

## FORESTRY COMMISSION PLANT HEALTH SERVICE – INFORMATION NOTE

### VERIFICATION OF METHYL BROMIDE FUMIGATION IN TREATING WOOD PACKAGING MATERIAL TO COMPLY WITH THE INTERNATIONAL STANDARDS FOR PHYTOSANITARY MEASURES ISPM 15<sup>1</sup>

#### Introduction

1. This Information Note sets out the Methyl bromide fumigation specification which is required to be achieved before a company can be approved to use the International Standard marks MB or DB-MB.

#### ‘MB’ Verification Process

2. The fumigation shall be carried out by fumigators qualified and registered by the British Pest Control Association (BPCA) and in accordance with the Forestry Commission's Standard Specification set out below. Additionally it will be necessary for a United Kingdom Wood Packaging Material Wood Marking Programme (UKWPMMP) Assessment Agency (approved by the Forestry Commission) to observe the initial fumigation of sawnwood or wood packaging material at the premises where treatment will take place. If fumigated material is purchased by the company seeking approval to use the MB or DB-MB marks then the company will be required to provide sufficient documentary evidence to prove that the specification outlined in this information note has been achieved.

#### Site Location, Temperature and Gas Tightness

3. The site selected for the fumigation process shall be well ventilated and sheltered and one where the minimum temperature can be expected to be maintained throughout. In cold weather it may be necessary to use a suitable shed or warehouse and/or to utilise fan heaters. An accurate temperature measuring device must be employed to test the ambient temperatures within both the fumigation and risk areas, as defined in the Approved Code of Practice "Control of Substances Hazardous to Health in Fumigation Operations" (HSE - L86). The commodity temperature must not fall below 10°C (50°F) and provision must be made to record the commodity temperature. For sawn wood and wood packaging material, a hole must be drilled for insertion of a temperature probe, which should be a snug fit. The first reading must not be taken for at least ten minutes after drilling in order to allow any heat from the drill to dissipate.

4. To prevent seepage of gas into the ground, the material to be treated shall be stacked on a concrete hard standing or other impervious material. Where this is not possible, a layer of thick

---

<sup>1</sup> “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 Secretariat of the International Plant Protection Convention’s website at [www.ippc.int](http://www.ippc.int)

plastic sheeting (minimum 1000 gauge - 250 micron) must be employed. If fumigation is to take place in a container, and if there is any doubt about its gas-tightness, the container must be covered and sealed with a gas proof sheet of at least 500 gauge (125 micron) thickness.

Stacking

5. To allow for maximum gas dispersal and penetration, sawn wood and wood packaging material shall be conventionally stacked to a height not exceeding 5 metres (16 feet). Supports shall be provided to allow free gas/air circulation 0.72 m (2 feet) above the top boards, and beneath the first layer to allow circulation at ground level.

Covers and Venting

6. The covers to be used must make the temporary enclosure into a gas proof tent by use of impervious material such as heavy duty polythene of at least 500 gauge (125 micron) thickness or laminated films of even better permeability, which must not have been used previously. In adverse weather conditions, two layers of 500 gauge (125 micron) polythene may be required. Covers must be in good repair and any tears and snags made while installing the sheeting over the stack must be mended before the fumigant is introduced. The edges of the cover shall be sealed to the floor using sand snakes and kept in place securely by means of chains, or heavy timber billets. Chains must not be used for sealing the sheet to the floor as these do not ensure a sufficiently gas-tight seal, A sufficient period of time must be allowed for venting the gas after covers have been removed to bring the Methyl bromide concentration down to below the OES level of 5 p.p.m.

Dosage Rates

7. Methyl bromide shall be applied at a dosage of 48g per M<sup>3</sup> (3 lbs. per 1,000 cu ft) for 24 hours based on an ambient temperature level within the fumigation area of 70°F (21°C) (see also note below). During treatment, additional fumigant must be added, as required and as determined by gas concentration readings, to maintain required gas concentration throughout the period of fumigation'.

The table below provides a guide to the minimum MB gas levels, which should be as follows.-

Temperature	Dosage (g/m <sup>3</sup> )	Minimum concentration (g/m <sup>3</sup> ) at:			
		2hrs.	4hrs.	12hrs.	24hrs.
21°C or above	48	36	31	28	24
16°C or above	56	42	36	32	28
10°C or above	64	48	42	36	32

The minimum temperature should not be less than 10°C and the minimum exposure time should be 24 hours. Monitoring of concentrations should be carried out at a minimum at 2, 4 and 24 hours.

NB Fumigation should be performed at an ambient temperature which does not fall below 50°F (10°C) throughout because the target organisms may be in diapause.

### Fans

8. The gas/air mixture shall be circulated below the covers by means of fans. Where the length of stacks exceeds 10 m (32 feet), 2 fans shall be used. Fans need not be used in containers or short stacks not exceeding 4 m (13 ft) unless the fumigant is to be applied through atomiser jets and without the use of a vaporiser. Fans with appropriate capacities must be used to mix the gas, say, within 1 hour.

### Gas Introduction

9. The fumigant must be applied in the gaseous state which shall be achieved either through the use of a standard vaporiser comprising copper tubing coiled and submerged in a hot water bath of at least 65.5°C (150°F) temperature or by the use of any other similar device. The fumigant shall be introduced into the fumigation area by means of gas supply lines placed on top of the commodity in the air space created by additional piling (see paragraph 5) and fans shall be used, where appropriate, to ensure adequate dispersal which shall be checked by gas sample lines.

