

WORK INSTRUCTION

# Supervising a vapour heat treatment for plant exports

**Direction to staff**

You must comply with this instructional material under the Practice Statement Framework.

**Direction to authorised officers**

Authorised officers must perform services in accordance with any lawful directions or instructions issued by the department.

**Summary of main points**

This document outlines the procedures for inspection authorised officers (AOs) to follow when supervising a vapour heat treatment for plant exports. It includes how to:

* prepare for a vapour heat treatment
* verify a previous sensor calibration
* supervise calibration of temperature sensors
* supervise sensor placement
* supervise chamber loading and treatment start
* verify the treatment
* fail the treatment.

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## Purpose of this document

This document details the procedures for supervising and verifying a vapour heat treatment (VHT) for plant exports.

## Definitions

The following table defines terms used in this document.

| Term | Definition |
| --- | --- |
| Authorised officer (AO) | A person authorised under section 291 of the *Export Control Act 2020* to be an authorised officer. The authorised officer may exercise powers and functions conferred on them through an instrument of authorisation.Note: An authorised officer may be a Commonwealth, State or Territory government officer, or third party individual. Examples of third party individuals include, but are not limited to:* employees of registered establishments
* employees of an exporter
* self-employed individuals/sole traders
 |
| Client | The exporter, exporter’s representative or person responsible for prescribed goods intended for export. |
| Consignment | Prior to export, means the quantity of plants or plant products identified on the notice of intention to export for export to an importing country.at or post export, means:1. where a phytosanitary certificate has been issued in relation to plants or plant products – a quantity of plants or plant products being moved from one country to another, that are covered by that phytosanitary certificate.
2. where no phytosanitary certificate has been issued in relation to plants or plant products – a quantity of plants or plant products being moved from one country to another, that are covered by the export permit.
 |
| Exporter | The entity identified as the exporter in a Notice of Intention/Request For Permit to export. |
| Manual of Importing Country Requirements (MICoR) Plants | Database maintained by the department that outlines importing country requirements for a range of plants and plant products for export. |
| Protocol | A government to government document that specifies import requirements and is bilaterally agreed to by Australia and the importing country authority. **Note:** Countries in which Australia has an agreed protocol with are referred to as ‘protocol markets’. For a list of protocol markets see the Reference: [*Table of plant export protocol markets*](#_Related_material). |
| Temperature sensor | Equipment/probe for monitoring the product/air temperature.**Note:** This is also commonly referred to as a probe.  |
| Vapour heat treatment (VHT) record | Record of the results related to the vapour heat treatment for plants and plant products for export. |
| Vapour heat treatment sensor calibration record (calibration record) | Record of the results of VHT sensor calibration. The calibration of temperature sensors must be completed at least every 31 days by an AO accredited with the TRE3001:3 *Export phytosanitary treatments – Vapour heat treatment* job function. |

## Policy statement

* VHT must be carried out in accordance with the [*Australian Phytosanitary Treatment Application Standard for Vapour Heat Treatment*](#_Related_material).
* This work instruction is to be used in conjunction with the importing country’s requirements (ICRs) listed in import permits, [protocols, work plans](#_Related_material) and the Manual of Importing Country Requirements ([MICoR](#_Related_material)). Where the ICRs contradict the requirements in this document, the ICRs must take precedence.

### Supervision by an AO

This role must only be performed by AOs with the TRE3001:3 *Export phytosanitary treatments – Vapour heat treatment* job function.

## Legislative framework

The following list outlines the legislation that applies to specific tasks involved in supervising vapour heat treatment:

* *Export Control Act 2020* (Act)
	+ Section 410 Act – Methods for taking, testing and analysing certain samples
* Export Control (Plants and Plant Products) Rules 2021 (Plant Rules)
	+ Part 2 of Chapter 3 – Government certificates
	+ Part 2 of Chapter 9 – Assessments of goods
	+ Part 1 of Chapter 11 – Records

## Roles and responsibilities

The following table outlines the roles and responsibilities undertaken in this work instruction.

| Role | Responsibility |
| --- | --- |
| Clients | * Providing the country and commodity information to the inspection AO.
* Nominating a treatment schedule.
* Providing assistance to the inspection AO, where required.
* Replacing or resetting faulty temperature sensors, if required.
* Conducting the calibration of the temperature sensors.
* Placing the temperature sensors.
* Maintaining product security post-treatment.
 |
| AOs | * Supervising the calibration of temperature sensors.
* Supervising the chamber loading and start of treatment.
* Supervising the placement of sensors.
* Verifying the treatment results.
* Completing the VHT record.
* Failing the treatment.
 |

## Work health and safety

AOs must:

* read and be familiar with the Reference: [*Work health and safety in the plant export environment*](#_Related_material_1)
* not enter work sites unless it is safe, they are wearing the required personal protective equipment (PPE) and have considered any work health and safety (WHS) hazards
* comply with applicable Commonwealth, state and territory WHS legislation
* comply with WHS requirements of employers and third party sites, unless they assess the requirements as placing them at risk, in which case they must take reasonable action to ensure their safety.

