Forestry Commission

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[1]

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 Forestry Commission Inspector 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^{o}C (50^{o}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

[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

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^3 (3 lbs. per 1,000 cu ft) for 16 hours based on an ambient temperature level within the fumigation area of 70°F (21°C) (see also b. 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.-

At ½ hour - 75% or more of original dosage
½ hour-4 hours- 50% or more of original dosage
4-12 hours - 35% or more of original dosage
12-16 hours - 30% or more of original dosage

NB: for every 10°F the minimum ambient temperature is expected to fall below 70°F (21°C) within the fumigation area a further 8g per m^3 (½lb per 1000 ft^3) fumigant shall be used. The following table may be useful for calculating dose.

Temperature	**Dosages**
21°C and above	48 g/m^3
16-20°C	56g/m^3
10-15°C	64 g/m^3

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

Russ Collins
Regional Manager
North England & North Wales
Pickering, N Yorks

Tel/Fax : 01751 475655
Mobile : 07836 543234

E-mail russell.collins@forestry.gsi.gov.uk

Steve Mears
Regional Manager
East England
Louth, Lincs

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

Mike Willingham
Regional Manager
South England and South Wales
Maidstone, Kent

Tel/fax: 01622 850768
Mobile: 07831 157692
E-mail mike.willingham@forestry.gsi.gov.uk

Forestry Commission
Plant Health Service
June 2002

Forestry Commission

Appendix 1

Forestry Commission

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^3) ☐

Mass of Methyl bromide used (kg): initial ☐ ; booster(s) ☐ @ 30 mins: ☐ @ hrs;

☐ @ hrs; ☐@ hrs ☐@ hrs

Duration: Date started ____/____/____ Date finished ____/____/____

Time Started _____ hours. Time vented _____ hours. Time finished _____ hours

Type and thickness of gas-proof cover _____

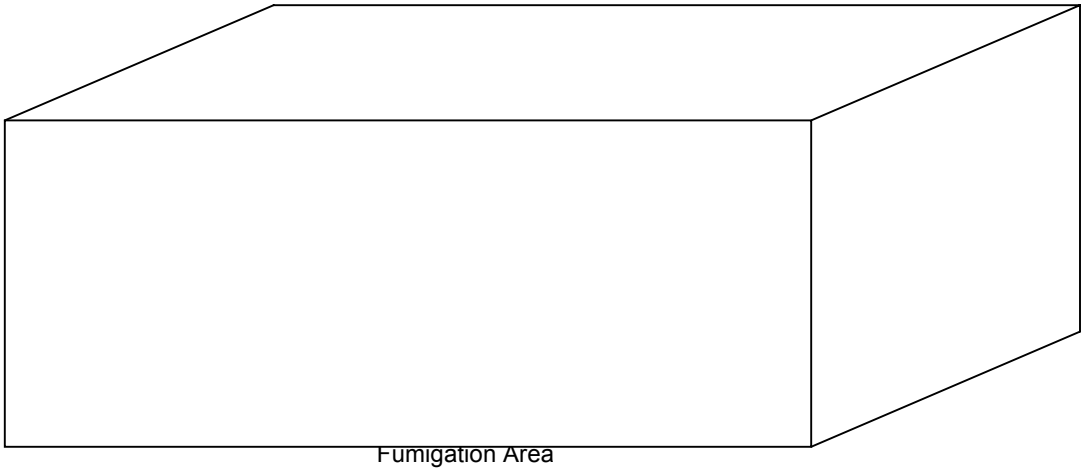
Time circulating fans used - ON _____hours. OFF _____hours. Number of fans _____

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 ^{o}C	Minimum ^{o}C
Ambient		
Fumigation Area		
Commodity		

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

Name(Print) ……..

Forestry Commission