Forestry Commission

FORESTRY COMMISSION PLANT HEALTH SERVICE – INFORMATION NOTE

VERIFICATION OF HEAT TREATMENT FACILITIES AND AUTHORISATION OF THE USE OF THE HT AND DB-HT MARKS TO COMPLY WITH THE INTERNATIONAL STANDARDS FOR PHYTOSANITARY MEASURES ISPM 15[1].

KILN-DRYING

It is recognised that the marking of wood packaging material with the initials '**KD**' (Kiln dried), which signifies that timber has a moisture content of less than 20% achieved under an appropriate time and temperature regime, is required for commercial reasons eg in the food industry and is also required as a landing requirement under Plant Health legislation for certain categories of sawn wood. However, if the process of kiln drying timber does not involve the core temperature of the wood reaching a minimum of 56^{o}C for 30 minutes, then the process will not be approved as meeting the requirements of the International Standards for Phytosanitary Measures – Guidelines for Regulating Wood Packaging Material in International Trade – ISPM 15. This is because the heat treatment process is aimed at eliminating a wider range of quarantine pests and diseases than are dealt with by kiln drying, which does not stipulate any minimum temperature requirements.

'HT' VERIFICATION PROCESS

Verification is a relatively straightforward process and requires the checking of the wood core temperature at various points throughout the charge ie timber stack during a normal run ie involving the usual quantities of pallets or sawn timber. The test will need to be replicated - once should be sufficient unless the results are significantly different from the first run to raise questions - and repeated for different dimensions of wood to be treated. Separate verification tests are required to be performed for each chamber on site, which will be used to heat treat sawn timber and/or wood packaging material.

NB: As most de-humidification kilns run at temperatures between 45-55^{o}C, due to the limitations of the refrigerant gases, they are unlikely to be able to generate the conditions necessary to achieve HT status.

AUTHORITY TO USE THE 'HT' MARK

For the purposes of authorising the use of the **'HT'** (heat treated) mark on wood or wood packaging, it is necessary to carry out time and temperature tests to ensure that the prescribed specification is achieved during normal heat treatment or kiln-drying cycles. Use of the mark is an attestation that each component covered by the mark has been treated in a process whereby the core of the wood has been heated to a minimum of 56^{o}C for at least 30 minutes. This time/temperature prescription provides an assurance that the wood will be free from pests of quarantine importance as soon as the treatment has been successfully carried out and is unlikely to be re-infested during downstream usage. Authorisation to use the HT mark can only be given by the National Plant Protection Organisation (NPPO) and provides an official assurance that the prescribed phytosanitary (plant health) requirements relating to heat treatment have been met.

HARDWOODS AND SOFTWOODS

It is not necessary to carry out separate tests for different genera or species of softwood (coniferous), or

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1 "Guidelines for Regulating Wood Packaging Material Used in International Trade" – ISPM 15. Published by the Food and Agriculture Organization, Rome, 2002. Can be viewed on the FAO website at www.fao.org/ag/agp/agpp/pq/en/publ/ispm/ispms.htm

different genera or species of hardwood (non-coniferous). However, if both softwoods and hardwoods are to be heat treated using the same chamber, then separate tests will need to be carried out on each in order to ascertain which has the slowest heat penetration to the wood core. This will determine the minimum conditions to be employed for mixed hardwood and softwood batches.

NB: for this purpose wood of Poplar (*Populus* spp.) shall be regarded as a softwood

TEMPERATURE PROBES

Probes shall be located at various points throughout the timber stack (charge) recording temperatures at the corners and the centre of the charge. There shall be an absolute minimum of 13 probes in the charge (see attached diagram at Appendix 1). Responsibility for supplying the temperature recording and monitoring equipment will rest with the company being assessed.

Temperature probes shall be inserted into holes drilled into the centre of the wood (i.e. the centre of the wood as measured by the shortest distance from the outside). Each hole shall be backfilled with a heat resistant substance to avoid contamination of the wood core temperature readings by ambient air temperature. The holes should be no larger than is necessary to accommodate the diameter of the probe. Dry and wet bulb readings must also be recorded for comparison with the core temperature readings. In this way, a clear idea of temperature accumulation in the air space of the chamber and also within the wood itself can be built up. Heat accumulation will depend on the ambient air temperatures (summer/winter), the thickness of the wood, its relative humidity and the temperature and humidity of the chamber itself etc. For a given chamber temperature, the higher the relative humidity the faster the heat penetration to the core of the wood. The results shall be monitored until the last (coolest) piece of wood reaches 56^{o}C at the core and maintains at least this temperature for 30 minutes. The essence of HT is that the wood is heated as quickly as possible and that it does not undergo any significant drying, which could lead to distortion or cracking. In order to achieve these conditions the wet bulb depression (i.e. the temperature difference from the dry bulb) should not exceed 5^{o}C.

Where different dimensions of wood are to be heat treated in the same run, including those circumstances where made-up wood packaging (eg pallets, cases etc) are to be treated, the probes shall be inserted in the largest dimension components (width x depth) following the same general pattern as set out in Appendix 1.

Once the variability in heat build-up has been determined (which will be relatively specific to the chamber and will give a good indicator of chamber performance) then probes used in the replication run should be concentrated on the coolest spots as determined in the first run. For verification purposes, the results from the probes in the replication run only should be used.