### Personal protective equipment

AOs must wear the following PPE for supervising treatments:

* hi-visibility vest
* safety boots.

AOs must have the following PPE with them and use when required:

* first aid kit
* water
* sunscreen
* appropriate emergency communication equipment (such as a phone carrier with coverage or satellite phone).

An AO must wear the following PPE where required by the work site or where they have identified a risk in the work environment:

* steel-cap or safety boots
* safety glasses
* long-sleeve clothing
* hard hat
* hair net
* hearing protection
* face mask
* portable gas detector.

**Note:** For more information, see the Reference: [*Work health and safety in the plant export environment*](#_Related_material).

### System requirements

AOs must have access to the following systems:

* the department’s website
* Manual of Importing Country Requirements (MICoR)
* MICoR Plants Documents section (username and password required) – protocol markets only.

## Supervising a vapour heat treatment?

This procedure initiates when a client requests supervision of a vapour heat treatment.

### Section 1: How do I prepare to supervise a vapour heat treatment?

The following table outlines how to prepare to supervise a vapour heat treatment.

| Step | Action |
| --- | --- |
|  | Look up the relevant MICoR case to obtain the importing country requirements and to check if the market is a protocol market.**Note:** MICoR cases will indicate a protocol market in the Export Criteria section.

| If the market is… | Then… |
| --- | --- |
| not a protocol market | * supervision of VHT is not required
* **do not continue.**
 |
| a protocol market | * go to the password-protected documents section of MICoR
* find the relevant protocol and/or work plan and refer to these when prompted by this work instruction
* **continue to step 2.**

**Note:** work plans have been developed by the department to assist staff and industry with the interpretation of the protocol requirements. Where both a protocol and work plan exist, refer to the work plan in the first instance. |

 |
|  | Check that you are accredited in the job function required to supervise the treatment by comparing the commodities with the Reference: [*Table of authorised officer job functions*](http://www.agriculture.gov.au/SiteCollectionDocuments/biosecurity/export/plants-plant-products/plant-exports-manual/table-inspection-job-functions-required-plants-products-exports.pdf)*.*

| If you are... | Then... |
| --- | --- |
| accredited with the required job function | **continue to** **step 3** |
| not accredited with the required job function | * you cannot conduct this task
* inform the bookings officer or client
* **do not continue.**
 |

 |
|  | Gather your [personal protective](#_Personal_protective_equipment) and essential equipment and travel to the establishment. |
|  | On arrival at the registered establishment:* sign in at the office
* ask a staff member about any site-specific work health and safety requirements including mandatory PPE
* put on the required PPE
* assess the site for safety
* ask a staff member to accompany you to the consignment.
 |
|  | Confirm with the client the type of supervision required.

|  |  |
| --- | --- |
| If the request is for the… | Then… |
| start of a treatment | **continue to** [**Section 2: How do I verify previous sensor calibration**](#_Section_2._How)**?** |
| completion of a treatment | **go to** [**Section 6: How do I verify a vapour heat treatment?**](#_Section_6._How) |

 |

### Section 2. How do I verify previous sensor calibration?

Calibration of temperature sensors must take place at the beginning of the season and at least once every month.

The following table outlines how to verify a previous sensor calibration.

| Step | Action |
| --- | --- |
|  | Ask the client if the treatment is the first for the season.

| If the treatment is… | And… | Then… |
| --- | --- | --- |
| the first for the season | a sensor calibration has occurred | * sight the calibration record
* record the date of calibration under *Date of sensor calibration* on the VHT record
* **go to** [**Section 4: How do I supervise the sensor placement?**](#_Section_4._How)
 |
| the first for the season | a sensor calibration has not occurred | **go to** [**Section 3: How do I supervise the calibration of temperature sensors?**](#_Section_3._How) |
| not the first for the season | N/A | **continue to step 2.** |

 |
|  | Ask the client if the sensors have been calibrated within the previous 31 days.

| If calibration has… | Then… |
| --- | --- |
| occurred within the previous 31 days | * sight the calibration record
* record the date of calibration under *Date of sensor calibration* on the VHT record
* **go to** [**Section 4: How do I supervise the sensor placement?**](#_Section_4._How)
 |
| not occurred within the previous 31 days | **continue to** [**Section 3: How do I supervise the calibration of temperature sensors?**](#_Section_3._How) |

 |

###

### Section 3. How do I supervise the calibration of temperature sensors?

The following table outlines how to supervise the calibration of temperature sensors.

| Step | Action |
| --- | --- |
|  | Verify that the reference thermometer has a valid National Association of Testing Authorities certificate.

