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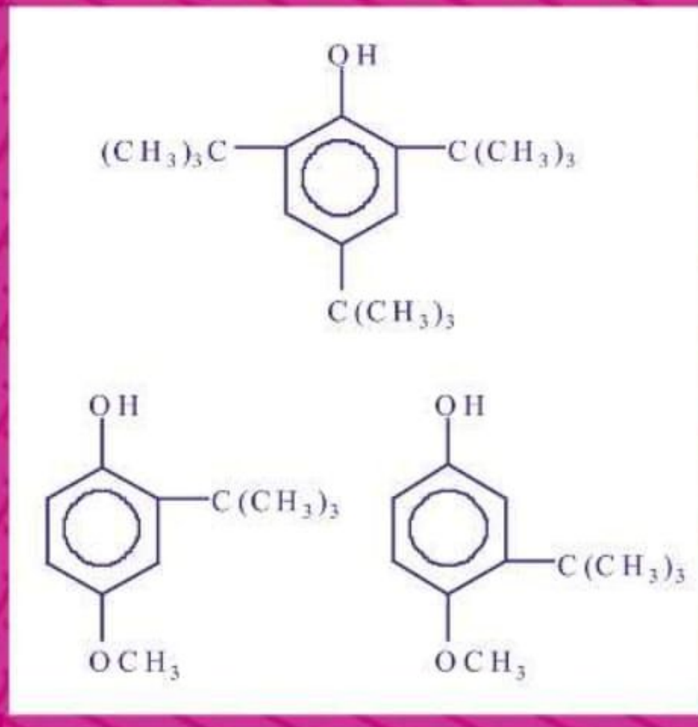

Chemical testing of textiles

Edited by Qinguo Fan

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Chemical testing of textiles

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Preface

It has long been my desire to contribute to a textbook that is solely devoted to the chemical analysis of textiles. Thus, when Woodhead Publishing contacted me about editing this book, I enthusiastically accepted the offer. Now, with the hard work of a team of contributors who are professors, material researchers and textile analysts from Canada, Britain, Germany and the United States of America, and the great assistance offered by the staff at Woodhead Publishing, this book has become a reality.

The book was initially intended to be read by students in the textile chemistry field who are supposed to have taken organic chemistry. As realized later, this book may also serve as a guide for textile professionals working in laboratories for chemicals testing. Some of these textile professionals may or may not be trained in this specialized area of chemistry, or, if they were trained, they may have been working outside the chemistry specialism for a long time. Therefore, the heavy chemistry content has been reduced and more fundamental chemical concepts and rudimentary procedures have been introduced. It has not been easy to balance the theoretical and practical parts of the content. As it is, this book seems more inclined to the practical with many basic aspects pertaining to the chemical analysis of textiles. Readers who have an avid chemistry mindset or who want to know all the detailed procedures, experimental set-up and data analysis could find the references at the end of every chapter more useful with regard to each individual test introduced in the chapter. In most cases, the chemical analysis is done with a test method regulated and updated by a professional organization, like the American Association of Textile Chemist and Colorists (AATCC), the Society of Dyers and Colourists (SDC), the American Society for Testing and Materials (ASTM) and the International Organization for Standardization (ISO). Some test methods may be adopted by a few organizations.

It should, however, be noted that a particular chemical property of materials can be tested in different ways. The test method introduced in this book may not necessarily be the most suitable one for the job. Sometimes, a new test method may have to be developed or established for new materials coming to the market. For example, nanotechnology can now be employed to process textiles. The claimed

advantages could be novel properties, combined properties by a simple operation or smart properties (intelligent responsive properties). The challenge is how to evaluate the performances and properties associated with nanotechnology. At present, no easily accessible means is available to determine simply whether or not the 'nano' textiles are processed using nanotechnology or if they possess nano-materials. Of course, the traditional properties of 'nano' textiles can still be tested by the currently available methods, but we want to know something about the 'nano' properties in this case. Therefore, test methods must, of necessity, be updated and developed to reflect the trend of new materials. Users of the test methods should be aware of the latest developments and keep using appropriate and updated test methods.

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