

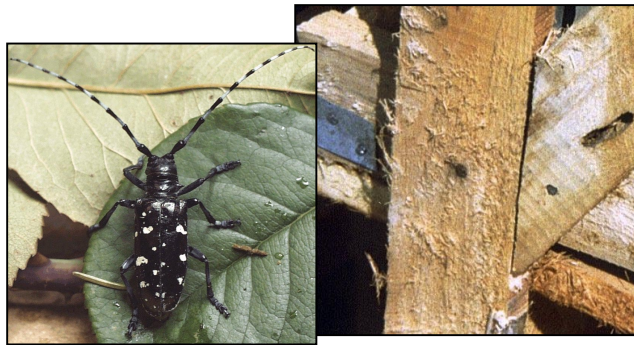
# TimberTherm™

- a new tool to optimise the heat treatment of timber

## Meeting International Pest Control Regulations

Large quantities of wood packaging are transported internationally each year. All countries need reliable, safe ways to certify that their timber exports are free of unwanted pest migrants.

International Standard on Phytosanitary Measures (ISPM) 15 specifies that all packaging timber must be heat treated to a core temperature of 56 °C for at least 30 minutes. Regulators and heating chamber operators need easy-to-use tools to ensure that this is achieved effectively, without wasting energy by overtreating the timber



## Introducing TimberTherm™

TimberTherm™ is a new software program that accurately predicts the treatment time required, using reliable and easily available data:

Chamber Temperature	Chamber Temperature	Confined
Time	hours mins Temp (C)	hours mins Temp (C)
0	00 25.3	4 30 67.2
0	05 25.3	2 20 56.6
0	06 25.3	2 45 59.9
0	10 25.3	3 00 62.4
0	05 43.5	3 25 64.8
1	30 43.9	3 00 67.2

- timber dimensions
- tree species
- moisture categories
- chamber wet or dry bulb temperatures
- embedded data: density from reference sources and diffusivity from testing

It enables confident prediction, without the use of expensive and often unreliable core temperature probes.

## Benefits Regulators and heating chamber owners gain:

- Increased confidence in treatment efficacy
- Savings of up to 25% on energy costs
- Savings of up to 15% on throughput time
- Easier certification
- Software that caters for different timber species, moisture contents, seasonal ambient conditions and kiln loading factors.

**Forest  
Research,  
UK**

## A collaboration between leading experts

Forest Research is a world leader in the field of tree and timber pest and disease management. It has particular expertise in Pest Risk Assessment and in development of monitoring and management solutions for quarantine organisms. It coordinates IUFRO Unit 7.03.12 'Alien Invasive Species and International Trade' and co-chairs the International Forestry Quarantine Research Group as well as being a member of the EPPO Panel on Quarantine Pests of Forestry.



**BHR Group  
Limited, UK**

The BHR Group is expert in fluid engineering and offers research and consultancy services to many large industrial corporations, world-wide. It has over 50 years of world-leading experience in modelling and measuring fluid flow – both liquid and gas – through a wide variety of materials and under a wide range of conditions. Its well-established diffusion and heat transfer model forms the basis of the software.

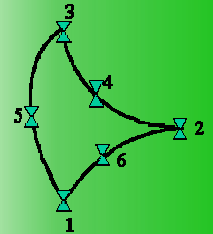


**Science in  
Action**

## User-friendly Software

The easy-to-use software is founded on well-tested science:

- 2-dimensional time-dependent thermal model based on Fick's 2<sup>nd</sup> law of diffusion
- Novel six-noded quadratic triangular elements
- Predicts 1-dimensional or 2 dimensional heat penetration from the outside to the centre of the wood



**Proven  
Technology**

- The industrially-proven models are encapsulated in BHR Group's ELASTEQ program, developed at a cost of £1.5M over 10 years
- Application to timber has been verified by controlled experiments under a wide range of conditions
- *TimberTherm*<sup>TM</sup> has been extensively tested by operators in real industrial conditions



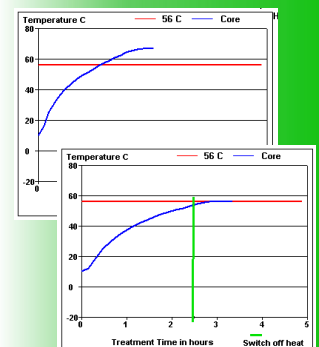
**Register now**

## To find out more

Register now for a beta version of the software. We are looking for a limited number of regulators and heating chamber operators to fine-tune the software development.

*TimberTherm*<sup>TM</sup> will be launched commercially following:

- Beta testing of the software
- Final verification in commercial situations.



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**Forest Research**