| If the NATA certificate is… | Then… |
| --- | --- |
| valid | **go to step 3.** |
| not valid | * advise the client that a valid reference thermometer must be used
* **continue to step 2.**
 |

 |
|  | Ask the client if they wish to present an alternate reference thermometer.

| **If...** | **Then...** |
| --- | --- |
| yes | **return to step 1** and continue with this work instruction. |
| no  | * advise the client that you cannot continue
* **go to** [**Section 7: How do I fail a calibration or treatment?**](#_Section_7._How)
 |

 |
|  | Ask the client to provide a hot water vat, stabilised to 47°C against the reference thermometer. |
|  | Ask the client to place all sensors into the hot water vat, ensuring that the sensors are not touching each other or the sides of the vat. |
|  | Observe the temperature of each sensor, verifying that the temperature sensors read within ±0.3°C of 47°C. **Note:** The number of sensors required is dependent on the make and model of the VHT unit and the results of the thermal mapping.

| If the temperature of all sensors is… | Then… |
| --- | --- |
| within +0.3°C | * complete the calibration record to confirm that all the probes have met requirements of the calibration
* **go to step 7.**
 |
| not within +0.3°C | * advise the client that the sensor must be replaced or reset
* **continue to step 6**.
 |

 |
|  | Ask the client if they intend to replace or reset the sensor.

| **If...** | **Then...** |
| --- | --- |
| yes | **return to step 3** to calibrate the new sensor and continue with this work instruction. |
| no  | * advise the client that you cannot continue
* record details of the probes that do not meet requirements on the VHT sensor calibration record
* **go to** [**Section 7: How do I fail a calibration or treatment?**](#_Section_7._How)
 |

 |
|  | * Ask the client to remove sensors from the vat, to allow the reading to move away from 47°C, then return them to the vat.
* Observe the temperature reading for each sensor as outlined in step 4 and step 5.
* Complete the calibration record to confirm that all the probes have met requirements of the calibration.
 |
|  | **Repeat step 7** so that there are three readings for each sensor. |
|  | * Write your name, AO number, sign and date the calibration record.
* Record the date of calibration under *Date of sensor calibration* on the VHT record.
 |
|  | **Continue to** [**Section 4: How do I supervise the sensor placement?**](#_Section_4._How_1) |

### Section 4. How do I supervise the sensor placement?

The following table outlines how to supervise the sensor placement.

| Step | Action |
| --- | --- |
|  | Ensure the client selects the heaviest pieces of fruit from the treatment lot. **Note:** the number of fruit required will depend on the number of sensors used. |
|  | Observe the client placing the sensors into the pulp of the fruit, ensuring* it is inserted into the centre of the fruit

or* as close to the seed without touching the seed

**For mangoes:** place the sensor tip as close to the seed (without touching the seed) at the point of maximum pulp thickness. **Note:** a tool with aperture narrower than the sensor may be used to plot the insertion path for the sensor. |
|  | **Continue to** [**Section 5: How do I supervise the chamber loading and start of treatment?**](#_Section_5._How) |

### Section 5. How do I supervise the chamber loading and start of treatment?

Where different product types or consignments for different destinations are to be treated together care must be taken to maintain the identity of the different consignments.

The following table outlines how to supervise the chamber loading and start of treatment.

| Step | Action |
| --- | --- |
|  | Verify that the exit to the treatment chamber is sealed.

| **If...** | **Then...** |
| --- | --- |
| yes | * record the seal number under *Seal number of treatment room exit* on the VHT record.
* **continue to step 2.**
 |
| no  | * ask the client to seal the treatment chamber
* record the seal number under *Seal number of treatment room exit* on the VHT record.
* **continue to step 2**.
 |

 |
|  | * Observe the product being loaded into the treatment chamber.
* Check that the sensors are placed as per the treatment facilities documented sensor placement plan.

| **If...** | **Then...** |
| --- | --- |
| yes | **continue to step 3.** |
| no  | * ask the client to place the sensors as per the treatment facility’s documented sensor placement plan
* **continue to step 3.**
 |

 |
|  | * Observe the entry door being closed and sealed with a numbered seal.
* Record the seal number under *Seal number of treatment room entry* on the VHT record.
* Record time of sealing under *Time entry door sealed* on the VHT record.
 |
|  | Observe the operator turning on the system. |
|  | * Write your name, AO number, date and sign the VHT record under *Supervision of treatment set up.*
* Give a copy of the VHT record to the client and advise them to keep it for verification of the treatment.
* Send a copy of the VHT record to the [National Documentation Hub](#_Contact_information).
 |

### Section 6. How do I verify a vapour heat treatment?

The following table outlines how to verify a vapour heat treatment.