### Gas Testing (for concentration levels and leaks)

10. Using a gas analyser such as a thermal conductivity meter, the operator shall be responsible for, at the least, testing gas concentrations after 30 minutes and again 2 hours after commencing operations, and just before the termination of the fumigation. Gas concentrations can be monitored at agreed intervals if necessary. However, checking for leaks, sealing or reductions in concentration levels due and taking appropriate remedial action such as adding more gas are the duties of the fumigation operators. All readings shall be recorded on the Forestry Commission standard Certificate of Completion of Fumigation (see Appendix 1).

### Records

11. The company requesting the fumigation treatment shall keep comprehensive records of the treatments performed for assessment purposes including the:-
- a. ambient temperature, upper and lower limits.,
  - b. temperature maintained within the fumigation area, upper and lower limits (readings to be taken from at least 2 points);
  - c. temperature of the sawnwood or wood packaging material.'
  - d. dimensions of the stacks., (length, breadth and height)

- e. volume of fumigant applied initially, booster applications, and final reading (readings to be taken from at least 3 different points at the top, centre and bottom of the fumigation area).,
- f. duration of treatment (start and finish times);
- g. times circulating fans used (on and off);
- h. times heating used (on and off).

#### Certificate of Completion of Fumigation

12. At the end of the work, the fumigator shall provide the company, seeking approval to use the MB or DB-MB marks, with a fully completed Certificate of Completion of Fumigation, as supplied to him prior to the commencement of operations, (see Appendix 1) certifying that he has carried out the treatment to the requirements specified.

#### Debarking

13. Where the applicant wishes to use the additional mark “DB”, together with the MB 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 Methyl bromide fumigated. 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

In case of further enquiries, please contact –

Ian Brownlee  
Regional Manager  
Scotland  
Edinburgh

Tel : 0131 314 6480  
Fax : 0131 314 6148  
Mobile : 07831 159014  
E-mail: [ian.brownlee@forestry.gsi.gov.uk](mailto:ian.brownlee@forestry.gsi.gov.uk)

Stewart Snape  
Regional Manager (North)  
Edinburgh

Tel/Fax : 0131 314 6103  
Fax : 0131 314 6148  
Mobile : 07810 690670  
E-mail [stewart.snape@forestry.gsi.gov.uk](mailto:stewart.snape@forestry.gsi.gov.uk)

Steve Mears  
Regional Manager  
Louth  
Lincs

Tel/fax: 01507 328275  
Mobile : 07831 204324  
E-mail: [steve.mears@forestry.gsi.gov.uk](mailto:steve.mears@forestry.gsi.gov.uk)

Forestry Commission  
Plant Health Service  
July 2006



Appendix 1

**CERTIFICATE OF COMPLETION OF FUMIGATION**

Wood Mark Registration Number FC.....

To: \_\_\_\_\_ (Company Requesting Mb Fumigation)  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

From: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

This is to certify that the fumigation detailed below has been carried out in accordance with the Forestry Commission's Standard Specification for fumigation with Methyl bromide, a copy of which was given to me before the operation commenced. I further certify that that the information about the treatment which I have recorded below is accurate and that in the event that it is found not to comply with the Standard Specification then the Forestry Commission may require the treatment to be carried out again

(Signed)..... (Operator-in-Charge)

**Details of the Commodity**  
 Pallets  Crates/cases/drums etc  Sawnwood  Hardwood  Softwood  Species (if Known) \_\_\_\_\_  
 Are the timber packs or packaging materials "in stick" with an air space between each layer? Yes  No   
 If "no", were bearers placed between each layer of packs and at ground level? Yes  No   
 Marks/Lot numbers \_\_\_\_\_ No. of packs/Vol (m3) \_\_\_\_\_  
 Fumigation Site (yard/shed/container etc) \_\_\_\_\_

**Details of Fumigation**  
 Dimension of fumigation area (m) Length  Width  Height  Volume(m<sup>3</sup>)   
 Mass of Methyl bromide used (kg): initial  ; booster(s)  @ 30 mins:  @ \_\_\_\_\_ hrs;  
 \_\_\_\_\_ @ \_\_\_\_\_ hrs; \_\_\_\_\_ @ \_\_\_\_\_ hrs  
 Duration: Date started \_\_\_\_/\_\_\_\_/\_\_\_\_ Date finished \_\_\_\_/\_\_\_\_/\_\_\_\_  
 Time Started \_\_\_\_\_ hours. Time vented \_\_\_\_\_ hours. Time finished \_\_\_\_\_ hours  
 Type and thickness of gas-proof cover \_\_\_\_\_  
 Time circulating fans used - ON \_\_\_\_\_ hours. OFF \_\_\_\_\_ hours. Number of fans \_\_\_\_\_  
 Time heating used - ON \_\_\_\_\_ hours. OFF \_\_\_\_\_ hours

TURN OVER THE PAGE

**Details of sample points and readings taken**

In the diagram below, indicate the positions of gas sample points (G1, G2, etc) and temperature sensors (T1, T2, etc). You may add any other information you think is relevant, eg, position of fans, gas lines etc.



Fumigation Area

GAS ANALYSER READINGS

	Initial	30 mins	2 hours	4 hours (optional)	Other @ (optional)	24 hours
G1						
G2						
G3						
G4						
G5						

TEMPERATURE READINGS

	Maximum °C	Minimum °C
Risk Area Ambient		
Fumigation Area Ambient		
Commodity		

(Signed .....(Operator-in-Charge) Date: .....

Name(Print) .....

Notes

'Risk Area' = all areas or spaces adjacent to the fumigation area into which any fumigant escaping from the fumigation area may be present in hazardous concentrations

'Fumigation Area' = the whole of the area or space to which a fumigant is intended to be applied

