Preface

Wood modification (chemical, thermal, impregnation) represents an assortment of innovative processes currently being adopted in the wood protection sector. It has gained commercial interest as a result of the wood protection sector undergoing several changes in recent years, such as:

- Restriction of conventional biocidial products used for wood preservation;
- Demand for more environmentally benign treatments;
- Greater use of locally sourced timber species with known limited durability;
- Increasingly demanding design criteria and customer requirements.

Though many aspects of these wood modification treatments are known, the fundamental influence of the process on product performance, the environment, and end of life scenarios remain relatively unknown. It is essential to integrate interactive assessment of process parameters, developed product properties, and environmental impacts. To optimise modification processing to minimise environmental impacts, much more information must be gathered about all process related factors affecting the environment (VOC, energy use, end of life use, etc.). To this end, COST Action FP1407 (Understanding wood modification through an integrated scientific and environmental impact approach - ModWoodLife) was initiated in 2015, with its 4-year programme aiming to investigate modification processing and products design with emphasis on their environmental impacts. This will require analysis of the whole value chain, from forest through processing, installation, in service, end of life, second/third life (cascading) and ultimately incineration with energy recovery. Over the four years of COST Action FP1407, the Action brought together more than 317 researchers and industry members from across Europe and beyond. Network participants participated in many activities organised or supported by the COST Action. COST FP1407 has been the latest in a series of Europe-wide Actions focussing on varying aspects of wood modification. These Actions have included:

- 508: Wood Mechanics (1990-1994)
- E2: Wood Durability (1994-1998)
- E8: Mechanical Performance of Wood and Wood Products (1996-2000)
- E22: Environmental Optimisation of Wood Protection (1999-2003)
- E37: Sustainability Through New Technologies for Enhanced Wood Durability (2004-2008)
- FP0904: Thermo-Hydro-Mechanical Wood Behaviour and Processing (2010-2014)
- FP1303: Performance of Bio-Based Building Materials (2013-2017).

A recent task within COST FP1407 was to re-evaluate the current status of wood modification across the member countries, tasks previously undertaken within COST Actions E22 and E37 respectively and reported in several papers within several of the previous European Conferences on Wood Modification (ECWM). Whilst the early projected advances anticipated for various types of modified wood has not been as previously reported. During a COST FP1407 meeting in Florence, Italy, the national status of wood modifications in 18 different European countries was presented, and the findings will be presented herein. However, given there were 29 EU members within COST FP1407, considerably more information could be gathered in terms of national activities and production levels, so providing a truer overview of the commercial progress of wood modification. These findings are reported herein. COST FP1407 over its four years contributed to the development and expansion of the use of emerging environmental-friendly processes of wood modification, the use of materials produced by these processes, and the environmental impact. COST Action members continue to develop new ideas, uses and documentation supporting the correct use of modified wood. Most importantly, members of COST Action FP1407 have developed strong and lasting relationships and networks that have and will continue to allow for successful collaboration and scientific innovation in the greater field of wood modification and environmental impacts. Many members of the COST Action are involved in scientific endeavours that will continue and would not be possible without the support and framework of the COST programme.

These results were only possible through the continued collaborative activities of the Action partners from participating countries, for which the Action Chair, Vice-Chair and authors of this book are extremely grateful.

Andreja Kutnar – Chair FP1407

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