# Guidelines for Certification of Forced Hot-Air Treatment Facilities for Wood Packaging Material


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

**May 2011**

**Endorsement:**

The **Guidelines for Certification of Forced Hot Air Treatment Facilities for Wood Packaging Material** has been prepared by the Directorate of Plant Protection, Quarantine & Storage (Dte of PPQ&S), Faridabad-121001 for approving Forced Hot-Air facilities for treating solid wood packaging material so as to meet the requirements of the ISPM-15: **'Guidelines for regulating wood packaging material in international trade'**. This standard prescribes guidelines/procedures in certification of forced hot air treatment facilities for treating wood packaging material. 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, 2011 by

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(S.K.G Rahate)
Plant Protection Adviser
Directorate of Plant Protection, Quarantine and Storage
**Faridabad-121001.**

**Review & Amendment**

The revised standard is subject to periodic review by the Plant Protection Adviser and amendment would be updated and revised as necessary. The standard holders should ensure that the current edition of the standard being used.

**Control & Distribution of the standard**

The controlled copy of this standard would be available with Scheme Incgarge (PQ) and the officers of Plant Quarantine Stations listed below. PPA would hold the master copy of the standard. Any enquiries regarding this standard should be made to the PPA, Dte of PPQS, Faridabad-121001.

| Controlled Copy Holder | Copy No. |
|---|---|
| Director (PQ), Plant Quarantine Division, DPPS, N.H-IV., Faridabad-121001. | 1 |
| Joint Director (PP/Ent), National Plant Quarantine Station, Rangapuri, New Delhi-110037 | 2/3 |
| Joint Director (PP/Ent.), Regional Plant Quarantine Station, Raja Sansi Airport, Amritsar-143101. | 4/5 |
| Joint Director (PP/Ent.), Regional Plant Quarantine Station, Meenambakkam, Chennai-600021. | 6/7 |
| Joint Director (PP/Ent.), Regional Plant Quarantine Station, Sewri, Mumbai-400014. | 8/9 |
| Joint 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,. Tuticorin-628001. | 17 |
| Plant Protection Officer (PP/Ent), Plant Quarantine Station, Thiruvanathapuram-695024 | 18 |
| Plant Protection Officer (PP/Ent), Plant Quarantine Station, Harbour, Vishakhapatnam-35. | 19 |
| Plant Protection Officer, Plant Quarantine Station, Rajiv Gandhi International Airport Airport Cargo Complex, Hyderabad-500016. | 20 |
| Assistant Director (Ent.), Central Integrated Pest Management Centre, White field, Bangalore-560070. | 21 |
| Plant Protection Officer (PP/Ent.), Central Integrated Pest Management Centre, Bhanwar Kua Main Road, Indore-452001 | 22 |
| Plant Protection Officer (PP/Ent.), Central Integrated Pest Management Centre, | 23 |

| | |
|---|---|
| Mahanagar Extension, Nagpur | |
| Plant Protection Officer, Kalimpong, West Bengal | 24 |
| Plant Protection Officer, Kakinada | 25 |
| Dy. Director /Plant Protection Officer, Bangalore, Karnataka | 26 |
| Plant Protection Officer, PQS, Guwahati | 27 |
| All Indo – Nepal Border PQSs | |
| All Accredited FHAT Operators | |
| All State Licensing Authorities | |

## Introduction

### Scope

This document provides guidance for certifying forced hot air treatment facilities for treating of solid wood packaging material to meet the requirements of ISPM-15.

### References

- International Plant Protection Convention, 1997, FAO, Rome.
- Guidelines for Regulating Wood Packaging Material in International Trade, 2002, ISPM-15, FAO, Rome.
- Export Certification System, 1997, ISPM-7, FAO, Rome.
- ISO 3166-1-ALPHA-2-CODE ELEMENTS (**http://www.din.de/gremien/nas/nabd/iso3166ma/codlstp1/en_listpl.html**)

Guidelines for Regulating Export of Solid Wood Packaging Material, 2004, Dte of PPQS, Ministry of Agriculture, Government of India.

- PPQ Treatment Manual, 2002, USDA, APHIS, USA.

### Definitions & Terms:

| | |
|---|---|
| Certificate: | An official document which attests to the phytosanitary status of any consignment affected by phytosanitary regulations [FAO, 1990] |
| Dunnage: | Wood packaging material used to secure or support a commodity but which does not remain associated with the commodity [FAO, 1990; revised ISPM Pub. No. 15, 2002] |
| Dwell-time | The time of holding of treatment after it attains the specified temperature of the treatment |
| Heat treatment | The process in which a commodity is heated until it reaches a minimum temperature for a minimum period of time according to an officially recognized technical specification [ISPM Pub. No. 15, 2002] |
| Mark | An official stamp or brand, internationally recognized, applied to a regulated article to attest its phytosanitary status [ISPM Pub. No. 15, 2002] |
| Official | Established, authorized or performed by a National Plant Protection Organization [FAO, 1990] |
| Warm-up time | The initial time taken to attain the specified temperature of treatment |
| Wood packaging material: | Wood or wood products (excluding paper products) used in supporting, protecting or carrying a commodity (includes dunnage) [ISPM Pub. No. 15, 2002] |

