

FUMIGATING WITH METHYL BROMIDE (ICA-04)

REVISION REGISTER

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Authorised:



Plant Biosecurity & Product Integrity

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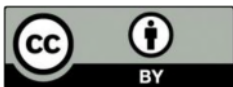
FUMIGATING WITH METHYL BROMIDE

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1. PURPOSE

The purpose of this procedure is to describe -

- (a) the principles of operation, design features and standards required for fumigation chambers and facilities; and
- (b) the responsibilities and actions of personnel;

that apply to the certification of methyl bromide fumigation of produce under an Interstate Certification Assurance (ICA) arrangement.

2. SCOPE

This procedure covers all certification of methyl bromide fumigation by Accredited Certifier operating under an ICA arrangement in Queensland.

This procedure covers the requirements for fruit fly and other plant pests where the requirements in section [6. Requirement](#) are a specified condition of entry of an interstate quarantine authority.

This procedure does not abrogate or override the responsibility of licensed fumigators to comply with the legislative requirements as prescribed in the *Health (Drugs and Poisons) Regulation 1996* and *Work Place Health and Safety Act 1995*.

Certification of methyl bromide fumigation under this Operational Procedure may not be an accepted quarantine entry condition for all produce to all intrastate or interstate markets.

Some intrastate or interstate markets may require additional quarantine certification as a condition of entry.

It is the responsibility of the Accredited Certifier consigning the produce to ensure compliance with all applicable quarantine requirements.

Information on interstate quarantine requirements can be obtained from the plant quarantine service in the destination state or territory.

3. REFERENCES

WI-02

Guidelines for Completion of Plant Health Assurance Certificates.

4. DEFINITIONS

Accredit

means to accredit persons to give a Biosecurity Certificates in accordance with Section 415 of the Biosecurity Act 2014.

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Accredited Certifier	means a person who holds accreditation under chapter 15 of the <i>Biosecurity Act 2014</i> to give biosecurity certificates.
Accrediting Authority	means the Department of Agriculture and Fisheries Queensland (DAF Queensland).
Agvet Code	means the <i>Agricultural and Veterinary Chemicals Code Act 1994</i> .
Application for Accreditation	Application for accreditation of an accredited certifier for an Interstate Certification Assurance (ICA) arrangement [CAF-47].
APVMA	means the Australian Pesticide and Veterinary Medicines Authority.
Assurance Certificate	means a <i>Plant Health Assurance Certificate</i> [FDU 384].
Authorised Signatory	means an officer of an ICA accredited Accredited Certifier whose name and signature is provided as an authorised signatory with the Business's Application for Accreditation.
banana fruit fly	means all stages of the species <i>Bactrocera musae</i> .
Business	means the legal entity responsible for the operation of the fumigation facility and ICA arrangement detailed on the Business's Application for Accreditation.
Certification Assurance	means a voluntary arrangement between Queensland Department of Agriculture and Fisheries and a Accredited Certifier that demonstrates effective in-house quality management and provides assurance through documented procedures and records that produce meets specified requirements.
certified/certification	means covered by a valid <i>Plant Health Assurance Certificate</i> [CAF-16].
chamber	means a permanent or semi-permanent enclosure made from gas-proof material specifically designed for the purpose of fumigation.
colorimetric tubes	Draeger/Kitagawa stain or detector tubes for measuring fumigant concentrations.
facility	means the location of the fumigation chamber or chambers covered by the Interstate Certification Assurance arrangement.
fumigant	means 1000g/kg methyl bromide (CH ₃ Br).
fumigation	means the treatment of produce with a fumigant.
fumigator	means a person licensed by Queensland Department of Health (QDH) to undertake fumigation pursuant to the <i>Health (Poisons-Fumigation) Regulations 1973</i> .

