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A Review of: “Adhesion and the Formulation of Adhesives, 2nd edition, by William C. Wake, Applied Science Publishers, London and New York, 1982, 332 pp. \$49.25”

George F. Hardy^a

^a 178 Central Avenue, Madison, NJ

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Book Review

ADHESION AND THE FORMULATION OF ADHESIVES, 2nd edition, by William C. Wake, Applied Science Publishers, London and New York, 1982, 332 pp. \$49.25

“An attempt is made in this book to outline the more important things we know about why it is possible to stick things together with or without an adhesive, and if an adhesive is to be used, why one rather than another is appropriate.” In these words, the author has admirably summarized both the content and style of the present volume. It is intended primarily for scientists and engineers who are beginning to work with adhesion and desire a well-rounded survey of the subject.

This second edition has been extensively revised to reflect advances in the field since the first edition appeared in 1976. It retains the broad coverage of the first edition and its emphasis on the relation between theory and practice.

The book consists of two sections, roughly equal in length. The first, devoted to the theoretical foundations, contains eight chapters, beginning with the nature of the interactions between bodies, surface free energy and its implications and theories of adhesive action, then moving on to stress distributions in joints, applications of fracture mechanics, and concluding with a discussion of environmental effects on adhesive bonds. Russian work, such as the diffusion theory of Voyutskii, is thoroughly and fairly described.

The second section consists of seven chapters, dealing in turn with materials used in adhesive formulations, structural adhesives, sealants, natural adhesives, hot melt adhesives and adhesion in textiles. Typical formulations are often discussed for illustrative purposes, but as the author takes care to point out, the book is not, and was not intended to be, a formulary or handbook of adhesives.

While all the important topics are included, no effort is made to cover every aspect in detail. Representative theoretical and practical studies are presented in a rather thorough manner, with careful attention to the physical significance of the results.

The volume offers the reader an opportunity to share the experience of one of the more eminent practitioners of adhesion science. From this standpoint even those who are skilled in the field will find much that is of value.

Having said this, one must also record a few criticisms. The discussions of some topics tend to be poorly organized, and in the theoretical sections the mathematical results are sometimes quoted in detail when a statement of the basic assumptions and important results would have sufficed. In most cases, the actual formulae would be better left for the reader to obtain from the original sources, which one would need to consult in any case.

Some points which, it is hoped, will be improved in subsequent editions include: the confusing discussion of the energy level diagram of two bodies in contact (p. 18), introduction of the symbols P_c and P_s with no explanation of their meaning (p. 141), an apparently missing line of text (pp. 108–109), and a mention of a paper by Allman which cannot be found in the bibliography (p. 128).

These criticisms aside, the book can be recommended for its well balanced coverage of the field, its clear and illuminating discussions of crucial topics, and the many insights and practical examples the author has supplied from his extensive experience.

GEORGE F. HARDY

178 Central Avenue

Madison, NJ 07940