**Outline Requirements:**

This standard prescribes the guidelines/procedures for certification of forced hot-air treatment facilities for treating wood packaging material in accordance with ISPM-15: 'Guidelines for Regulating Wood Packaging Material in International Trade'. As per the ISPM-15, the raw wood packaging material required to undergo approved treatment such as heat treatment at $56^0$ C for 30 min and marked prior to export. It is therefore considered necessary for certification of forced hot air treatment facilities by the Dte PPQS being the NPPO so as to facilitate the approved treatment providers. The treatment reduces pest risk associated with the wood packaging material prior to export and affix the marking on treated wood as per the international standard. To meet the requirements of ISPM-15, it is essential to certify the forced hot air treatment facilities to ensure that wood packaging material including dunnage should be treated and marked in consistence with the provisions of ISPM-15.

## Guidelines/procedures for certification of Facilities

### 1.0. General Requirements

### 1.1. Authority to approve the facilities

The Plant Protection Adviser, Directorate of Plant Protection, Quarantine & Storage, N.H.IV., shall be the competent authority to approve and certify the facilities for treatment of wood packaging material for export to meet the requirements of ISPM-15.

### 1.2 Application Procedures for certification

All fresh applications for registration of facility should be made in prescribed format (Appendix-I) to the PPA along with the requisite information as per data sheet (Appendix-II) and accompanied by a bank draft for Rs. 25,000/- drawn in favour of 'Accounts Officer, Dte of PPQS., Faridabad' towards registration fee. The applications would be scrutinized and those duly completed in all respects would be registered by the PQ Division of Dte of PPQS, Faridabad-121001. PPA, if satisfied with the information provided by the applicant, may order a preliminary inspection of the facilities within one month from the date of registration.

For revalidation, the facility shall submit the application along with Demand Draft of Rs. 15,000/= in favour of Pay & Accounts Officer of the concerned regional stations (Officer-in-charge, NPQS/RPQS) at least 45 days prior to the date of expiry of validation.

When an agency applies for renewal of certification within stipulated time period, but due to the procedural delay at Regional Plant Quarantine Stations, could not get it in time, the agency may continue operating Heat Treatment till the receipt of renewed certificate. In case the Regional PQ station does not renew the certification within 30 days of the date of its expiry, the registration shall be deemed to have been renewed.

**1.2.1.: Conditions for transfer of facility from one place to another within a State or from one State to another State:**

FHAT facility is allowed to transfer the whole set up of the facility 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. However, the facility 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. 10,000/-. However, for shifting of agency within a city from one building to other building, the shifting fee is exempted.

**1.2.2: Conditions for transfer of accredited operator from one branch to another branch by the FHAT facility**

(i) Transfer of operator from one branch to another branch of the facility is permitted with the prior approval of Plant Protection Adviser. The application should be accompanied with a fee of Rupees 5,000/- only.

(ii) Further on transfer, the period of validity of operator once granted will remain unchanged unless operator leaves the agency to which he is attached.

(iii) When any facility opens a new branch and transfer the operator from old branch, the agency will be assessed for the basic facilities at new place besides the operator.

**1.2.3: Qualifying percentage of marks during Assessment of applicant for accreditation under NSPM-09**

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.

**1.2.4: Nomination of PQ Officers for inspection of facilities**

Scheme In-charge (PQ), in consultation with PPA, would nominate two suitable officers not below the rank of Plant Protection Officers of the Directorate for inspection/performance testing/verification of FHAT facilities for certification. The nominated officer (s) should verify the facilities and carry out performance testing before making necessary recommendations for certification.

**1.3 Criteria for nomination of Audit team for assessment of facilities and its operators:**

1. Two technical experts possessing required skill competency in performance of effective treatment operation shall be nominated by the Scheme In-charge, PQ/Officer In-Charge of NPQS/RPQS.

2. While nominating these experts, their previous record of efficiency, timely conduction of audit, clear track record i.e. no complaints from agency / public about their public dealing shall be taken into consideration, where applicable.

**1.4: Timelines for conducting of Audit:**

Timeline of one month period from the date of issue of assessment/nomination letter shall be applied. However, in case of unavoidable circumstances justification of delayed audit is to be furnished by the audit team.

**If facility fails to apply for renewal of its registration at least 45 days before the date of expiry of the registration, the facility will be suspended and shall not undertake heat treatment operation till further order or revalidation. A penal fee of Rs. 10,000/- will be charged for revalidation of the registration of such facility.**

## 2. 0. SPECIFIC REQUIREMENTS

### 2.1. Eligibility

#### *2.1.1. Educational Qualifications*

The FHAT operators seeking accreditation with the Dte of PPQS shall have passed Matriculation or equivalent from recognized Institution.

