

Guidelines for Assessment, Audit and Accreditation of Fumigation Agencies for Undertaking Methyl Bromide Fumigation



Government of India
Ministry of Agriculture
Department of Agriculture & Cooperation
Directorate of Plant Protection, Quarantine & Storage
N.H-IV, Faridabad-121001

May, 2010

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Endorsement

This standard entitled '*Guidelines for Assessment, Audit and Accreditation of Fumigation Agencies*' prepared by the Directorate of Plant Protection, Quarantine & Storage, Faridabad-121001 during Feb, 2005 for rendering guidance in assessment, audit and accreditation of fumigation operators for undertaking effective fumigation operations as per provisions of the standard on '*Quarantine Treatments and Application Procedures: I. Methyl bromide fumigation*'. This standard has been revised in view of technological advancements and recent experiences.

This revised standard is duly approved for adoption and shall come into force from 1st June, 2010 by

(P.S. Chandurkar)
Plant Protection Adviser
to the Government of India
Directorate of Plant Protection, Quarantine & Storage,
NH-IV., **Faridabad-121001**
Date: 31st May, 2010.

Review & Amendment

This standard will be subject to periodic review and amendment as may be decided by the Plant Protection Adviser. This standard shall be updated and revised with the advancement of techniques and need of the hour, if necessary. The holders of this standard shall ensure that the current edition of this standard is being used.

Control & Distribution of the standard

The master copy of this standard shall be held by the Plant Protection Adviser and the controlled copies distributed by Joint Director (PQ), Dte of Plant Protection Quarantine & Storage, Faridabad to all PQ stations and all accredited officers of Dte of PPQS/Fumigation Agencies. The standard can be freely reproducible for official use and any alterations and modifications to this standard shall be made only with the written approval of the Plant Protection Adviser. Any enquiries regarding this standard shall be made to the Joint Director (PP), PQ Division, Directorate of Plant Protection Quarantine & Storage, Faridabad-121001.

Controlled Copy Holder	Copy No.
Joint Director (PP), Plant Quarantine Division, DPPS, N.H-IV., Faridabad-121001.	1
Dy Director (PP/Ent), National Plant Quarantine Station, Rangapuri, New Delhi-110037	2/3
Dy Director (PP/Ent.), Regional Plant Quarantine Station, Raja Sansi Airport, Amritsar-143101.	4/5
Dy. Director (PP/Ent.), Regional Plant Quarantine Station, Meenambakkam, Chennai-600021.	6/7
Dy Director (PP/Ent.), Regional Plant Quarantine Station, Sewri, Mumbai-400014.	8/9
Dy Director (PP/Ent.), Regional Plant Quarantine Station, Salt Lake City, Kolkata-700024.	10/11
Plant Protection Officer (PP/Ent), Plant Quarantine Station, Bangaon, 24-Paraganas, W.B.	12
Plant Protection Officer (PP/Ent), Plant Quarantine Station, Kandla Port, Gandhidham, Kandla, Gujarat	13
Plant Protection Officer (PP/Ent), Plant Quarantine Station, Cochin	14
Plant Protection Officer (PP/Ent), Plant Quarantine Station, Mangalore	15
Plant Protection Officer (PP/Ent), Plant Quarantine Station, Panitanki	16
Plant Protection Officer (PP/Ent), Plant Quarantine Station, Gede Road, Nadiad – 741501.	17
Plant Protection Officer (PP/Ent), Plant Quarantine Station,. Tuticorin-628001.	18
Plant Protection Officer (PP/Ent), Plant Quarantine Station, Thiruvanathapuram-695024	19
Plant Protection Officer (PP/Ent), Plant Quarantine Station, Harbour, Vishakhapatnam-35.	20
Senior Plant Pathologist, Plant Quarantine Station, Begumpet Airport Cargo Complex, Hyderabad-500016.	21
Dy. Director (Ent.), Central Integrated Pest Management Centre, White field, Bangalore-560070.	22

Plant Protection Officer (PP/Ent.), Central Integrated Pest Management Centre, Bhanwar Kua Main Road, Indore-452001	23
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INTRODUCTION

Scope

This standard sets out guidelines for assessment, audit and accreditation of fumigation operators for undertaking fumigation operations with methyl bromide as per the provisions contained in the original standard on '*Quarantine Treatments and Application Procedures: I. Methyl bromide fumigation*'.

Background

Fumigation is an approved treatment method extensively used for controlling pest infestation in agricultural products in many countries of the world. Although the methyl bromide fumigation acknowledged having potential negative impact on environment, yet so far it is considered as the most appropriate treatment method in eradication of pest infestation in agriculture products. In consideration of above, the use of methyl bromide is strictly allowed for pre-shipment treatments and quarantine purposes including ISPM-15 compliance under Montreal protocol and any other critical use exemptions subject to the approval by the United Nations Environment Protection Agency . The phytosanitary regulations of many countries require certain commodities to be fumigated just prior to export and require the fumigation treatment to be endorsed on the phytosanitary certificate or the fumigation certificate issued by an approved fumigation agencies to be accompanied the consignment clearly detailing the treatment that has been undertaken. Further ISPM-15 recognizes the methyl bromide fumigation as one of the approved treatments for wood packaging material including dunnage and requires that treated wood material should be affixed with appropriate mark in compliance with ISPM-15. This standard has been developed to address the above issues by way of setting appropriate guidelines for assessment, audit and accreditation of fumigation agencies to ensure that the right fumigation practices as outlined in the original standard '*Quarantine Treatments and Application Procedures: I. Methyl bromide fumigation*' are followed by the fumigation agencies.

References

DPPQS. 1997. *Manual for Fumigation Operators, Directorate of Plant Protection, Quarantine & Storage, N.H-IV, Faridabad-121001 (India).*

DPPQS. 2005. *Quarantine Treatments and Application Procedures: I. Methyl bromide fumigation. Directorate of Plant Protection, Quarantine & Storage, N.H-IV, Faridabad-121001 (India).*

1. GENERAL REQUIREMENTS

1.1. Accreditation Authority

The Directorate of Plant Protection, Quarantine & Storage, established under the Ministry of Agriculture shall be the authority for granting accreditation of fumigation agencies for performance of fumigation treatments with Methyl Bromide under Accreditation Scheme. The Plant Protection Adviser shall accredit the fumigation operators for undertaking methyl bromide fumigation for pre-shipment treatments and quarantine purposes including ISPM-15, compliance in accordance with the provisions of Methyl Bromide standard. The use of methyl bromide shall be strictly prohibited for purposes other than pre-shipment treatments and quarantine purposes and any such other uses shall require prior approval of the Plant Protection Adviser. The State Governments shall be responsible for issue of license for sale/stock/use of methyl bromide fumigant only after necessary verification of certificate of registration granted to fumigation agency with accredited fumigation operator by PPA to Govt. of India.

