

BOOKS

DRYING WOOD WITH HIGH FREQUENCY ELECTRIC CURRENT, by H. Resch. 2009. University of Natural Resources and Applied Life Sciences, Vienna, Austria. Order from: Society of Wood Science and Technology, Madison, WI. 84 pp. ISBN 978-0-9817876-1-9. USD: 30.

This book addresses the application of dielectric heating of wood with the purpose of removing the naturally existing water (drying) in a way that is fundamentally different from the commonly used kiln-drying processes. The book attempts to close a gap between old literature and a considerable amount of published research material in this area over the last 40 yr. It can be used as a significant reference source by researchers and teachers of wood drying.

The book is comprised of five main chapters that cover both the fundamentals and applications of high-frequency heating. Chapter 1 introduces the basics of wood drying, the thermophysical phenomena of water desorption, and a general description of dielectric drying. Chapter 2 gives a very comprehensive description of the electrical background one needs to understand the process of high-frequency heating. This includes the basics of electricity, dielectric fields, dielectric properties of wood, and volumetric heating. The level of information and depth of treatment is purposely kept at a proper level so that readers without or very little relevant background can easily understand the physics fundamentals.

Chapters 3 and 4 then describe research efforts in applied research and development that took place in paper and wood heating and drying in various parts of the world. A considerable amount of space is dedicated to the significant amount of work done in the US in the 1970s but mostly in British Columbia, Canada, in the 1990s and early 2000s. There are also references to works in Japan and Europe. Chapter 4 goes a step further describing some combination (hybrid) systems. Finally, Chapter 5 discusses the types of generators used, touches some aspects related to the energy consumption issues, and costs of such drying. The book provides a complete list of relevant references up to 2008.

Tables, equations, schematics, and pictures are of good quality, easy to understand, well described, and nicely support the text and provide the reader with the necessary information and background.

Overall the book is well written and organized; the level of needed background to understand the process is proper for keeping the reader interested, but not superficial, thus making it a good scientific reference book. This book is recommended to anyone doing or planning to do research in dielectric heating and drying of wood. Teachers of industrial wood drying need to incorporate parts of knowledge this book provides in their course curricula.