*2.1.2.Training Requirements*

The eligible operators shall be required to undergo training for a period of at least five days 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 heat treatment operations The training programmes will cover especially the following areas viz.,

- Regulations/National Standards
- Role of Regulating Agencies & Responsibilities of Technical Operators
- General principle of heat treatment
- Correct heat treatment practices as prescribed in the standard.
- Factors contributing to success/failure of heat treatment
- Correct operation of micro-processors
- Correct placement of all sensors within heat treatment chamber
- Proper placement of wooden pallets within the chamber according to the capacity of chamber

**4: Location, construction & design of facility**

The location, construction and design of the facility should be as per the safety norms and standards prescribed by the concerned local Authority and as per approved engineering design and plans. PPA may refuse the certification if in his opinion safety deficiencies exist at the

plant (for example open motors with exposed gears, un protected fan belts within 6ft from the floor level), exposed control panel or measuring equipments used are substandard and does not guarantee required level of sensitivity and due to phytosanitary reasons.

### 4.1.: Minimum Requirements of facility:

The minimum requirements for setting up of forced hot air treatment facility include a heat treatment chamber of appropriate capacity, which should be adequately insulated on all sides with rock/glass wool (i.e. a minimum of at least 15 cm thickness) or equivalent to ensure proper thermal insulation. A heat delivery system (consisting electric heaters/ diesel burner /gas burner /fire wood etc) with required heat capacity and the blowers to blow heated air into the chamber through a close ended duct with a provision to recycle the heated air and a motorized damper for exhausting 10% return air to remove moisture from the chamber after 10-15 min of the process time; a process control and interlocking system to provide adequate safety of operations; a PID single loop Temperature Controller holding a minimum of 6 temperature sensors connected to a paper-less temperature recorder. The list of essential equipments together with the specifications given in Appendix-IX.

### 5.:Responsibilities of Approved Facility

The certified facility is responsible:

- to carry out all treatment operations through a qualified operator
- to report to the PPA of any out of service of the facility for 10 days or more on account of any mechanical and electrical failures or annual maintenance checks or any lay-offs
- to maintain the equipments in good working conditions and periodical calibration of temperature sensors, control instruments and recorders
- to maintain proper records of all treatment operations carried out at the facility including the data logs or temperature record sheets or diskettes
- to ensure that all the treatments of solid wood packaging material carried out strictly in accordance with the approved protocol specified under ISPM-15 and affix the mark assigned to the facility on treated wood prior to export in line with ISPM-15.
- to abide by the instructions and guidelines issued by the PPA from time to time and extend all the cooperation to the inspecting PQ officers for carrying out performance tests and audit checks.

## 6. Audit Protocols

Dte PPQS shall establish an audit system outlined below to measure the performance of FHAT facility and the accredited operator against the requirements 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-III**. 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 facility has grossly violated the regulatory requirements established by the Dte of PPQS.
- **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.

Even one critical non-conformity will result in immediate suspension of the FHAT facility and the accredited technical operator from the Accreditation Scheme. One major and less than four minor non-conformities will result in corrective actions and an additional announced audit.

The audit team will notify the FHAT facility and the accredited fumigation operator in writing at the spot about the nonconformities and advise the facility and the accredited operator of subsequent compliance action to be taken by the said facility. The FHAT facility shall submit a corrective action report within 30 days to the Dte of PPQS/ In-charge NPQS/RPQS, which records and details non-conformities, corrective action and the proposed date for rectification.

*i) Initial Audit*

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

*ii). 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 FHAT facility and their accredited technical operator.

*iii) Un-announced audits*

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

*iv). 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 FHAT facility and its accredited operator.

## 7 Suspension and Reinstatement Protocols

Dte of PPQS will undertake immediate suspension of the FHAT facility and accredited operator that perform ineffective heat treatment operations. The suspended facility and the accredited 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 four or more minor non-conformities are found, FHAT facility and accredited operator will be suspended immediately and will be subject to a reinstatement audit.

If during an audit, one major and less than four minor non-conformities are found the FHAT facility and the accredited operators are asked for corrective action within six (6) weeks. If during the follow-up audit, the non-conformities have not been addressed, the facility and the accredited operator will be suspended immediately and will be subject to a reinstatement audit again within six (6) weeks.

The registration granted to the FHAT facility and the accreditation granted to operator will be cancelled, if:

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

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

## 8 Appeal and Revision Protocol

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

For this purpose, the FHAT facility and the accredited 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 itself to the legality or propriety of any such decision passed by the PPA before any such order as it thinks fit shall be passed. Before any such order is passed, PPA shall be given a reasonable opportunity to be herd and no such order shall be passed after expiry of 30 working days.

## 9:Approval of foreign treatment facilities

The foreign facilities that are established and duly certified by the competent authority in confirrmity with the provisions of this standard shall be deemed to be approved and recognized by the Plant Protection Adviser. It shall be the responsibility of the competent authority of exporting country to provide the list of approved facilities to the Plant Protection Adviser, Dte of Plant Protection, Quarantine & Storage, N.H.IV., Faridabad-121001.