1.2. Registration Protocols

The Directorate of Plant Protection, Quarantine & Storage, N.H-IV, Faridabad-121001, will establish a central register of fumigation agencies with accredited fumigation operators as per the format prescribed in **Appendix-I**. In order to be registered with the Dte of PPQS, the fumigation agencies must have accredited fumigation operator. The fumigation agencies with accredited fumigation operators will be allocated a unique registration number and each accredited fumigation operator shall be assigned with a unique accreditation number. The registered fumigation agencies must record the registration number on all correspondence with the Dte of PPQS, N.H-IV, Faridabad-121001. The fumigation company or agency or organization seeking registration along with accredited fumigation operator shall be required to apply to the Plant Protection Adviser in format prescribed in **Appendix-II** with attached documents as specified along with a registration fee of Rs. 3,000/- payable by a bank draft in favour of '**Accounts Officer, Directorate of Plant Protection, Quarantine & Storage, Faridabad**' and duly signed compliance agreement (**Appendix-III**). The registration of fumigation agency shall be granted for a period of three years and thereafter revalidated every two year. The Registered Fumigation Agency shall apply for revalidation at least one month prior to expiry of registration in the same format prescribed in Appendix-II along with original registration certificate and revalidation fee of Rs.2, 000/- Dte of PPQS will conduct review assessment in line with the original approval process before granting such revalidation.

For additional accreditation of fumigation operator, the registered fumigation agency shall apply in same application form prescribed in Appendix-II with a fee of Rs.2, 000/- and such accreditation shall be granted after necessary assessment as per Section 2.2.

Note: The registration certificate granted by the Plant protection Adviser is valid only so long the accredited fumigation operator is working with that fumigation agency or company or organization. Dte of PPQS should be notified by the registered agency in writing of any changes in arrangements between registered fumigation company and the accredited fumigation operators or changes within the company. The accreditation granted to the fumigation operator shall be cancelled in the event of leaving the company .

1.3 Conditions for transfer of agency from one place to another within a State or from one State to another State:

Agency is allowed to transfer the whole set up of the agency including staff from one place to another place within a State or from one State to other State with prior approval of Plant Protection Adviser to Govt .of India. However, the Agency has to submit necessary documentary proof of facilities at new place along with application for approval. Facility along with premises site will be verified by a team of officers nominated by the PPA before granting approval. The application of transfer should be accompanied with a fee of Rs. 2,000/-. However, for shifting of agency within a city from one building to other building, the shifting fee is exempted

1.4 Conditions for transfer of accredited fumigation operator from one branch to another branch by the agency

- (i) Transfer of fumigation operator from one branch to another branch of the agency is permitted with the prior approval of Plant Protection Adviser to the Government of India. The application should be accompanied with a fee of rupees one thousand only.
- (ii) Further on transfer, the period of validity of fumigation operator once granted will remain unchanged unless fumigation operator leaves the agency to which he is attached.
- (iii) When any agency opens a new branch and transfer the fumigation operator from old branch, the agency will be assessed for the basic facilities at new place besides the fumigation operator.

1.5 Revalidation of registration of agency after expiry of validity period.

- (i) If an agency fails to apply for renewal of its registration within stipulated period of time, agency will be suspended with immediate effect till further order or revalidation. A penal fee of Rs. 1000/- will be charged for revalidation of the registration of such agency.
- (ii) When an agency applies for renewal of registration within stipulated time period, but due to the procedural delay at Dte'of P.P.Q. & S.,could not get it in time, the agency may continue operative work of fumigation till the receipt of renewed registration certificate.
- (iii) Qualifying percentage of Marks during Assessment of applicant for accreditation under NSPM-12

Applicants will be examined for their technical competence through written, practical and oral examinations. To qualify the test applicants must secure at least 75% marks in each of the said examination. If any candidate fails to qualify the test, he may appear for the said examination for 2nd time but not earlier than 3 months of 1st assessment.

1.6 Responsibilities:

i) Responsibilities of Fumigation Agencies

The fumigation company should:

- ✚ hold a valid registration certificate granted by the Plant Protection Adviser and a license to purchase, stock and use of restricted pesticides granted by the Director of Agriculture of the concerned State;
- ✚ be technically competent to perform relevant treatment to meet the quarantine requirements;
- ✚ perform fumigation operations always under the supervision of accredited fumigation operator;
- ✚ advise the client on stocking of consignment for carrying out effective treatment;
- ✚ advise the client about the time requirements for successful treatment of consignment;
- ✚ seek from the client any specific conditions attached to the treatment of consignment;
- ✚ inform the client of any other factors that affect treatment of commodity such as impervious package or sorptive nature of commodity;
- ✚ ensure adopting right fumigation practices and follow safety precautions, while undertaking treatment operations;
- ✚ maintain proper records on stock/use of fumigants and issue fumigation certificates after ensuring fumigations are carried out in effective manner;.
- ✚ follow the guidelines stipulated in the standard on '*Quarantine Treatments and Application Procedures: I. Methyl bromide fumigation*' and abide by instructions issued by the Plant Protection Adviser from time to time; and.
- ✚ ensure not to undertake fumigation in forbidden places unsafe to public and animal life or of forbidden commodities.
- ✚ Submit the information to Dte. of PPQ&S regarding change of address, transfer, retirement, resignation or death of fumigation operator.
- ✚ Submit monthly report of various activities of agency including stock and use of restricted pesticides.

ii) Responsibilities of Fumigation Operators

- ✚ Not to undertake fumigation in residential areas where animal/human life exists.
- ✚ Display warning signs and take adequate safety precautions during fumigation.
- ✚ To ensure safety of workers during fumigation operations
- ✚ To undertake supervision of all fumigation operations.
- ✚ To detect gas leakage and take appropriate measures to seal leakage, monitor gas concentration and aeration of fumigated commodities.
- ✚ To monitor/repair of essential fumigation/safety equipments.
- ✚ To disperse off empty containers of fumigants in safe manner.
- ✚ To maintain appropriate record related to fumigation.

1.7. Treatment Endorsement

All the methyl bromide fumigation treatments should be undertaken by registered fumigation companies under the supervision of accredited fumigation operator. However in instances, where fumigation treatments are carried out by non-accredited fumigation operators, are required to be endorsed, they shall be supervised by the specified officer of Directorate of Plant Protection, Quarantine & Storage. While endorsing methyl bromide fumigation certificates from non-accredited fumigation operator, the specified officer, shall:

- ✚ monitor the fumigation treatment to ensure that correct dosage of fumigant is applied and appropriate concentration of fumigant is maintained to make it effective
- ✚ affix an official stamp on the fumigation certificate with a unique accreditation number assigned to him;
- ✚ record all the details of fumigation in prescribed format confirming that the fumigation was carried out in accordance with the Methyl Bromide (MB) Standard established by the Plant Protection Adviser

2. 0. SPECIFIC REQUIREMENTS

2.1. Eligibility

2.1.1. Educational Qualifications

The fumigation operators seeking accreditation with the Dte of PPQS shall possess the following educational qualifications namely: B. Sc Degree in Agriculture or B. Sc Degree in Life Science / Bio-Science with Chemistry, Zoology and Botany from any recognised University.

