 1843 (1977)).

In section 5.3 it is stated that monomeric diacetylenes in LB films pack perpendicular to the substrate but after polymerization the side chains are tilted. This occurs for diacetylenes with relatively short side chains but is just the opposite for the 16-8 diacetylene acid. See Day *et al.*, *Macromolecules* **13**, 1483 (1980).

The transition from the blue to red form of a polydiacetylene is discussed but the definitive data of Day and Ringsdorf *Makromol. Chem.*, **180**, 1059 (1979) is ignored. They reported the visible spectra of the polymerizing 16-8 diacetylene acids and salts at the gas water interface at room temperature which are blue at first but convert to red,

* Unsigned book reviews are by the Book Review Editor.

indicating that the blue form is a solid solution of the polymer in the polymer structure and the red form is the polymer in the polymer structure.

In section 8.3 on lipids no mention is made of the work of Joel Schnur and coworkers on modified lipid hollow tubules containing diacetylene units. Tubules are certainly important biological assemblies. For example cholesterol hollow tubule assembly appears to be the precursor to gall stone formation.

It must be emphasized that my overall opinion of this book is highly positive. It should be useful to both students and investigators in this field.

Jerome B. Lando

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Review of Organic Materials for Non-Linear Optics III edited by G. J. Ashwell and D. Bloor, Royal Society of Chemistry Special Publication No. 137, 1993; ISBN 0-85186-625-5; xii + 361 pages; £59.50.

This book contains the proceedings of the Third International Symposium on Organic Materials for Non-linear Optics ("OMNO III") organized by the Applied Solid State Chemistry Group of the Dalton Division of the Royal Society of Chemistry and held in Oxford, U.K. August 19–21, 1992. The book consists of 51 papers, author and subject indices, and a preface by the editors. The conference was clearly international in character. In addition to numerous papers from laboratories in the U.K., papers were authored by investigators from Belgium, France, Germany, Ireland, Israel, Italy, Japan, The Netherlands, Switzerland, Syria, Ukraine, and the U.S.A. In the preface, the editors note a focusing of research activities in the area of second order materials and processes since "OMNO I" and also an increase in the study of polymer films for both second and third order processes. Topics emphasized include theory, Langmuir-Blodgett Films (10 papers with this topic in the title!), poled polymer films, conjugated molecules and polymers for third order processes, materials characterization techniques, and device fabrication. Emerging topics include molecules with octupolar symmetry for second order properties and the synthesis of chiral materials for the same purpose.

This book should prove useful to investigators in this field as well as students and others wishing to get an overview of current activities in this very active research area.