## 10:Special Requirements

### 10.1:Preliminary Performance Testing

If a facility has not previously been certified by the PPA, the qualified technical operator of the facility must carry out preliminary performance test on his own and by a inspection officer nominated by the PPA to verify the facilities and ensure that all the equipments are in good working order and the check sheet given in Appendix-IV duly filled and submitted to PPA. The operator should ensure to correct any deficiencies encountered during preliminary performance testing and standardize the equipments performance Through the preliminary trials, the operator should establish a tentative temperature set point for the heater and chamber, such that the core temperature of wood blocks will attain the approved treatment temperature with in a reasonable time. The operator should do at least carry out one trial treatment with empty chamber with sensors placed at appropriate positions as well as loaded chamber with wood packaging material such as pallets with sensors placed into the core of blocks wooden blocks placed at different depths. The resulting data of preliminary performance testing should be forwarded to the Dte of Plant Protection, Quarantine & Storage, Faridabad with written comments, as a evidence that the FHAT facility is ready for its official performance test. If PPA satisfied of the results may order for carrying out final official performance test for certification with in a maximum period of 15 days from the date of receipt of the trial data.

### 10.2: Procedures for conducting official performance test for certification

The official performance test would be carried out by the officer nominated by the PPA for the initial certification and by the in-charges of NPQS/RPQS for subsequent revalidation in three stages viz., (1) calibrating the portable sensors; (2) calibrating the permanent sensors installed in the FHAT chamber; and (3) conducting an actual test treatment, which are described in detail below:

**(i) Calibrating the portable sensors**

Using a factory (calibrated) certified glass-mercury thermometer (readable in one tenth of a degree in Celsius) as the standard, compare the readings from each portable sensor to the standard and record any deviation. The calibration process is carried out using a swirling hot water bath at or near required treatment temperature. Any sensor that deviates by plus or minus $0.3^0$ C from the standard should not be used for calibration of permanent sensors. If cordless factory calibrated portable sensors are used, they require no further calibration At least a minimum of three portable sensors would be required to be calibrated for the test.

**(ii) Calibrating the permanent sensors installed in the FHAT chamber**

The calibration of permanent sensors installed in the chamber or used to measure core temperature is done in similar way using the calibrated portable sensors. For this purpose the portable sensors with a zero correction factor may be used instead of certified glass-mercury thermometer as standard against which permanent sensors are compared. The permanent sensors tested should pass the same level of accuracy as that of portable sensors

**(iii) Conducting actual test treatment**

The officers nominated by PPA / in-charges of NPQS/RPQS shall carry out actual test treatment by inserting portable sensors into holes drilled in different solid wood blocks up to a depth of 6 cm and positioned at different heights in the chamber loaded with pallets. The exact placement of sensors should be indicated in three-dimensional diagram. The chamber should be closed and turn on the heating system. The readings of sensors should be taken at least once every five minutes during warm-up and every 2 minutes during dwell-time. From the readings determine the warm-up time and run the dwell-time portion of treatment and hold for the minimum time specified by the approved treatment schedule i.e. $56^0$ C for 30 minutes. At the end of process review all temperature records from portable as well as from permanent sensors. If the test treatment successful, the nominated officers should initial the log sheet and remove all the portable sensors after the chamber cools down to ambient temperature and submit a report in prescribed format (Appendix-IV) to PPA along with his recommendations for issue of certificate. At least one successful test treatment is required either for certification or recertification as the case may be. If the facility meets the requirements of certification, a compliance agreement (Appendix-V) should be duly signed by the authorised signatory of the

facility in the presence of nominated Officer and forward to PPA to facilitate issue of certificate.

### 11:Issuance of certificate of approval of facility

PPA after verification of test report and the receipt of compliance agreement may issue a certificate of approval of the facility in prescribed format as described in Appendix-VI and assigns the mark and code number to the certified facility for affixing on treated wood as per the ISPM-15. The certificate of approval granted would be valid initially for one year from the date of issue and further validity is extended after every two years.

### 11.1: Revalidation of the facility and Frequency of Performance Testing

The application for extending validity of certificate should be made to in-charges of NPQS/RPQS at least 45 days in advance from the date of expiry of certificate. A new performance test must be required for revalidation of certificate and whenever the facility has been out of service for 10 days or more. In addition, the permanent sensors installed in the FHAT chamber should be required to be recalibrated daily when chamber is in use and whenever sensors are replaced.

### 11.2:Documents & Records to be maintained

The approved facility should maintain the treatment records as per the format prescribed in Appendix-VII and same should be serially numbered and duly signed by the qualified technical operator and preserved in appropriate folder along with prints of data loggers for future reference and necessary verification during audit checks by PQ Officers.

### 11.3:Quarterly reporting of treatments performed

The certified facility should submit a quarterly report (Appendix-VIII) to PPA/ in-charges of NPQS/RPQS for review of performance of treatments.

### 12.:Refusal of Certification/Derecognizing of Facility

PPA may refuse the certification of the facility because of safety deficiencies at the plant or in his opinion the equipments installed does not confer the required level of accuracy. However in the event of refusal, no refund of registration fee would be made. PPA may de-recognize the certification granted to the facility in the event of the firm does not abide by the terms and conditions stipulated in the certificate or that it failed to carryout the appropriate treatments in consistent with this standard or that it involved in clandestine affixing of mark without carrying appropriate treatments or maintenance of fraudulent records or in the event of receipt of notification of repeated non-compliances from the importing countries.