2.1.2. Training Requirements

The eligible operators shall be required to undergo training for a period of at least one week at any of the training institute accredited by the Plant Protection Adviser, Dte of PPQS. The training programme shall be as per the guidelines prescribed by the Plant Protection Adviser and should be structured to impart technical skills and competency in performance of effective fumigation operations with methyl bromide. The training programmes will cover especially the following areas viz.,

- ✚ Regulations/National Standards
- ✚ Role of Regulating Agencies & Responsibilities of Fumigation Operators
- ✚ General principles of fumigation
- ✚ Physico-chemical properties/formulations of Methyl Bromide and its safe use.
- ✚ Correct fumigation practices with MB (Scheduled dosage of fumigant; application of fumigant in gaseous state; proper gas distribution; right exposure period; correct concentration X time products; proper understanding of temperature/dosage relation ships)
- ✚ Pressure testing of containers to ensure gas tightness
- ✚ Making gas-tight enclosure with sheet fumigation
- ✚ Testing for gas leakages/Measuring and monitoring gas concentrations
- ✚ Use of safety equipment, first aid and safety precautions
- ✚ Fumigation forbidden commodities
- ✚ Factors contributing to success/failure of fumigation
- ✚ Ship fumigation

The training programme shall include power point presentations & demonstration of right fumigation practices followed by group interactions on specific problems & issues related to fumigation operations. There shall be a pre and post evaluation of training to ensure proper skills are imparted.

2.2. Assessment Protocols

At least a panel of two technical experts approved by the Plant Protection Adviser, shall undertake the assessment of fumigation agencies for accreditation. The technical experts must possess required skill competency in performance of effective fumigation operations with methyl bromide and fully acquainted with the provisions of the MB Standard and requirements of the accreditation of fumigation agency. The panel of experts after initial assessment shall submit a report to the Plant Protection Adviser in the format prescribed in **Appendix-IV** for consideration of registration of fumigation agency with accredited fumigation operator.

2.2.1. Assessment of fumigation operator

The fumigation operator seeking accreditation must have undergone the training at the accredited institute prior to assessment. The fumigation operator shall be assessed by a panel of

technical experts approved by the PPA, for skill competency to perform effective fumigation treatments in line with the Methyl Bromide Standard established by the Dte of PPQS.

The fumigation operator shall be assessed for:

- ✚ sound knowledge of regulation requirements, principles of fumigation and general practices;
- ✚ be aware of commodities adversely affected by methyl bromide fumigation;
- ✚ be able to carry out the tests needed to ensure that the treatment is successful;
- ✚ be able to recognise and analyse the factors leading to successful fumigation as well as a failed or potential to fail fumigation operations;
- ✚ be able to comprehend the label requirements and hazards associated with the use of methyl bromide;
- ✚ be able to carry out a pressure test to ensure the containers are gas tight;
- ✚ be capable of how to carry out measurement and monitoring of methyl bromide gas concentrations; and
- ✚ be able to demonstrate the use of safety equipments and possess knowledge of methyl bromide poisoning, first aid and emergency and safety measures
- ✚ be capable of measurement of fumigant concentration in enclosure with the help of monitor and Threshold Limit Value (TLV) in/around the chamber with the help of leak gas detector.

2.2.2. Assessment of equipment & facilities

The fumigation agency shall be assessed for possessing a list of essential equipment and accessories (Appendix-V) that are required for undertaking methyl bromide treatments and their working conditions and also a separate secured place for stocking fumigants and proper upkeep and maintenance of safety equipments (gasmasks/SCBA) and calibration of measuring equipments.

2.2.3. Assessment of organization & personnel

The fumigation company must have an organizational chart with clear job descriptions. At a minimum level it shall have a general manager or equivalent, who shall have authority and resources to carry out assigned administrative jobs for up-keep of the office and a technical manager (fumigation operator), who shall be responsible for all fumigation technical activities.

The fumigation company must have sufficient number of technical personnel to carry out its activities. A minimum of two persons shall be required to carry out each fumigation activity including an accredited fumigation operator.

Both the management of fumigation company and the accredited fumigation operators must aware of all the regulatory requirements including the licensing requirements regarding use of fumigants and operational requirements outlined in the methyl bromide standard established by the Dte of PPQS. They must be aware of their responsibilities and the need to involve the others associated with treatment who should be fully made aware of the fumigation treatment process. They should have continuous supply and access to methyl bromide required in fumigation operation.

2.3. Issue of Certificate of Registration/Accreditation

Each assessed fumigation agency with accredited fumigation operator shall be issued a certificate of registration in the prescribed format (**Appendix-VI**) and assigned with ISPM mark (**Annex to Appendix-VI**) for affixing on treated wood packaging material in compliance with ISPM-15.

Each fumigation operator shall be issued with an Accreditation Certificate (**Appendix-VII**) and unique accreditation number and card (**Annex to Appendix-VII**) after successful assessment, which is valid for a period of 3 (three) years and thereafter to be revalidated after every two year. Accredited fumigation operators are required to apply for revalidation at least one month prior to the expiry of initial accreditation. In considering a review application, Dte of PPQS will conduct an assessment in line with original approval process. If the assessment is found satisfactory, renewed certificate of registration/accreditation will be issued.

2.4. Audit Protocols

Dte PPQS shall establish an audit system outlined below to measure the performance of fumigation company and the accredited fumigation operator against the requirements of the methyl bromide standard established by the Dte of PPQS. The audit will be carried out by the specified officers of the Dte of PPQS based on the following criteria and as per the checklist provided in **Appendix-VIII**. At the end of each audit, the auditor shall list out non-conformities under the following three categories:

- ✚ **Critical non-conformity:** occurs when as the result of collection and analysis of objective evidence it is concluded that the fumigation agency has grossly violated the regulatory requirements and the requirements of the methyl bromide standard established by the Dte of PPQS and Accreditation Scheme.
- ✚ **Major non-conformity:** A deviation or multiple deviations from the documented procedures that is confirmed through the collection of objective evidence that shows discrepancies or lapses in discipline relating directly to either the Standard and/or regulatory requirements and which may compromise the overall effectiveness of the Accreditation Scheme.

Note: - Two MAJOR non-conformities equal to a CRITICAL non-conformity

- ✚ **Minor non-conformity:** A deviation from the documented procedures that is confirmed through the collection of objective evidence that shows minor discrepancies or lapses in discipline relating to the Standard and that do not compromise the overall effectiveness of the Accreditation Scheme.

Note: - Two MINOR non-conformities equal to a MAJOR non-conformity.

