

Humidity controlled heat treatment: a new pest treatment option at the British Museum.


Fabiana Portoni, Preventive Conservator
Nicola Crompton, Conservator: Storage
Coordinator
Adrian Doyle, IPM Manager



Current Pest Mitigation Options

Pest treatment	Average time	Availability at the museum
Low temperature treatment	1 week	Currently available
Low oxygen treatment (anoxia/hypoxia)	4 weeks	Currently not available
Humidity controlled heat treatment	24 hours	Currently available
Pest Monitoring method	Average time	Availability at the museum
Isolation (Quarantine)	Up to 12 months	Currently available

Not a pest treatment, does not eradicate pests!



Background

- Thermo Lignum® warm air method
- Integrated Contamination Management (ICM®) warm air treatment

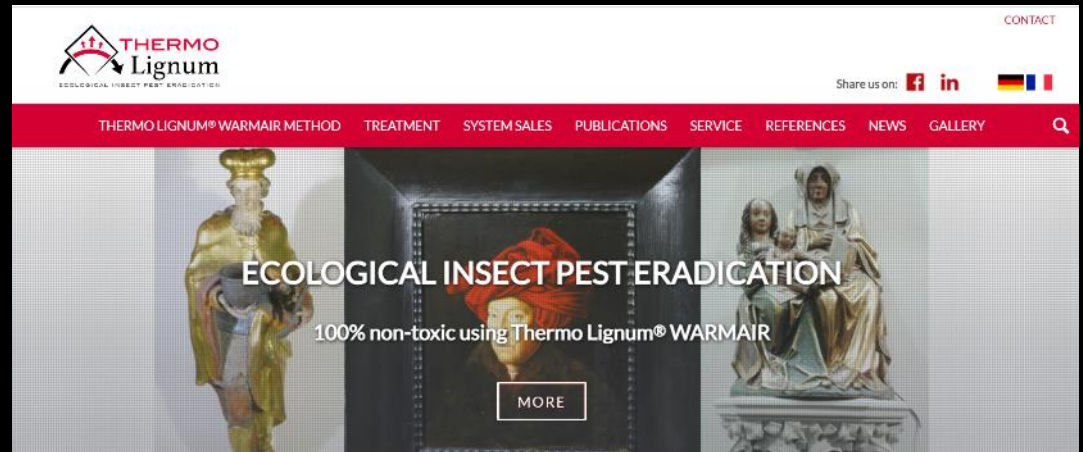


Image from Thermo Lignum® website <https://www.thermolignum.com/>

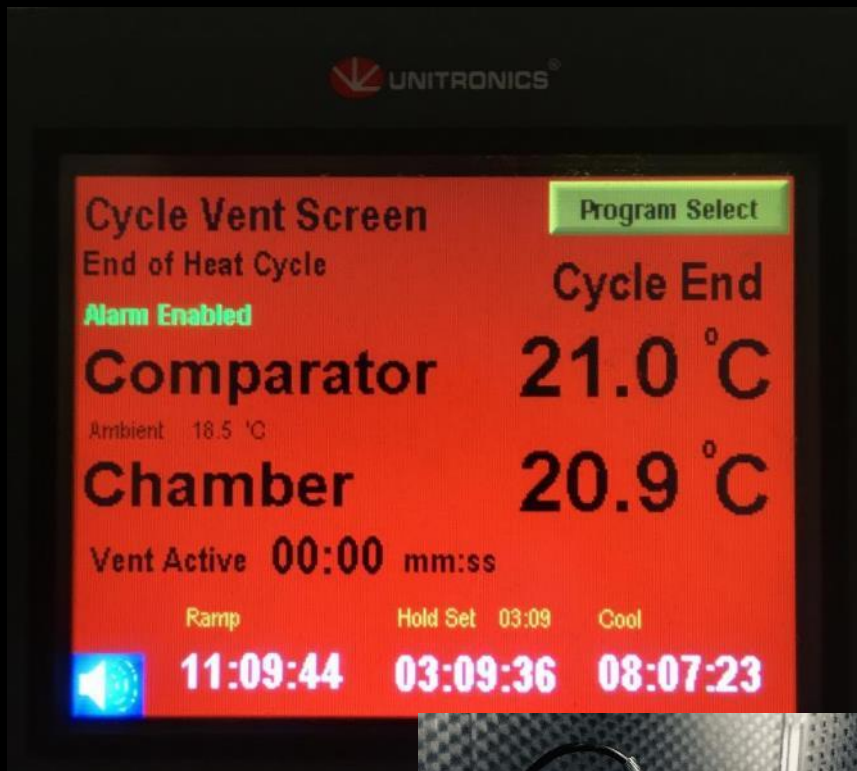


Image from Integrated Pest Management to Integrated Contamination Management (ICM®) website <https://www.icm.works/en/>

Moisture controlled heat treatment

- Exposure at 55°C for 90 minutes will eradicate all stages of the insect life cycle.
- Relative Humidity can be controlled to a set range.