## 13:Operational Requirements

### 13.1:Pre-Treatment Procedures

The authorized operator should determine the moisture percentage of wood packaging material prior to loading in to the chamber. He should position the calibrated permanent sensors at different heights in front, rear & two sides of the chamber as indicated below:

- In case of FHAT chamber that has bottom hot-air delivery, the sensors should be hanged at the level of the top layer of pallet.
- The facility has to identify the coldest point inside the empty heat chamber.
- In FHAT chamber that has top air delivery, the sensors should be placed at the level of bottom layer of pallet.
- In a chamber that has top and bottom air delivery, the sensors should be placed at the level of middle layer of the pallets.
- Two sensors should be inserted to a depth of 5 cm in blocks of fresh wood and placed at appropriate position.

The loading of chamber should not be more than 75% capacity of the chamber.

**13.2:Treatment Procedure**

After loading the pallets into the chamber, the door should be closed before switching-on the power supply, heaters and the blowers. The heater switch may be set at maximum heat position so as to attain heater temperature at about $74^0$C. The temperature recorder should be set to record temperature at every five min or make continuous pen-line recordings as the case may be, colour coded for each sensor, on a graph paper readable in tenths of a degree in Celsius. After warm-up period, the frequency of temperature recordings should be increased to once every two minutes. The dwell time would start when core temperature of wood blocks attains the temperature of $56^0$ C. The delivery air must be warmer than the targeted core temperature, but this matter would be left to the discretion of operator. The Dte of PPQS, would not require any particular temperature set point, because the treatment would be based on core temperature of wood and not on air-delivery temperature. The operator could have the flexibility to change the temperature of delivery of air at various times during treatment as well as blower speed.

**13.3:Post-Treatment Procedures**

At the end of process, the chamber should be allowed to cool down gradually to an ambient temperature before the door is opened. It should be ensured under no circumstances the treated wood got mixed up with raw wood or stored along side with raw wood package material to prevent cross-infestation.

**13.4:Marking of treated solid-wood packaging material**

The treated wood packaging material should be marked as per the mark assigned to the approved facility. The mark should be affixed at visible location and should be stenciled with the black ink or paint (not washable) as suggested in the enclosure to the certificate of approval.

**13.5:Compliance checks on prescribed procedures**

The officer nominated by PPA/ in-charges of NPQS/RPQS should carry out compliance checks for ensuring that certified facility would meet the requirements set out in this standard

in line with ISPM-15, which include monitoring certification and marking systems that verify compliance and establishing treatment procedures including auditing of facilities that apply the measures. Such audit checks/surprise visits should be carried out at least once in every six months period or at any such intervals as may be decided by the PPA. The nominated officer at the end of audit check/surprise visits to the facility should submit a report to PPA/ in-charges of NPQS/RPQS, of his observations and comments together with the list of non-compliances, if any and preventive and corrective measures to be undertaken.

## 14. States under Jurisdiction of NPQS/RPQS

Details of States and UTs under the jurisdiction of NPQS and RPQS have been given in Appendix X for reference.

Appendix-I

**Application for Certification of Forced Hot-Air Treatment Facility for treating wood packaging Material**

<table>
<tr><td>To<br><br>The Plant Protection Adviser<br>Dte of Plant Protection Quarantine & Storage<br>N.H.IV., Faridabad-121001</td><td>For office Use<br>Receipt No:<br><br>Date of Receipt:</td></tr>
<tr><td>1. Name and address of the applicant</td><td>2. Location of the facility</td></tr>
<tr><td>3. Nature of business carried out</td><td>4. Particulars of Registration/Licensing Date of expiry of license.</td></tr>
<tr><td>5. Name and designation of the person responsible for the operation of facility</td><td>6. Whether it is for its own use or commercial facility?</td></tr>
<tr><td>7. Construction & design by</td><td>8. Whether separate storage facility for treated solid wood packaging material?</td></tr>
<tr><td>9. Details of Bank draft enclosed</td><td>10. Additional information, if any</td></tr>
<tr><td colspan="2">Declaration<br><br>I/We declare that the information provided as above is complete and correct in all respects and that the facility has been set-up strictly in accordance with established safety norms/standards of local authority; and I/we read/understood the certification requirements of the facility and abide by the terms and conditions of certification prescribed there of by the Plant Protection Adviser to the Government of India<br><br>Date:<br>Place: ((Authorised Signatory)<br>Seal</td></tr>
</table>

**N.B: Application form shall be submitted in duplicate along with a registration fee by a bank draft for Rs. 20000/- drawn in favour of Accounts Officer, Dte of PPQS, NH-IV, Faridabad-12100**

Appendix-II

**Data Sheet of Forced Hot –Air Treatment Facility (FHAT).**

1. Name of the FHAT Facility:

2. Location of the FHAT Facility:

3. Particulars of construction/design/insulation of the facility:
   (Enclose diagrammatic sketch of the facility)

4. Housing of FHAT Facility: ☐ Open ☐ Covered

5. Storage facility for treated wood packaging material, if any: Yes/No
   (If yes, capacity in terms of number of pallets)

6. Interior Dimensions of Chamber (LWH in m):

7. Loading capacity per cycle (No of pallets & pallet size):

8. Power Supply & Source:

9. Generator support, if any and particulars thereof:

10. Operation of Facility: Automated/Manual
    (If automated give particulars of computers & microprocessors & location)