The critical non-conformities will result in immediate suspension of the fumigation company and the accredited fumigation operator from the Accreditation Scheme. Major and minor non-conformities will result in corrective actions and an additional announced audit.

Dte of PPQS will notify the fumigation company and the accredited fumigation operator in writing within 7 working days of the nonconformity and advise the fumigation company and the accredited fumigation operator of subsequent compliance action to be taken by the said fumigation company. The fumigation company shall submit a corrective action report in the format prescribed in **Appendix-IX** to the Dte of PPQS, which records and details non-conformities, corrective action and the proposed date for rectification.

2.4.1. Initial Audit

An initial audit of a company will take place once the fumigation operator has undergone accreditation training and is assessed as being technically competent. Initial audit will continue until the fumigation company with accredited fumigation operator demonstrate technical competency in fulfilling the requirements of the standard and Accreditation Scheme. There after initial audit shall be replaced by annual random checks.

2.4.2. Announced audits

Dte of PPQS will undertake announced audits at least once in every 12 months period as per scheduled dates. The nominated officers of Dte of PPQS, with prior intimation will undertake announced audits on a convenient date arranged with fumigation company and their accredited fumigation operator.

2.4.3. Un-announced audits

Dte of PPQS will undertake an un-announced audit check at least once in every 12 months without any prior intimation.

2.4.4. Re-instatement audits

Dte of PPQS will undertake reinstatement audits following a period of suspension and will be scheduled. Reinstatement audits will be conducted at a convenient date arranged with fumigation agency and its accredited fumigation operator.

2.5. Suspension and Reinstatement Protocols

Dte of PPQS will undertake immediate suspension of the fumigation agencies and accredited fumigation operators that perform ineffective fumigation operations. The suspended fumigation company and the accredited fumigation operator will be served a show cause notice as to why they should not be removed from the Accreditation Scheme and will be subject to reinstatement audit.

If during an audit, one or more critical non-conformities and/two or more than two major non-conformities and/or more than four minor non-conformities are found, fumigation company and accredited fumigation operator will be suspended immediately and will be

subject to a reinstatement audit. Re-training of accredited fumigation operator may be necessary.

If during an audit, less than two major and less than four minor non-conformities are found the fumigation company and the accredited fumigation operator will be subject to an additional announced audit within six (6) weeks. If during the follow-up audit, the non-conformities have not been addressed, the fumigation agency and the accredited fumigation operator will be suspended immediately and will be subject to a reinstatement audit within six (6) weeks. Reinstatement audit will continue until the fumigation agency and the accredited fumigation operator demonstrate competency in fulfilling the requirements of the Methyl Bromide Standard. Re-training of accredited fumigation operator may be necessary.

The registration granted to the fumigation agency and the accreditation granted to the fumigation operator will be cancelled, if:

- ✚ they are suspended on three separate occasions; or
- ✚ on a reinstatement audit, a critical or major non-conformity has been accrued

Once an accreditation has been cancelled, before re-accreditation can take place, the accredited fumigation operator will be subject to additional accreditation training and the fumigation company and the accredited fumigation operator will be required to undergo the complete assessment process.

2.6. Appeal and Revision Protocol

If the fumigation company and the accredited fumigation operator believe that there were extenuating circumstances in respect to the occurrence of non-conformity, the fumigation agency and the accredited fumigation operator may appeal against the decision of PPA. Compliance action will remain in place, while the appeal is being considered.

For this purpose, the fumigation agency and the accredited fumigation operator shall apply a memorandum of appeal against the decision to the Joint Secretary, in-charge of Plant Protection Division, Department of Agriculture & Cooperation, Krishibhavan, New Delhi-110001, within seven working days of the communication of decision. The memorandum of appeal should clearly set out the grounds for appeal. Joint Secretary, in-charge of Plant Protection Division, shall acknowledge the receipt of the appeal within 3 working days and endeavour to make a decision on the appeal in writing within 30 working days of the receipt of all available facts relating to the matter.

Joint Secretary (Plant Protection) may call for all the records relating to the decision from the Plant Protection Adviser for the purpose of satisfying it self to the legality or propriety of any such decision passed by the PPA before any such order as it thinks fit shall be passed and before any such order is passed PPA shall be given a reasonable opportunity is being herd and no such order shall be passed after expiry of 30 working days.

2.7. Documents/Records of Fumigation

The fumigation agency must ensure that a standard operational procedure is documented in line with the provisions of the MB standard established by the Dte of PPQS. The fumigation agency must ensure that the following records and documents relating to supervising, monitoring and testing of compliance with the procedures are maintained in prescribed format and kept up to date.

- ✚ Fumigation Record (**Appendix-X**)
- ✚ Check sheet of fumigation (**Appendix-XI**)
- ✚ Calibration records
- ✚ Stock register of fumigants
- ✚ Record of Servicing of Equipments & Replacement of Accessories
- ✚ Test Report of sheet permeability provided by the manufacturer
- ✚ Personal Health Record of Fumigation Operators & Co-workers
- ✚ Record of Accredited Fumigation Operators
- ✚ Fumigation Certificate (**Appendix-XII**)

2.8. Reporting of Fumigation Activities

The fumigation agency must report to the Dte of PPQS on monthly basis regarding the stock/use of methyl bromide fumigant and the details of all the fumigation operations carried out as per the prescribed format in **Appendix-XIII**.

Appendix-I I

Application for Registration of Fumigation Agency with Accredited Fumigation Operator				
Fumigation company/Branch Name				
Location & Complete Postal Address (including Tel/Fax/E- mail)				
General Manager /branch manager of the Fumigation Agency				
Description of organizational structure of the company/branch (Attach a copy of organization chart)				
Details of technical personnel employed by the company/branch				
Name	Date of Employment	Designation	Qualifications	Job work
Particulars of fumigation operators for whom the accreditation sought				
Name	Date of Employment	Qualifications (Degree/University/ Subject)*	Accreditation training (Dates/ Place)*	Apprenticeship (Period/Name of Supervisor)
*Attach documentary proof in respect of qualifications/training/apprenticeship				
Whether the company/branch has valid state licenses, if so particulars there of (Attach a copy of license)			Yes/No	
Whether the company/branch is applying for the registration for the first time under Accreditation Scheme?			Yes/No	
Is the application for renewal of registration of fumigation company? If so give the particulars of Regd. Number/date of issue/valid up to (Attach original registration certificate).			Yes/No	
Is the application for revalidation of accreditation of fumigation operator? If so, give the particulars of accreditation number/date of issue/valid up to (Attach original accreditation certificate)			Yes/No	
Is the application for additional accreditation operator? If so furnish the list of accredited fumigation operators with the registered fumigation company/branch (Attach list).			Yes/No	
Whether the company/branch has the all the essential equipments for undertaking fumigation as per the Standard? (Attach list of essential equipments procured by the fumigation agency along with specifications /Number of units)			Yes/No	
Is any separate, secured & ventilated storage facility for storing fumigants?			Yes /No	

