The Manipulation of Air - Sensitive Compounds. By D. F. Shriver, Northwestern University, Mc Graw-Hill Book Company, New York, 1969.

This book covers an extensive range of techniques and apparatus for working with air-sensitive and highly reactive compounds. While the monograph is aimed at the chemist starting work in this field, the chemist, who is familiar with many of the techniques described, will find much useful information. The clear presentation may inspire some teachers to include simple vacuum-line and, or, inert-atmosphere experiments in undergraduate courses where such experiments are frequently omitted.

The discussion is divided into two sections: the first deals with vacuum-line manipulations, including metal vacuum systems; the second with inert atmosphere techniques such as Schlenk tube manipulations, and glove boxes. These sections are followed by useful appendices which deal with explosion and fire hazards, the properties and handling of materials (glass, plastics, metals) used for the construction of apparatus, and the vapour pressures of pure substances. The topics covered range from the simple experimental techniques used in the preparation of Grignard reagents say, to elaborate but elegant techniques needed to handle highly reactive compounds like the boron and silicon hydrides, many organo-metallic compounds, and fluorine and its compounds. There is an emphasis on well-designed apparatus, and the importance of preliminary calculations regarding the limits of impurities (oxygen, water vapour for example) that can be tolerated is stressed. Data for these calculations are clearly tabulated. The need to consider the properties of the compounds being manipulated is also emphasized. This is particularly relevant to the design of the apparatus and the separation and characterisation of reactants and products. There are numerous references to original papers throughout the text, and general references are included also. Manufactures and firms who can supply suitable apparatus are mentioned frequently, although these inevitably reflect the author's preferences.

The author has succeeded is providing a clearly-written and informative monograph which can be recommended to anyone contemplating work, or already working, in this field.

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Reactions of Transition Metal Complexes. By J. P. Candlin, K. A. Taylor and D. T. Thompson. Elsevier, Amsterdam, 1968 XVI + 493.

A considerable proportion of contemporary research in inorganic chemistry is devoted to the study of the reactions between various organic molecules and transition metal atoms. The subject is of interest not only on account of the properties of the resulting complexes, but also because coordination of an organic molecule to a metal atom can provide a means of promoting the syntheses of new organic molecules. The book under discussion sets out to assess and systematise the current state of knowledge in this field by reviewing the literature under three basic headings; (i) Types of Reaction of Transition Metal Compounds (214 p); (ii) Reactivity of Classes of Reagents with Transition-Metal Compounds (203 p) and (iii) Preparation of New Organic Systems (20 p). The surveys are well done, systematic and amplified by some 2600 literature references. Although one might regret that the authors did not see fit to provide a detailed survey of the very important process of Ziegler-Natta catalysis, on the whole the book is well balanced and comprehensive. A reaction as well as a subject index is provided. The authors are to be congratulated on their finished product.

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