11. Description of Voltage Stabilizers/Surge Protectors, if any:

12. Location of Control panel & power distribution:
    (Supply line diagram

13. Description of Process Control/Interlocking/Safety Alarm

14. Specification of Electric Heaters/ Nos/Heat Capacity

15. Specification of Blowers/Nos/ Motors/Blower Capacity:

16. Description of ducting & casing of heaters & blowers:
    (Enclose hot-air flow diagram to the chamber)

17. Specifications of PID Temperature Controller

18. Specification of Temperature Sensors/Make/Nos & Distribution:
    (Enclose three-dimensional diagram indicating the position of sensors)

19. Specification of Temperature Recorder or Data logger/Make/Sensitivity of Recording:

20. Description of Hot-Air delivery system to the chamber (Top/Bottom/ or Both)
    /No of Grills & Grill Size:

21. Description of Recirculation &Exhaust Air System to the chamber

22. Description of loading system of pallets into the chamber

Date:
Place: Seal Authorised Signat

Appendix-III

## Checklist for Preliminary Evaluation/Testing of the FHAT Facility

| S. No. | Evaluation/Testing of Activity | Yes | No | Critical Status |
|---|---|---|---|---|
| 1. | Isolation of facility from other work areas | | | Non-critical |
| 2. | Separate storage facility for holding of treated material | | | Non-critical |
| 3. | Design & construction of the facility followed the standard safety & engineering norms | | | Critical |
| 4. | Insulation of the chamber, ducting and casing of heater & blowers | | | Critical |
| 5. | Electrical wiring through out the facility meet the safety code norms including earthing and PVC conduiting | | | Critical |
| 6. | If automated facility, whether computers/microprocessors are located in air-conditioned to maintain accuracy and reliability and installed with surge protectors | | | Critical, if computerized |
| 7. | Constant un-interrupted power supply | | | Critical |
| 8. | Electrical generator to back-up power supply | | | Critical |
| 9. | Process control & interlocking system provided to the facility and checked performance | | | Critical |
| 10. | Safety alarm system provided and checked for performance | | | Critical |
| 11. | Installation of PID Temperature Controller and testing | | | Critical |
| 12. | Calibration of permanent sensors before installation in the chamber | | | Critical |
| 13. | Installation of time/temperature control switches & testing | | | Critical |
| 14. | Installation of heaters and checking heating capacity | | | Critical |
| 15. | Installation of blowers and checking blower capacity | | | Critical |
| 16. | Checking performance of temperature recorder/data logger and recording frequency | | | Critical |
| 17. | Check the motorized damper for exhaust air for performance | | | Non-critical |
| 18. | Arrangements for measuring core temperature of wood | | | Non-critical |
| 19. | Additonal points (ports) in the wall of chamber for insertion of portable sensors for performance testing. | | | Non-critical |
| 20. | Check the uniform airflow circulation in the chamber | | | Non-critical |
| 21. | Check the railings of the platform for smooth loading in/unloading out of wooden pallets. | | | Non-critical |
| 22. | Arrangements for measuring moisture content of wood-packaging material. | | | Non-critical |
| 23. | Control panels/Electric Meters etc., are adequately rain protected | | | Critical |
| 24 | Installation of fire fighting equipment at the facility | | | Critical |
| 25 | Identification of coldest point inside of empty heat chamber | | | Major |

| | | |
|---|---|---|
| 26 | _____<br>**(Name & Signature of Inspecting PQ Officer w/date)** | _____<br>**(Name & Signature of Authorised operator w/date)** |

Appendix-IV

**Format of Official Performance Test Report**

1. Name/ location of Facility:

2. Description of Facility:

3. Dates of Inspection

4. Results of Preliminary Performance Test

5. Comments of Preliminary Performance Test

6. Results of Official Performance Test for Certification

   (i) Results of calibration of portable sensors
   (ii) Results of calibration of permanent sensors installed in the chamber
   (iii) Results of actual test treatment (single cycle)

7. Name & Designation of Officers associated with testing:

8. Remarks & Recommendations for Certification:

9. Signatures of officers Nominated for Testing

1. _____ 2._____
(Name & Designation of Officer) (Name & Designation of Officer)

10. Counter Signature by:

_____

(Name & Designation of Counter Signing Officer)

Appendix-V

| **COMPLIANCE AGREEMENT** | | |
|---|---|---|
| **1. From** | **2. To**<br><br>The Plant Protection Adviser<br>Dte of Plant Protection Quarantine & Storage, N.H-Faridabad-121001 | |
| **3. Agreement related to**<br>Forced Hot Air Treatment of Solid Wood Packaging material | | |
| **4. Applicable Phytosanitary Regulatory Requirements**<br>To meet the Requirements of ISPM-15 | | |
| **5. I/we agree to the following:**<br><br>-to carry out all treatments through trained/qualified operator<br>-to ensure periodical calibration of temperature sensors and maintain the facility in working condition<br>-to provide all testing equipments, labour and extend necessary assistance and cooperation to the nominated PQ officers during the visit to the facility for undertaking performance tests/audit checks of the facility<br>-to follow all safety requirements or procedures during treatment operations and abide by the instructions and procedures required by the Plant Protection Adviser in the planning, setup and conduct of treatment<br>- to carry out heat treatment of solid wood packaging material as per the standards prescribed under ISPM-15 and mark the treated wood as per the code number & marking assigned<br>-to main record of treatment operations as per format prescribed and preserve data logs for future verification | | |
| **6. Authorised Signatory:**<br><br>_____<br>**(  )** | **7. Designation** | **8.Date:**<br><br>**9.Place** |
| **9. Signed in presence of**<br><br>_____<br>**(Name/ /Signature of PQ officer)** | **Office Address** | |
| **10. Approved by the PPA**<br><br>_____<br>**(  )** | **Stamp of Organisation** | |