Particulars of payment of registration/renewal fee (Name of the Bank/branch/DD No/Amount).(Attach bank draft)			
Whether compliance agreement enclosed?		Yes/No.	
Name & Signature of fumigation operator applying for accreditation with Date			
Name & Signature of General manager/Branch manager with Date & Seal			
For Official Use by Dte of PPQS			
Application Number:	Date of Receipt:	Acknowledgement issued.	Initialed by/Date
Date of Scrutinization:		Deficiencies communicated.	Initialed by/Date
Date of Assessment	Assessed by	Assessment Report received.	Initialed by/Date
Registration Number	Date of Issue/ Revalidation:	Registration certificate issued/ endorsed	Initialed by/Date
Accreditation Number	Date of Issue/ Revalidation	Accreditation certificate issued/ endorsed	Initialed by/Date
Acknowledgement Slip - Directorate of Plant Protection Quarantine & Storage			
Application Number _____ Date of Receipt _____			
Received from M/s _____			
along with Bank Draft No. _____ dated _____ on _____			
For Rs. _____.			
			_____ Signed by/Date

Appendix-III

COMPLIANCE AGREEMENT

COMPLIANCE AGREEMENT	
1. From: (Name of Fumigation Company/Branch)	2. To: The Plant Protection Adviser Dte of Plant Protection Quarantine & Storage, N.H-Faridabad-121001
3. Agreement related to: Registration of Fumigation Agency and accreditation of fumigation operator for undertaking Methyl Bromide fumigation operations under Accreditation Scheme.	
4. Applicable Phytosanitary Regulatory Requirements To meet the regulation requirements of PQ order, 2003 issued under the Destructive Insects & Pests Act, 1914 & the regulations of the Insecticides Act, 1968.	
5. I/we agree to the following: <ul style="list-style-type: none"> -to carry out all treatments under the direct supervision of accredited fumigation operator; -to ensure periodical calibration of gas monitoring equipments and temperature sensors and maintain the appropriate calibration records for a period of two years; -to provide all essential equipments for undertaking fumigation operations and maintain them in good working condition; -to extend necessary assistance and cooperation to the officers of Dte PPQS during the on-site audit check of the facility and performance auditing of fumigation operators; -to ensure to provide adequate respiratory protection (gas masks/SCBAs) to fumigation operators/co-workers during the fumigation and follow all safety requirements or procedures during treatment operations as specified in the Methyl Bromide Standard -to follow right fumigation practices specified in the Standard to meet the requirements of Accreditation Scheme -to ensure not to undertake fumigation of forbidden commodities or to carry out fumigation in places un-safe to public and hazardous to animal life. -to keep and maintain up-to-date all records related to fumigation as specified in this Standard and available for verification; -to ensure monitoring of gas concentrations at specified time intervals to make fumigation operations effective; and -to pay TA/DA of the officer of the Dte PPQS as per admissible rules for carrying out assessment/audit check of facility and performance auditing of fumigation operators. 	
6. Name & Signature of Fumigation operator with Date	7. Name & Signature of General manager/Branch Manager with Date
8. Verified by: (Name & Signature of authorized officer)	9. Approved by (Plant Protection Adviser)

Appendix-IV

Assessment Report for Registration of Fumigation Company with Accredited Fumigation Operator	
Name of Fumigation Company/Branch assessed	
Date (s) of assessment	
Name of the General Manager/Branch Manager	
Name of fumigation operator assessed	
Details of Assessment of Fumigation Company/Branch	
1. Organizational structure & Technical Resources for undertaking fumigation operations: <ul style="list-style-type: none"> <input type="radio"/> Adequate <input type="radio"/> Inadequate 	
Comments:	
2. Management Responsibilities/Commitments to meet the requirements of MB Standard (licenses/documentation of fumigation practices/training of workers/health check-ups/safety requirements etc. <ul style="list-style-type: none"> <input type="radio"/> Adequate <input type="radio"/> Inadequate 	
Comments:	
3. Stocking of Essential Equipments & Accessories <ul style="list-style-type: none"> <input type="radio"/> Adequate <input type="radio"/> Inadequate 	
Comments:	
4. Calibration of gas monitoring/temperature measurement/pressure testing equipments/Weighing scales & Maintenance of calibration records. <ul style="list-style-type: none"> <input type="radio"/> Yes <input type="radio"/> No 	
Comments:	
5. Record keeping system <ul style="list-style-type: none"> <input type="radio"/> Adequate and proper <input type="radio"/> Not Properly managed 	
Comments:	
6. Separate storage facilities for fumigants <ul style="list-style-type: none"> <input type="radio"/> Safe & secure <input type="radio"/> Poor storage 	
Comments:	

<p>7. Operational Plan for servicing & maintenance of respiratory protection equipments (Gas Masks/SCBAs)</p> <p> <input type="radio"/> Yes <input type="radio"/> No </p>
<p>Comments:</p>
<p>Details of Assessment of Fumigation Operator</p>
<p>8. Knowledge about regulatory requirements, principles of fumigation and general practice</p> <p> <input type="radio"/> Adequate <input type="radio"/> Inadequate </p>
<p>Comments:</p>
<p>9. Awareness of Responsibilities of Fumigation Operator under the Accreditation Scheme</p> <p> <input type="radio"/> Adequate <input type="radio"/> Inadequate </p>
<p>Comments:</p>
<p>10. Awareness of fumigation forbidden commodities or places.</p> <p> <input type="radio"/> Adequate <input type="radio"/> Not adequate </p>
<p>Comments:</p>
<p>11. Knowledge about physico-chemical properties and safety formulations of Methyl Bromide fumigant</p> <p> <input type="radio"/> Adequate <input type="radio"/> Inadequate </p>
<p>Comments:</p>
<p>12. Knowledge of correct fumigation practices (Dosage/exposure period/CXT products/gas application/distribution/temperature relationships/impervious packing materials)</p> <p> <input type="radio"/> Adequate <input type="radio"/> Inadequate </p>
<p>Comments:</p>
<p>13. Ability to carry out pressure testing of containers to ensure gas-tightness</p> <p> <input type="radio"/> Yes <input type="radio"/> No </p>
<p>Comments:</p>
<p>14. Ability to select site for fumigation and make gas-tight enclosure in case of sheet fumigation</p> <p> <input type="radio"/> Yes <input type="radio"/> No </p>
<p>Comments:</p>

