



# Wood Coatings



## Theory and Practice

**Franco Bulian**  
**Jon A. Graystone**

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# WOOD COATINGS: THEORY AND PRACTICE

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## PREFACE

This book addresses the factors responsible for the appearance and performance of wood coatings in both domestic and industrial situations. The term 'wood coatings' covers a broad range of products including stains, clearcoats, topcoats and supporting ancillary products that may be used indoors or outdoors. Major market sectors for wood coatings include furniture, joinery and flooring.

Techniques for coating wood go back many centuries but in recent decades there has been a move towards more environmental-friendly materials, for example, the use of water-borne rather than solvent-borne binders. Alongside this has been a growing awareness of 'sustainability' to moderate the environmental impacts of economic growth. As a renewable resource, wood has a special attraction as a material substrate which should be complemented by any necessary coatings.

A major objective of 'wood coatings' is to explain the underlying factors that influence selection and development of coatings within the constraints of the major wood market sectors. This requires integrating the appearance and performance needs within an operational framework. Basic information on the chemistry and technology of coatings is included for the benefit of students and laboratory technicians. Additionally, the book includes individual chapters of interest to architects, specifiers and industrial users.

Jon Graystone is a Principal Research Scientist at PRA (part of PERA Innovation) with 50 years experience in the Coatings Industry including 37 years with ICI Paints (now Akzo Nobel). He has broad experience in Research and Development. His current interests include service life prediction and formulation techniques. He is involved with many of PRA's technical training courses including Paint Technology and Formulation. He has been an active member of TC139/WG2 (Exterior Wood Coatings) since the inception of the committee in 1989 (email: jon@graystone.demon.co.uk).

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# CHAPTER 1

## Markets for Wood and Wood Coatings

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### 1. PROLOGUE

The total global coatings market volume is estimated at 26.5 billion litres worth in the region of 55 billion Euro [1] with many different types of product. Why does a user choose a particular type of coating system? There are many answers to this question including economic, environmental and operational ones. However, an important overarching factor is the nature of the *substrate* to be coated. Coatings for metal, masonry and plastic would be expected to have some very different requirements, but also perhaps some properties in common. *Wood*, and its derived products, represents another distinct substrate category with many properties that will influence the ideal choice of coating. Wood differs from the other generic substrate categories, in that it is derived from a living organism,