Appendix-VI

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

**Certificate No.** **Date of Issue:**
**Valid up to:**

**Certificate of Approval of Forced Hot Air Treatment Facility**

This is to certify that the Forced Hot Air Treatment Facility as described below has been inspected and certified for treatment of solid wood packaging material for export after conducting satisfactory performance test and that the firm is authorised to mark the treated packing material as per the code number & mark assigned, which is reproduced below and further subject to the terms and conditions stipulated as under:

1. Name of the Facility:
2. Location of the Facility:
3. Capacity of the Facility:
4. Code Number assigned to the Facility:

Date:

Place: Seal

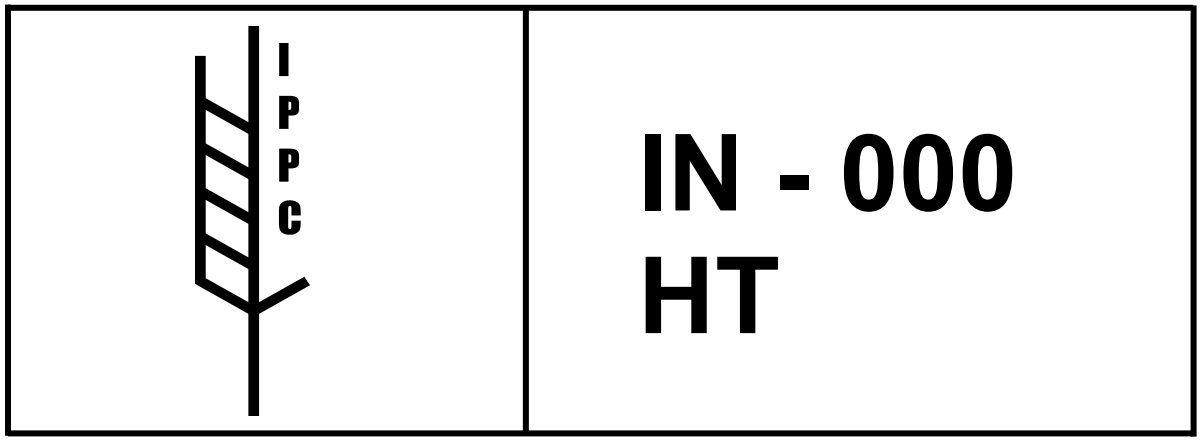
_____
( )
**Plant Protection Adviser**
**Dte PPQS, Faridabad**

**(ii)**

**Terms & Conditions:**

1. The Certificate should be displayed at prominent place and available for verification during inspections to the facility;
2. No alterations or corrections would be permitted on the face of the certificate
3. The certificate would be deemed to be invalid for other than the purpose for which it is given.
4. All the treatment operations should be performed by a qualified operator of the firm and necessary treatment records/data log sheets are maintained for necessary verification
5. All the treatments should be performed as per the standards laid under ISPM-15 and the treated packaging material should be marked with assigned code number prior to export as per ISPM-15.
6. The certified facility should abide by the instructions and guidelines issued by the Plant Protection Adviser from time to time
7. The certified facility should submit a compliance agreement to the Plant Protection Adviser at the time of issuance of the certificate duly signed by the authorised signatory of the firm.
8. The certificate would be valid initially for one year from the date of issue and subsequently for two years from the date of renewal unless otherwise revalidated. The firm shall apply for revalidation at least 45 days before the date of expiry of certificate.
9. No liability would lie with the officers Dte of P PQS towards issuance of the certificate.

**Mark Assigned to the Facility:**




**Foot 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

**Treatment Record**

| **1. Name of the Facility** | **2. Location** | **3. Code No:** |
|---|---|---|
| | | |

| **4. TR No.** | **5. Date of Treatment** |
|---|---|
| **6. Exporter Name & Address** | **7. Consignment/shipping particulars** |
| | |

| **8. Description of package material Treated** | **9. Country of Export** | **10.Quantity Treated** | **11. Batch No.** |
|---|---|---|---|
| | | | |

| **12. Actual Time Log (24 hrs Time)** | **From** | **To** |
|---|---|---|
| **13. Starting Time** | **14. Attaining Time of $56^0$C** | **15. Ending Time** |
| | | |