<p>15. Ability to measure monitor gas concentrations during fumigation and testing for gas leakages</p> <ul style="list-style-type: none"> <input type="radio"/> Yes <input type="radio"/> No
<p>Comments:</p>
<p>16. Ability to demonstrate use the protection equipments (gas masks/SCBAs), their fitness testing, cleaning & maintenance</p> <ul style="list-style-type: none"> <input type="radio"/> Yes <input type="radio"/> No
<p>Comments</p>
<p>17. Ability to comprehend the label requirements and hazards associated with use of Methyl Bromide</p> <ul style="list-style-type: none"> <input type="radio"/> Yes <input type="radio"/> No
<p>Comments</p>
<p>18. Knowledge about Methyl Bromide poisoning, first-aid/safety measures</p> <ul style="list-style-type: none"> <input type="radio"/> Adequate <input type="radio"/> Inadequate
<p>Comments:</p>
<p>19. Additional Comments on past performance (where applicable)</p>
<p>20. Recommendation regarding Registration Company with Accredited Fumigation Operator/Additional accreditations</p> <ul style="list-style-type: none"> <input type="radio"/> Recommended <input type="radio"/> Not recommended
<p>21. Reasons for not recommendation:</p>
<p>22. Name/Designation/Signature of Assessors with Date</p> <p>1. _____ 2. _____</p>

Appendix-V

List of Essential Equipments and Accessories for undertaking MB fumigation.		
S. No.	Name of Equipment/Accessories	Specifications
1	Fumigation sheets (covers)	The sheets shall be made up of low-density polyethylene films, with a minimum thickness of 200 GSM, multi-layered, cross-laminated and tested to have a permeability of less than 0.02 g/m ² /day for methyl bromide.
2	Gas Leak Checker	Riken gas leak checker with a detection range from 0-200 ppm should be used. The standard equipment is fitted with a Red LED illuminated lever meter and buzzer sound; high sensitive and long life semi-conductor sensor; and battery operated with air-flow rate of 300 ml/min.
3	Halide Leak detector	Halide leak detector consists of a fuel tank, a valve assembly to regulate fuel flow, a burner head assembly where the fuel and the air mixture unite and the copper plate or cone assembly, where the visible flame reacts in colour to the halogen fumigants. The air mixture to be tested is fed to the burner assembly by an attached search hose.
4	Vaporizer fitted with LPG or Electric Heater	A vaporizer consists of a inner stainless cylindrical vessel with a diameter of 270 mm and a height of 340 mm with a stainless steel cowling (outer jacket) up to 250 mm made out of stainless steel sheet of 1.6 mm thickness. The cowling extend up to a minimum of 100 mm at the bottom with air inlets for housing the burner. The cowling is needed to direct the heat produced by the burner up and around the sides of the water container and protect the flame against gushing wind. A12 meter of copper pipe with outer diameter of 12 mm should be used as heat exchanger. The pipe should be twisted into a double coil for this purpose and whole coil provide a heat transfer surface of about 0.1 m ² for each kilogram of fumigant to be vaporized per minute. The heat exchanger should be fitted into inner vessel with the help of brass and copper fittings such that one end of the pipe can be connected to the MB cylinder and the other end is connected to gas distribution line to deliver hot gas into the fumigation enclosure. A three-ring gas burner with adjustable knobs should be used for heating. A suitable dial type thermometer should be fitted to the inner container to measure the temperature of water. The edges of the inner container top should be folded inside and also the cowling (outer jacket to avoid injury. A suitable lid for closing the container to prevent escape of heat and handle should be provided to facilitate carrying the container.
5	Gas Monitoring Equipment	Riken Gas Indicator or Fumiscope or Gow-Mac or any standard monitoring equipment capable of measuring methyl bromide concentrations with a range between 0-200 mg/l.
6	Stopwatch	0-60 seconds with divisions of 5 seconds each.
7.	Thermometer	0-50 ⁰ C with divisions up to 1 ⁰ C each, calibrated..
8.	Axial Fans	Axial fan with a minimum of 70m ³ /min (2500 CFM).
9.	Gas Mask	Draeger or equivalent, full vision, face mask as per IS:8523/1977, non-aging, chemical resistant with double reflex sealing flaps, five point harness, panoramic replaceable visor, speech diaphragm, self demisting facility, inhalation and exhalation valves having provision for holding corrective glasses and thread connection to EN 148-1.
10.	Canister	Screw-in, organic type canister (with organic vapours up to a concentration of 5000 ppm for use in surrounding atmospheres with a minimum concentration of 16% oxygen as per

		IS:8523/1977.
11.	Self contained breathing apparatus (SCBA)	Full vision face mask, non-aging, chemical resistant with a double reflex sealing flaps, five point harness panoramic replaceable visor with self demisting facility, inhalation and exhalation valve having coupling with high pressure withstanding rubber tube reinforced with nylon threads connected to a compressed air cylinder fitted with pressure gauge and regulator valve.
12.	MB can applicator	For discharging MB gas from 1 lb or ½ lb cans.
13.	Sand snakes	Sand snakes made up of canvas, ¾ metre length 15 cm width must be filled only 65% - 75% with sand so that they lie flat on the floor
14.	Calculator	Pocket type
15.	Measuring Tape	25m length, roll-in type.
16.	Gas distribution pipes	PVC flexible rayon braided hose with inner diameter of 6m and outer diameter of 12 mm with the thickness of 3mm
17	Gas sampling tube/pipes	The sampling lines should be made up of crushproof nylon (2mm ID hydraulic hose is effective).
18	Y/T-connections	Made up of Teflon/brass/S>S with suitable diameter for connecting distribution lines.
19	Adhesive/Sealing tape	5 cm width PVC tape
20	Gas detector tubes	, MB-gas detector tubes .
21	Pump for gas detector tubes	Draeger type
22	Gloves	Disposable type
23	Resuscitator	Rubber balloon fitted with a nose cap
24	Tool Box	-----
25	First Aid box	-----
26	Plastic ropes (to hold sheets in place)	-----
27	Fire Extinguisher	ISO Certified
28	Protective apron or boiler suit	-----

Appendix-VI

Certificate of Registration of Fumigation Agency



Government of India
Ministry of Agriculture
 (Department of Agriculture & Cooperation)
Directorate of Plant Protection, Quarantine & Storage
 N.H-IV., Faridabad-121001.