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fruit fly	means Queensland fruit fly and banana fruit fly.
ICA	means Interstate Certification Assurance.
Interstate Certification Assurance	means a system of Certification Assurance developed to meet the requirements of State and Territory governments for the certification of produce for interstate and intrastate quarantine purposes.
load	means the total number of packages covered by one fumigation treatment.
lot	means a discrete number of packages of one produce type (eg mangoes or rockmelons) from one source (eg one packer or one consignee).
Tasmania only	means the section applies to consignments being consigned to Tasmania only.
produce	means plants and plant products and includes members, alive or dead, of the plant kingdom and any material of plant origin.
Queensland fruit fly	means all stages of the species <i>Bactrocera tryoni</i> and related species <i>B. aquilonis</i> and <i>B. neohumeralis</i> .

5. RESPONSIBILITY

These position titles have been used to reflect the responsibilities of staff under the ICA arrangement. These positions may not be present in all Businesses, or different titles may be used for staff who carry out these responsibilities. In some Businesses one person may carry out the responsibilities of more than one position.

The **Certification Controller** is responsible for -

- representing the Business during audits and other matters relevant to ICA accreditation;
- ensuring the Business has current accreditation for an Interstate Certification Assurance arrangement under this Operational Procedure;
- training staff in their responsibilities and duties under this Operational Procedure;
- ensuring the Business and its staff comply with their responsibilities under this Operational Procedure;
- ensuring that all fumigation of produce certified under the Business's ICA arrangement is carried out in accordance with this Operational Procedure;
- ensuring all fumigations are performed by a licensed fumigator ([refer 6](#));
- ensuring the fumigation facility has been approved or deemed an as of right use by the relevant Local Authority (as applicable) ([refer 7.2](#));
- ensuring a Fumigation Dosage Chart is maintained for each fumigation chamber operated at the facility ([refer 7.2.1](#));
- ensuring each fumigation chamber operated at the facility is covered by a valid Gas Retention Test Certificate issued by a licensed fumigator within the last six months ([refer 7.3.1](#));
- ensuring thermometers used for measuring produce temperatures are identified and calibrated at least every 6 months ([refer 7.5.2](#));

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- if applicable, ensuring weighing scales are calibrated at least every 6 months ([refer 7.7.5](#)).

The **Fumigator** is responsible for -

- maintaining the fumigation chamber and fumigation equipment ([refer 7.2.2](#));
- determining the chamber volume ([refer 7.4](#));
- maintaining thermometer identification and calibration records ([refer 7.5.2](#));
- determining the minimum produce temperature for each fumigation ([refer 7.5.3](#));
- determining the chamber loading for each fumigation ([refer 7.6.2](#));
- determining the rate and dosage of fumigant required for each fumigation ([refer 7.7.1](#));
- if applicable, maintaining weighing scale calibration records ([refer 7.7.5](#)).
- maintaining fumigation treatment records ([refer 7.9](#)).

The **Authorised Dispatcher** is responsible for -

- ensuring all packages covered by an Assurance Certificate issue by the Business are identified ([refer 7.11.1](#));
- maintaining copies of all Assurance Certificates issued by the Business under the ICA arrangement ([refer 7.12](#)).

Authorised Signatories are responsible for -

- ensuring, prior to signing and issuing an Assurance Certificate, that produce covered by the certificate has been prepared in accordance with the Business's ICA arrangement and that the details on the certificate are true and correct in every particular ([refer 7.11.2](#)).

6. REQUIREMENT

Fumigation with methyl bromide in an approved fumigation chamber for two hours at one of the following rates -

Methyl Bromide (g/m ³)	Flesh Temperature (degrees Celsius)
32	21+
40	16-20.9
48	11-15.9
56	10-10.9

Note: when consigning to Western Australia, South Australia and Tasmania fumigation for fruit fly must be undertaken at a flesh temperature not less than 17°C.

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100% methyl bromide must be used for fumigating fruit and fruiting vegetables, food producing plants and ornamentals. The use of fumigants containing chloropicrin does not have Australian Pesticides and Veterinary Medicines Authority approval for the fumigation of these commodities. Chloropicrin is phytotoxic and is likely to cause damage to any living plant material. Accredited Certifiers need to verify with Interstate Quarantine Authorities to ensure the correct rates are used fruit consigned into that jurisdiction. NB: a number of interstate authorities have stipulated a minimum pulp (flesh) temperature of 17°C must apply to all fruit treated for Queensland Fruit Fly (QFF).