| **Step** | **Action** |
| --- | --- |
|  | Ask the client for:* a print-out of the temperature recordings
* a copy of the VHT record that was completed by the AO supervising the calibration.
 |
|  | * Review the print-out.
* Confirm that the treatment has met the nominated treatment schedule by verifying that the
* temperature of all sensors have reached and maintained the prescribed treatment temperature for the nominated treatment schedule (that is, that the core temperature of the product has reached and maintained the minimum specified temperature)
* humidity level has reached and maintained the nominated schedule for one hour before treatment commencement
* whole treatment process has lasted at least two hours.

| If the nominated treatment schedule has… | Then… |
| --- | --- |
| been met | **continue to step 3.** |
| not been met | * the consignment fails treatment
* **go to** [**Section 7: How do I fail a calibration or treatment?**](#_Section_7._How)
 |

 |
|  | Review the VHT record and confirm that the seal numbers on the treatment chamber match the seal numbers on the VHT record.

| If the… | Then… |
| --- | --- |
| seal numbers match | **go to** **step 4.** |
| seal numbers do not match | * the consignment fails treatment
* **go to** [**Section 7: How do I fail a calibration or treatment?**](#_Section_7._How)
 |

 |
|  | * Date and sign the print-out of the temperature recordings.
* Circle *YES* for *Treatment completed successfully* on the VHT record.
* Record the *Treatment start date and time* and *Treatment finish date and time* on the VHT record.
* Write your name, AO number, date and sign the VHT record under *Verification of treatment.*
* Provide a copy of the VHT record and calibration record (if applicable) to the client.
* Send a copy of the VHT record, calibration record (if applicable) and any supporting documentation to the [National Documentation Hub](#_Contact_information).
 |

### Section 7. How do I fail a calibration or treatment?

The following table outlines how to fail a treatment.

| **Step** | **Action** |
| --- | --- |
|  | Advise the client that the calibration/treatment has failed and the reasons why. |
|  | Advise the client that failed calibration/treatment may be restarted at the discretion of the department.**Note:** Refer to the specific protocol/work plan for what is allowed. |
|  | Record that the * calibration has failed on the calibration record

or* treatment has failed by circling *NO* for *Treatment completed successfully* on the VHT record and tick the reason why.
 |
|  | Write your name, AO number, date and sign the calibration/VHT record. |
|  | * Provide a copy of the calibration/VHT record to the client.
* Send a copy of the VHT record to the [National Documentation Hub](#_Contact_information)
 |
|  | For departmental AOs, invoice the client as per the Work Instruction:[*Invoicing plant export clients*](#_Related_material)*.* |

## Record keeping

* Departmental AOs must keep official files in accordance with the department’s record keeping policy.
* State/Territory government and third-party AOs must retain the original completed References: [*Vapour heat treatment record*](#_Related_material) and  [*Vapour heat treatment sensor calibration record*](#_Related_material), and any supporting documents for two years from the date the records were signed.

## Contact information

* Authorised Officer Hotline: 1800 851 305
* Authorised Officer Program: plantexporttraining@awe.gov.au
* National Documentation Hub: plantexportsNDH@awe.gov.au
* Horticulture Exports Program: horticultureexports@awe.gov.au

## Related material

The following material is available on the department’s website:

* [Protocols, work plans](http://micor.agriculture.gov.au/Plants/Pages/Documents.aspx)
* [Manual of Importing Country Requirements](http://micor.agriculture.gov.au/Plants/Pages/default.aspx) ([MICoR](https://micor.agriculture.gov.au/Plants/Pages/default.aspx))
* [Plant Export Operations Manual](https://www.agriculture.gov.au/export/controlled-goods/plants-plant-products/plantexportsmanual):
* Guideline: *Maintaining phytosanitary security of horticulture prescribed goods for exports*
* Reference: *Work health and safety in the plant export environment*
* Reference: *Table of plant export protocol markets*
* Reference: *Performance standards – vapour heat treatment – horticulture exports*
* *Australian phytosanitary treatment application standard for vapour heat treatment*
* Reference: *Vapour heat treatment record*
* Reference: *Vapour heat treatment sensor calibration record*
* Reference: *Table of authorised officer job functions*

Related WHS information is available on the [Instructional Material Library](http://iml.agdaff.gov.au/Pages/Home.aspx).

## Document information

The following table contains administrative metadata.

|  |  |
| --- | --- |
| Instructional Material Library document ID | Instructional material owner |
| IMLS-9-3662 | Director, Horticulture Exports, Plant Export Operations Branch  |

## Version history

The following table details the published date and amendment details for this document.

| Version | Date | Amendment details |
| --- | --- | --- |
| 1 | 6/07/2020 | First publication of this work instruction.  |
| 2 | 23/09/2020 | Minor text edits to provide clarity.  |
| 3 | 28/03/2021 | Update for commencement of *Export Control Act 2020* |