Registered Number:

Date of Issue:

Valid up to:

This is to certify that the following fumigation agency/branch has been assessed and granted registration for undertaking methyl bromide fumigation treatments with an accredited fumigation operator in accordance with requirements specified in this Standard and under the provisions of Section 18 of the Insecticides Act, 1968 and subject to terms and conditions specified as under:

_____)

**Plant Protection Adviser
to the Government of India**

Name of Fumigation Agency/branch

Address

Terms & Conditions:

1. The Registration Certificate shall be displayed in a prominent place open to public by the fumigation agency and the registration number shall be quoted in all correspondence with Directorate of Plant Protection, Quarantine & Storage and in the fumigation certificates being issued.
2. The fumigation agency shall hold valid license issued by the Director of Agriculture of the concerned State
3. The certificate is valid for the period of three years as indicated above unless otherwise revalidated by the competent authority. The fumigation agency shall apply for revalidation at least one month prior to expiry of registration.
4. The fumigation agency shall undertake all fumigation operations under direct supervision of accredited fumigation operator and abide by the conditions specified in Compliance Agreement. The fumigation agency shall affix assigned mark (**see annex**) to the treated wood packaging material as per the annexure to the certificate in compliance with ISPM-15.
5. The certificate of registration granted shall be liable to be withdrawn/cancelled, should the said firm involved in making false records or issue fraudulent certificates or failed to meet the requirements of the Methyl Bromide Standard or violates any provisions of Insecticides Act, 1968 and Rules & Regulations issued there

Endorsements:

Revalidated/suspended/cancelled on _____ by _____

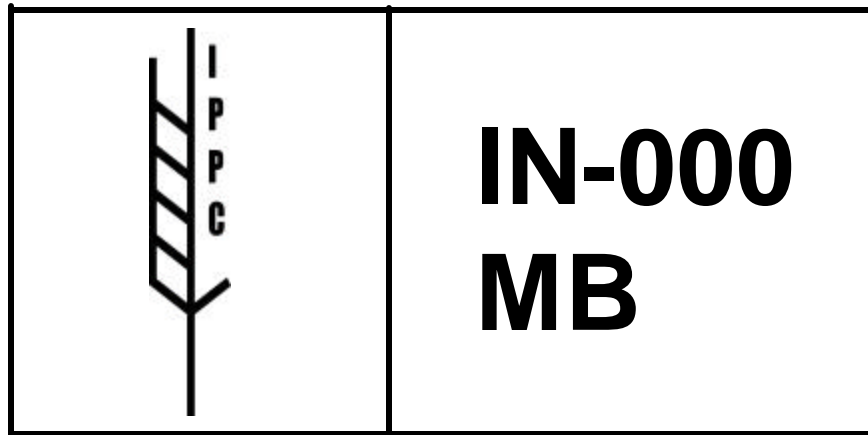
Revalidated/suspended/cancelled on _____ by _____

Reinstated on _____ by _____

Copy to:

Annex to Appendix-VI.

ISPM Mark Assigned to the Registered Fumigation Agency



Note: Markings should be according to the model shown above (12 x 6 cm), legible, permanent, not transferable, placed in a visible location and preferably marked by a stencil with black ink. The letter size should be a minimum of 2.5 cm. Recycled, remanufactured or repaired wood packaging material should be re-certified and re-marked. All components of such material should have been treated.

Appendix-VII

Certificate of Accreditation of Fumigation Operator



Government of India
Ministry of Agriculture
 (Department of Agriculture & Cooperation)
Directorate of Plant Protection, Quarantine & Storage
 N.H-IV., Faridabad-121001.

Accreditation Number:

Date of Issue:

Valid up to:

This is to certify that the following Fumigation Operator employed with the following fumigation agency/branch has been assessed for technical competency for performance of fumigation treatments with Methyl Bromide and granted accreditation in accordance with requirements specified in this Standard and the provisions of Section 18 of the Insecticides Act, 1968 and subject to terms and conditions specified hereunder.

 ()
Plant Protection Adviser
to the Government of India

Name of Fumigation Operator

**Fumigation Company/
branch/Address**

Affix
stamp size
photo

Terms & Conditions:

1. The Fumigation operator shall always directly supervise the fumigation operations and responsible for the safety of workers engaged in the fumigation operations.
2. He must display the Accreditation card (**see annex**) at the site of fumigation for ready recognition, whenever any fumigation treatment performed. .
3. He shall be responsible for undertaking fumigation treatments in accordance with requirements specified in the Methyl Bromide (MB) Standard and Accreditation Scheme.
4. He shall be responsible for issue of fumigation certificates after successful fumigation duly signed and affixed with accreditation number/other identification number or mark, where required.
5. The certificate of accreditation granted is valid for a period of 3 (three) years unless otherwise revalidated and is valid only for working with the specified company/branch unless endorsed by the competent authority
6. The certificate of accreditation granted shall be liable to be withdrawn/cancelled, should the fumigation operator is involved in making false records or issue fraudulent certificates or failed to meet the requirements of the MB Standard or violates any provisions of Insecticides Act, 1968 and Rules & Regulations issued there under.
7. The certificate is not transferable and should be surrender to .competent authority in the event of accredited fumigation operator retiring or leaving the afore said Company

Endorsements:

Revalidated/suspended/cancelled on _____ by _____

Revalidated/suspended/cancelled on _____ by _____

Reinstated on _____ by _____

Copy to:

Annex to Appendix-VII

<div style="border: 1px solid black; width: 80px; height: 80px; margin: 0 auto; display: flex; align-items: center; justify-content: center;"> <p>Affix Stamp</p> </div> <hr style="width: 100%;"/> <p>(Signature of FO) Contact Number</p> <hr style="width: 100%;"/>	Accreditation Card	
	No:	
	Date of Issue	Valid up to
	Fumigation Operator: Mr. _____	
	Fumigation Company/Address: M/s _____	
	Issued by: _____ (Plant protection Adviser)	

Appendix-VIII

Onsite Audit Check of Fumigation Company and Accredited Fumigation Operator.			
Name of Fumigation company/branch audited			
Name of the General/Branch Manager			
Name of Accredited Fumigation Operator (s)			
Date (s) of Audit			
Audited by			
Activity	Yes	No	Non-Conformity Level
Does the fumigation company have valid license/registration?			Critical
Does the fumigation company have adequate organizational structure and staff resources to carry out fumigation?			Major
Does the fumigation operator has the necessary qualifications & technical competency?			Critical
Does the fumigation company have all the essential equipments for carrying out fumigation operations as per the Standard?			Critical
Does the fumigation company have proper record keeping system?			Minor
Is there any secured & well ventilated place for storage of fumigants?			Minor
Is the accredited fumigation operator able to demonstrate the knowledge of the Standard & Accreditation Scheme?			Minor
Is the accredited fumigation operator directly supervising all the fumigation operations?			Major
Is the accredited fumigation operator undertaking all responsibilities for which he has been accredited?			Major
Are the gas monitoring /temperature measuring equipments/ weighing scales regularly calibrated to manufacturer specifications?			Major
Is the gas monitoring equipment is being used during fumigation operations?			Major
Are the equipment calibration records are maintained for 2 years?			Minor
Is the platform scale used for weighing the fumigant is accurate and precise and approved by the Weights & Measures Department?			Major
Is the temperature determined prior to the fumigation through a verifiable source and recoded?			Major
Are the goods verified prior to fumigation?			Major
Does the goods covered with or packaged in gas impervious materials (such as plastic wrapping or laminated plastic films, lacquered or painted surfaces, aluminium foil, tarred or waxed paper) must have the coverings or packaging opened, cut or removed, prior to fumigation?.			Major
Does the fumigation sheets used meet the permeability			Major