| **16. Total Treatment Period (in min.):** |
|---|

| **17. Warm-up Time:** | **18. Dwell Time:** |
|---|---|

| **19. Temperature Recordings of Sensors (Attach log sheet)** | | | |
|---|---|---|---|
| **Recorder** | **Starting Time** | **Attaining Time** | **End Time** |
| **Recorder Heater 1** | | | |
| **Recorder Heater 2** | | | |
| **Recorder Zone 1** | | | |
| **Recorder Zone 2** | | | |
| **Recorder Zone 3** | | | |
| **Recorder Zone 4** | | | |
| **Recorder Core 1** | | | |
| **Recorder Core 2** | | | |

| **20 Moisture percentage of wood packaging material** | **Before treatment:** | **After Treatment:** |
|---|---|---|
| **21. Comments, if any:** | | |

| **22. Name & Signature of Authorised Operator w/date** | |
|---|---|
| | |

Appendix-VIII

**Quarterly Report**

| **1. Name of the Facility:** | | | **2. Code Number:** | | | |
|---|---|---|---|---|---|---|
| **3. Location:** | | | **4. Period of Reporting:** | | | |
| **5. Details of Treatment:** | | | | | | |
| **Month & Year** | **Description of packaging material treated** | **Quantity (No of Units/ Volume in cu. m) treated** | **No of Treatment Cycles** | **Country of Export** | **Treatment Period** | |
| | | | | | **Warm-up Time (Monthly Average)** | **Dwelling Time (Monthly Average)** |
| **(1)** | **(2)** | **(3)** | **(4)** | **(5)** | **(6)** | **(7)** |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| **6. Remarks, if any** | | | **7. Name & Signature of Operator** | | | |

**Appendix-IX**
**List of Essential Equipments**

| S. No. | Equipment | Make | Quantity | Specifications |
|---|---|---|---|---|
| 1. | Temperature Sensors | Gefron (Italy) or equivalent | Minimum 6 | Sensor type: RTD (PT-100)<br>Diameter: 4mm<br>Temperature range: 0-400$^0$C<br>Length: variable (95 mm to 230 mm) |
| 2 | PID Temperature Controller with Sensor | Honey Well or Equivalent | 1 | Controller Type: PID Single loop<br>I/P Signal Type: Analog Universal (RTDs, Thermocouple, mV, mA)<br>O/P Signal Type: Analog (4-20 mA &SSR O/P<br>Digital O/P Type: Relay O/P with Two NO/NC Contact (Rating 5 Amp)<br>Supply Voltage:220 V/50 HZ<br>Working Range: 0-200$^0$C<br>Accuracy: 0.5% of Span<br>Cutout Size: 96 X 96 mm |
| 3 | Paper less Temperature Recorder (Data logger) | Honey Well or Equivalent | 1 | Input: Six Universal (T/C, RTD, mV, V, mA)<br>Screen size: 5” colour LCD<br>Data Storage: 1:44 MB Floppy<br>Memory Buffer: 2MB Battery Back up<br>Ethernet Connectivity: Provided<br>Fuzzy Logging: Provided<br>Alarm: 32 Integrated Soft Alarms<br>Power Supply: Universal (90-250 V, AC)<br>Dimensions: 144 X 144 mm |
| 4. | Blowers | BIS Marked | As per requirement | Capacity: 12000 CFM<br>Motor: 3.5 K.W.<br>Input Supply: 3 Phase/415 V, 15 A |
| 5 | Electrical Heaters (Optional) | BIS Marked | As per requirement | Capacity: 494740 BTU/hr<br>Electric Supply: 150 KW |

| | | | | |
|---|---|---|---|---|
| 6 | Fire extinguisher | BIS Marked | As per requirement | |
| 7 | Computer with accessories (Colour printer etc.) | -- | 1 | |
| 8 | Air Conditioner | -- | As per requirement | |
| 9 | Moisture Meter | -- | 1 | |
| 10 | Thermometer (Calibrated) | 100 deg. C | 1 | |

## Appendix-X

**Table Showing Names of States under Jurisdiction of NPQS / RPQS**

| Sl. No. | NPQS/RPQS | Name of States | No. of States |
|---|---|---|---|
| 1. | National Plant Quarantine Station, New Delhi. | NCR, Delhi, Haryana, Uttar Pradesh, Rajasthan and Uttarakhand. | 05 |
| 2. | Regional Plant Quarantine Station, Amritsar (Punjab) | Punjab, Himachal Pradesh, Chandigarh and Jammu & Kashmir, | 04 |
| 3. | Regional Plant Quarantine Station, Chennai (Tamil Nadu) | Tamil Nadu, Andhra Pradesh, Andaman & Nichobar, Kerala and Karnataka, Pondicherry | 06 |
| 4. | Regional Plant Quarantine Station, Kolkata (W. B.) | West Bengal, Bihar, Orissa, Jharkhand, Assam, Meghalaya, Tripura, Manipur, Mizoram, Nagaland, Sikkim and Arunachal Pradesh. | 12 |
| 5. | Regional Plant Quarantine Station, Mumbai (Maharashtra) | Maharashtra, Madhya Pradesh, Goa, Chhattisgarh , Laksh Dweep &Minicoy ,Gujrat,Daman&Diu, Dadra&Nagar Haveli | 08 |
| | **TOTAL:** | | **35** |