

Handbook of Adhesion Technology

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Adhesives have been used for thousands of years, but until 100 years ago, the vast majority was from natural products such as bones, skins, fish, milk, and plants. Since about 1900, adhesives based on synthetic polymers have been introduced, and today, there are many industrial uses of adhesives and sealants. It is difficult to imagine a product?in the home, in industry, in transportation, or anywhere else for that matter?that does not use adhesives or sealants in some manner.

The Handbook of Adhesion Technology is intended to be the definitive reference in the field of adhesion. Essential information is provided for all those concerned with the adhesion phenomenon. Adhesion is a phenomenon of interest in diverse scientific disciplines and of importance in a wide range of technologies. Therefore, this handbook includes the background science (physics, chemistry and materials science), engineering aspects of adhesion and industry specific applications. It is arranged in a user-friendly format with ten main sections: theory of adhesion, surface treatments, adhesive and sealant materials, testing of adhesive properties, joint design, durability, manufacture, quality control, applications and emerging areas. Each section contains about five chapters written by internationally renowned authors who are authorities in their fields.

This book is intended to be a reference for people needing a quick, but authoritative, description of topics in the field of adhesion and the practical use of adhesives and sealants. Scientists and engineers of many different backgrounds who need to have an understanding of various aspects of adhesion technology will find it highly valuable. These will include those working in research or design, as well as others involved with marketing services. Graduate students in materials, processes and manufacturing will also want to consult it.





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Handbook of Adhesion Technology From Springer Bibliography

Sales Rank: #2674618 in BooksPublished on: 2011-06-09Original language: English

• Number of items: 2

• Dimensions: 9.20" h x 3.80" w x 6.40" l, 5.70 pounds

• Binding: Hardcover

• 1554 pages





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Editorial Review

About the Author

About the Editors:

ANDREAS OECHSNER, born 1970, is Full Professor at the Faculty of Mechanical Engineering, Technical University of Malaysia. He graduated 1997 at the Stuttgart University in Aviation and Aerospace Engineering and finished his PhD-studies in 2003 at the Erlangen University. Between 2003 and 2007, Andreas Oechnser was Assistant Professor and Head of Cellular Metals Group (Centre for Mechanical Technology and Automation) at the University of Aveiro, Portugal.

He is member of the editorial boards of the "International Journal of Molecular Engineering", "International Journal of Multiphysics" and the "International Journal of Nano and Biomaterials"

Awards

- Book-Award from the Chemical Industry Fund in Frankfurt, Germany, 1987
- -Award for best High School Graduation, Germany, 1990
- State Parliament's Award, Germany, 1993

LUCAS FILIPE MARTINS DA SILVA is currently Assistant Professor at the Faculty of Engineering of the University of Porto. He received a PhD related to adhesive bonding in 2004 from the University of Bristol under the supervision of Prof RD Adams. Since then, he has been teaching and investigating structural adhesive joints. The work covers a wide range of engineering structural adhesives such as epoxies, acrylics and bismaleimides. Several test methods for adhesive joints are available at the FEUP including various joint configurations such as bulk specimens, lap shear joints and butt joints. In addition to the experimental expertise, detailed analytical models and finite element analysis of stresses and strains within the joints are also undertaken.

In 2005 he joined the editorial board of the "International Journal of Adhesion and Adhesives"

ROBERT DAVID ADAMS, born 1940 is Emeritus Professor of Applied Mechanics, Department of Mechanical Engineering at University of Bristol. 1967 Professor Adams became Lecturer, Reader 1975, Professor 1986. From 1994 to 1998 he headed the Department. 1998 he became Graduate Dean of the Faculty of Engineering, University of Bristol and kept this position until 2004.

He is active member in the Institution of Mechanical Engineers, Institute of Materials

Institute of Physics, British Standards Institute and the Engineering Science Data Unit.

Professor Adams is Joint Editor-in-Chief of the "International Journal of Adhesion and Adhesives" and member of the Editorial board of: Journal of Adhesion, Nondestructive Testing and Evaluation International, Series A: Japan Society of Mechanical Engineers International Journal. Journal of Materials: Design & Applications, Proc. IMechE Part L.

Degrees and awards:

State Scholarship, 1958 Clothworkers' Scholarship (awarded to the student who stands highest in the Imperial College Entrance Scholarship Examination), 1959

BSc (Eng), First Class Honours, Imperial College, University of London, 1962

PhD, University of Cambridge, St John's College, 1967

DSc (Eng), University of London, 1986

Visiting Foreign Francqui Chair and Medal at the Free University of Brussels (VUB), 1991

Honorary Professorship of the Huazhong (Wuhan) University of Science & Technology (PRC), 1995.

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