requirements as specified in the Standard?			
Did accredited fumigation operator meet the sheet fumigation construction requirements of the Standard?			Major
Any vaporizer used for applying methyl bromide in gaseous state?			Major
Has the accredited fumigation operator monitor gas concentrations at specified times during the fumigation as per the standard?			Major
Has the accredited fumigation operator checks the fumigation enclosure for gas leakages with the help of leak detector immediately after introducing gas?			Minor
Was pressure decay test is carried out prior to fumigation of cargo containers?			Major
Does the positioning of gas distribution lines & sampling lines meeting the requirements of the Standard			Minor
Does the measurement readings of gas from different sampling lines falls within +/- 15% level of each other?			Minor
Whether protective equipments such as respirators/SCBA being used during fumigation?			Major
Does the protective equipments have regularly serviced and maintained in working condition as per the documented plan of the fumigation company?			Major
Does the fumigation company undertake regular health check-up of fumigation operator & workers including blood bromine testing?			Minor
Whether any fans are used for effective distribution of the gas within fumigation enclosure?			Minor
Did the end point concentration fall within the specified limits of standard and was the fumigation released?			Major
Did the accredited fumigation operator undertake top-up operations, when the final reading falls between the Standard and lower limit and the time extended by 4 hours?			Major
Does the containers aerated at the end of fumigation and tested gas-free before release?			Minor
Does the danger sign-boards are displayed during fumigation?			Minor
Does the accredited fumigation operator has the knowledge about emergency measures/rescue operations in case of accidental poisoning by MB fumigant?			Major
Name & Signature of Auditee with date (Authorized Signatory of Company)			
Name & Signature of Auditor (s) with date	1. _____ 2. _____		

Appendix-X

Fumigation Record

Fumigation Company/Branch					Regd. Number:		
					Date:		
Description of Goods fumigated							
Commodity	Quantity	No of packages	Mode of Packing	Shipping marks	Container Number (s)	Place of Fumigation	
Shipment Particulars							
Vessel Name	Port of loading	Country of Export	Foreign port of shipment	Name of the Exporter	Name of the Importer		
Details of Fumigation Treatment							
Fumigant	Dosage (g/m³)	Date/Time of Starting Fumigation	Date/Time of Ending Fumigation	Temp in °C	Quantity Of fumigant	Volume/Type of Fumigation enclosure	
If Containers are not sheeted, the pressure decay (gas-tightness) value for 200-100 Pascals (in. seconds).							
Record of Monitoring gas concentration				Gas Monitor type Used:			
Date/Time	Time Interval	Readings of Sampling lines				Monitored by	
		S1	S2	S3	S4	S5	S6
	0.5 hr						
	1.0 hr						
	2.0 hrs						
	4.0 hrs						
	12.0 hrs						
	24.0 hrs						
	48.0 hrs						
Particulars of top up of fumigant at the end point of fumigation, if any undertaken							
Name & Signature of accredited Fumigation Operator with date/Accreditation Number							
Supervised by Specified Officer of Dte PPQS (Applicable in case of non-accredited agency)							

Appendix-XI Check Sheet of Fumigation

Use this check sheet along with fumigation record to identify procedures and actions before during and after each fumigation.

Item of Activity	Details of check	Status
Inspection of Fumigation site	Intact floor without cracks or drains	
	Floor not undulated, no pebbles or stones	
	Located in a safe working area	
	Well ventilated	
	Sheltered area, rain and wind protected as far as possible	
Preparation of Commodity	Stacked to allow good circulation leaving enough space around (2 m)	
	Impervious wrapping removed or slashed	
	Commodity not impervious to fumigant	
	Not forbidden commodity	
Preparation and installation of equipment	Vaporizer filled with water and heating	
	Sheets of correct size & specification	
	Gas distribution line installed	
	Gas sampling tubes installed (minimum of 3 per enclosure & 1 per container)	
	Fan installed and working checked (one in each container and 2 per enclosure)	
	Cover the enclosure with sheet and make gas-tight sealing at the ground with two rows of sand snakes	
	Measure enclosure volume and calculate dosage	
	Establish and mark out hazardous area and place dangerous signs	
Preparation to gas enclosure	Ensure risk area and surrounds free of unprotected personnel (up to 3 m)	
	Turn on fans	
	Test leak checker for working	
	Wear and test the respirator for correct fitness	
	Position gas cylinder on scale and connect to inlet of vaporizer and the outlet to gas distribution line	
	Release small quantity of gas and test fittings for gas leak and correct if necessary	
Application of gas to enclosure	Check vaporizer water boiling	
	Release required quantity of gas from the cylinder or dispenser	
	Check for hot gassing	
	Check for gas leakages around enclosure and correct leakages if any	
Initial monitoring	Turn off fan after 30 min	
	Measure gas levels on all monitor lines	
	Check to ensure all readings are above standard	
	Calculate if equilibrium achieved	
	Turn-on fans, if necessary-repeat until equilibrium achieved	
	Ensure levels still above standard-record and document	
End point monitoring	Measure gas levels on all monitor lines	
	Check to ensure all levels above standard	
	Carry out "top-up" procedures, if appropriate	
	Declare fumigation successful or failed, as appropriate-document	
De-gassing	Ensure risk area and surrounds free of unprotected personnel (up to 3 m)	
	Turn-on fans	
	Wear gas mask and test for fitness	
	Open enclosure and allow ventilation	
	Test for Threshold limit value (TLV)-Continue aeration until gas level below TLV	
	Remove warning signs and risk area demarcation	
Documentation	Complete all documentation and release fumigated goods after ensuring gas-free	

Appendix- XII

Fumigation Certificate	
(Company letter head) (Dte PPQS Regd No. _____ dated _____)	Treatment Certificate Number
	Date of Issue
<i>This is to certify that the goods described below were treated in accordance with the fumigation treatment requirements of importing country (_____) and declared that the consignment has been verified free of impervious surfaces/layers such as plastic wrapping or laminated plastic films, lacquered or painted surfaces, aluminium foil, tarred or waxed paper etc. that may adversely effect the penetration of the fumigant, prior to fumigation</i>	
Details of Treatment	
Name of Fumigant	
Date of fumigation	
Place of fumigation	
Dosage of Fumigant (g/m ³)	
Duration of Fumigation (hours)	
Average ambient temperature during fumigation (°C)	
Fumigation performed under gastight sheets	Yes/No
If containers are not fumigated under gas-tight sheets, pressure decay value (from 200-100 Pascal's) in seconds.	
Description of Goods	
Container Number (or numerical link)/Seal Number	
Name & Address of exporter	
Name & Address of consignee	
Type and description of cargo	
Quantity (MTs)/ No of packages/No of pieces	
Description of packaging material	
Shipping mark or brand	
Name & Signature of Accredited Fumigation Operator with seal & date/ Accreditation Number	
Endorsed by Specified Officer of Dte of PPQS (Applicable only in case of non-accredited fumigation agency)	