CONFIRMATION OF AUTHORITY TO USE THE HT MARK

At the conclusion of the tests the inspector shall satisfy himself from observations of the test methodology and test equipment used, the records of the trials that all dimensions of wood tested and, where appropriate, kinds of wood (softwood or hardwood), have reached a minimum core temperature of 56^{o}C for at least 30 minutes. Additionally where appropriate the applicant must be able to satisfy the inspector beyond all reasonable doubt that authority to use a specific mark can be given. Once satisfied the inspector must confirm in writing that authority to use the HT mark is approved for material heat-treated in accordance with the process used (i.e. chamber, maximum wood thickness, dry/wet bulb temperatures/treatment time etc). Where appropriate, the approval must be qualified to exclude authority to use the mark on any thicker dimensions or kinds of wood where there is no evidence that the prescribed requirements have been met during the trial. For example, where the trials have been carried out exclusively using softwoods, the authorisation must make it clear that it does not include hardwoods.

SUSPENSION OR WITHDRAWAL OF AUTHORITY TO USE THE HT MARK

Application To Use UK Wood Packaging Material Marking Programme HT Mark - Post the adoption of the International Standards by the FAO in April this year this programme was closed to applicants seeking to join it with the intention of gaining approval to use the HT mark. The programme will remain open however to those companies wishing gain approval to use the CPI treatment and Basic

Phytosanitary marks. For those companies accepted into the programme prior to 5th April 2002, who applied to use the HT mark, and are found not to be able to meet the specification outlined in this Information Note then the actions set out on page 5 of our Leaflet No. 12 regards 'Negative Assessment Results' and 'Qualified Approval' will apply in the event that HT assessments are not satisfactory.

Application (Post 5th April 2002) To Use International Standards HT Mark and Debug Symbol - In the event that the HT assessment is not wholly satisfactory, the company must address the shortcomings and re-apply before authority to use the HT mark, International 'debug' symbol and FC logo is granted and a unique registration number and certificate is issued.

VERIFICATION OF PURCHASED HEAT TREATED TIMBER

This Information Note solely deals with the process involved in the verification of heat treatment facilities operated by companies applying for approval to use the IPSM 15 'HT' mark. If a company wishes to receive approval to use the HT mark on wood packaging articles made from heat treated timber which has either been purchased in this country or from abroad then reference should be made to our separate Information Note which covers the documentary evidence checking process.

DEBARKING

Where the applicant wishes to use the additional mark "DB", together with the HT mark, documentary evidence (i.e. industry, mill, phytosanitary certificates) will have to be provided to show that the wood supplied has been debarked as well as heat treated. Alternatively, the manufacturer will need to be able to demonstrate that an appropriate inspection system is in place to inspect all wood before it is utilised and that measures are in place to either remove all pieces with bark, or otherwise remove the bark.

NB: Strictly speaking, to meet the requirement of ISPM15 and qualify for the use of the DB mark, wood has to be produced from debarked logs. However, as the same outcome is achieved where residual bark is removed after the sawing process and before the wood packaging material is marked, this will be accepted.

FURTHER INFORMATION

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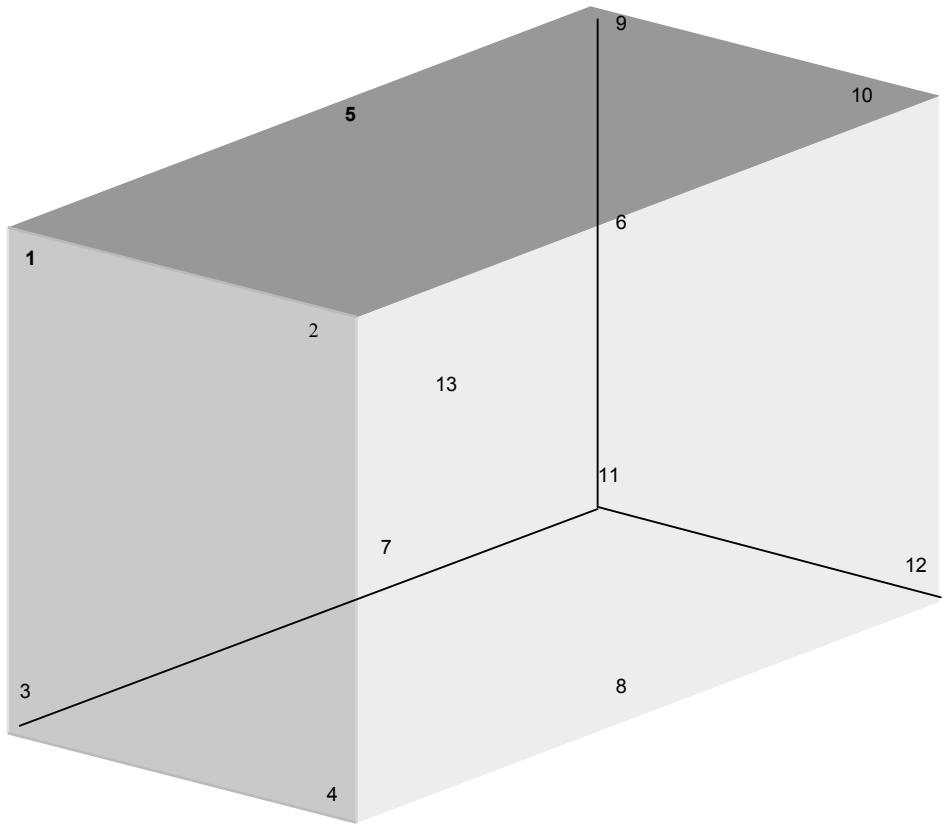
Forestry Commission

Appendix 1

Forestry Commission Plant Health Service – Information Note
Verification of Heat Treatment Facilities and Authorisation of the Use of the HT Mark

3- D Plan of Charge ie timber stack showing Position of Probe



Probe Number	Position of Probe
1	Top
2	Top
3	Bottom
4	Bottom
5	Top
6	Top
7	Bottom
8	Bottom
9	Top
10	Top
11	Bottom
12	Bottom
13	Centre