

Preface

The use of adhesives is widespread and growing, and there are few modern artefacts, from the simple cereal box to the magnificent Boeing 747, that are without this means of joining. This book sets out to explain the principles which underlie adhesive bonding, and other adhesion technologies such as sealing, printing and painting.

In about 25 years of researching adhesion, I have had to bear it in mind that engineers might need to understand my writings. I like engineers and have a high regard for the intellectual weight of their subject, but here I write unashamedly for chemists.

The structure of this book is that some basic polymer chemistry and theories of adhesion are dealt with in Chapter 1, and Chapter 2 basically describes the technology of surface treatment. The next four chapters describe the chemistry of adhesives and adhesion promoters, followed by a chapter on the rapidly developing field of surface analysis. Physical chemistry comes to the fore in Chapter 8 with surface thermodynamics. Engineering principles appear in Chapter 9, showing how the success or failure of adhesives chemistry can be assessed by measuring joint strengths. The major limitation on the use of adhesives in engineering structures is water, which is the main concern in Chapter 10.

As is appropriate for an introductory book, it is not fully referenced but has a recommended reading list. One disadvantage of this is that authors, many of whom are my friends and colleagues, are not directly acknowledged. However, any reader wishing to enquire further via the bibliography will soon find references to the original papers.

No scientific book is ever written without the help of others, and in this respect I thank Dr. D. M. Brewis of Loughborough University and Mr. T. P. A. Comyn of Leeds University for reading and commenting on the manuscript. I am most grateful to CSMA Ltd. for providing the XPS spectra of brass and glass in Chapter 7.

Adhesion is no different from other areas of science in that the ultimate aim is to formulate laws. So far we have written the 1st law of adhesive bonding, which states that '*If all else fails use bloody great nails*'.

John Comyn