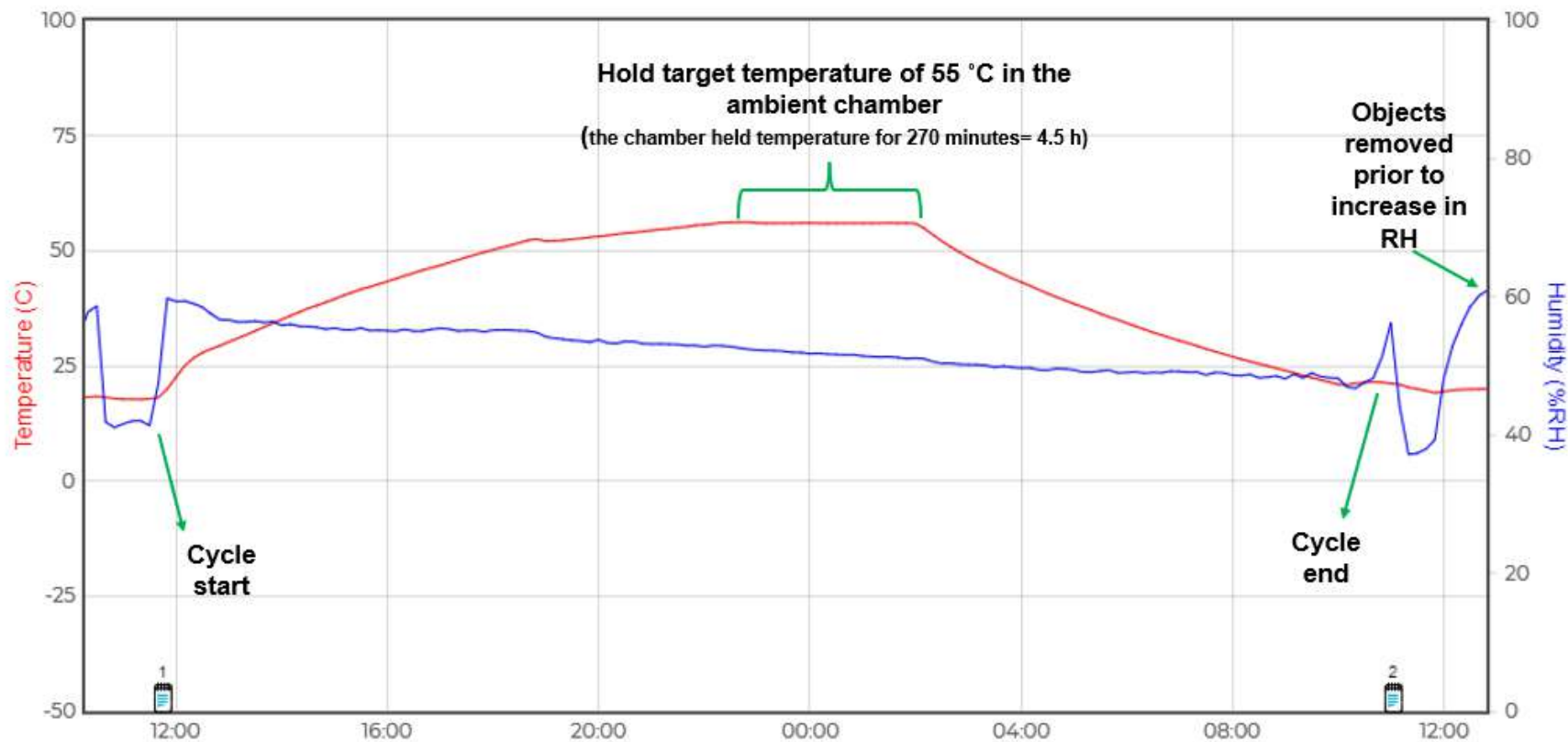


Moisture controlled heat treatment cycle



Comparator
probe

WCEC Level 0 PTF Thermal Chamber RH/T (ID Number = 115, Serial No = 0414-00219)



■ WCEC Level 0 PTF Thermal Chamber RH/T, Temperature (C): 35.7, Date Time = Wed, 24 Nov 2021 05:39:50
■ WCEC Level 0 PTF Thermal Chamber RH/T, Humidity (%RH): 49.4, Date Time = Wed, 24 Nov 2021 05:39:50

- Show **High High** And **Low Low** Thresholds
- Show **High** And **Low** Thresholds
- Fill Thresholds

What is suitable to be treated with heat treatment?

Most materials that are suitable to be frozen. Has been successfully used on:

- Paintings
- Ivory
- Bone inlay (without adhesive)
- Contemporary pieces
- Waterlogged wood



Image ©The Trustees of the British Museum

Kaizawa Toru sculpture- made from waterlogged wood, Japanese Gallery

Humidity controlled heat treatment tests

The British
Museum



Images ©The Trustees of the British Museum

Handling collection objects

The British
Museum

Humidity controlled heat treatment pilot cycles



Images ©The Trustees of the British Museum

Treatment of materials as part of a collection move project



Object Layout

The British
Museum



Images ©The Trustees of the British Museum

Acknowledgements

WCEC Move Team past and present

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Thank you!