Fruit must be fumigated at flesh temperatures above 10 C and below 32 C

- **Fruit and fruiting vegetables** – taken from the flesh next to the seed (if seed present); or
- **Food producing plants and ornamentals** – taken from the ambient temperature of the fumigation chamber

Loading rates within the chamber must be –

- (a) **for fruits and vegetables** - not less than 30% nor more than 50% of the volume of the chamber when empty;
- (b) **for all other plants and plant products** – not more than 50% of the volume of the chamber when empty.

All methyl bromide fumigations must be carried out by a licensed fumigator.

One hundred percent control of fruit fly eggs and larvae in treated fruit cannot be guaranteed with these treatments. Accredited businesses should not treat or certify fruit that is known to be infested with fruit fly under the ICA arrangement.

The Queensland Department of Agriculture and Fisheries and interstate quarantine authorities maintain the right to inspect at any time certified produce and to refuse to accept a certificate where produce is found not to conform to specified requirements.

Some produce may be damaged by chemical treatments. Businesses applying chemical treatments should check with experienced persons such as departmental officers for any available information. Testing of small quantities is recommended.

The Accredited Certifier must use products registered under the Agvet Code in accordance with the instructions included on the products approved label or an applicable APMVA permit, and follow any first aid, safety, protection, storage and disposal directions on the product label or permit. Treatment facilities must comply with the requirements of the local government, environmental and workplace health and safety authorities.

Following the required treatments in this procedure does not absolve the business from the responsibility of ensuring that treated produce does not contain a pesticide residue above the Maximum Residue Level (MRL).

Inadequate ventilation of produce after fumigation may lead to residues of methyl bromide above the MRL and leave produce open to seizure by relevant authorities at intrastate or interstate markets.

7. PROCEDURE

7.1 Accreditation

7.1.1 Application for Accreditation

An Accredited Certifier seeking accreditation for an Interstate Certification Assurance arrangement must make application for accreditation by lodging the form Application for Accreditation of an Accredited Certifier for an Interstate Certification Assurance (ICA) Arrangement [CAF-47] ([refer Attachment 1](#)) at least 10 working days prior to the intended date of commencement of operation under the ICA arrangement.

7.2 Audit Process

7.1.2.1 Initial Audit

Prior to an Accredited Certifier becoming accredited an initial audit of the Accredited Certifier is carried out to verify the ICA system is implemented and capable of operating in accordance with the requirements of the Operational Procedure, and the system is effective in ensuring compliance with the specified requirements of the ICA arrangement.

On completion of a successful initial audit accreditation is granted to cover the current season, up to a maximum of twelve months from the date of initial accreditation and a Certificate of Accreditation is issued ([refer 7.1.3 Certificate of Accreditation](#)).

7.1.2.2 Compliance Audits

Compliance audits are conducted to verify that the ICA system continues to operate in accordance with the requirements of the Operational Procedure.

Compliance audits are, wherever practical, conducted when the ICA system is operating.

A compliance audit is conducted within four weeks of the initial accreditation or 12 weeks of the annual renewal of accreditation under the ICA arrangement.

An additional compliance audit is conducted between six and nine months after the date of accreditation for an ICA arrangement that operates for more than six months of the year.

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Random audits are conducted on a selected number of number of ICA arrangements each year. Random audits may take the form of a full compliance audit, or audits of limited scope to sample treatment mixtures, certified produce, ICA system records or ICA system documentation.

Unscheduled compliance audits may be conducted at any time to investigate reported or suspected nonconformances.

7.1.2.3 Re-Accreditation

Accredited Certifiers are required to re-apply for accreditation each year the Accredited Certifier seeks to operate under the ICA arrangement. Accredited Certifiers seeking re-accreditation must lodge a renewal application prior to accreditation lapsing, or if accreditation has lapsed, prior to commencing further certification of produce under the ICA arrangement.

A compliance audit is conducted within twelve weeks of the date of re-accreditation for a Business applying for annual re-accreditation.

7.2.1 Certificate of Accreditation

An Accredited Certifier will receive a *Certificate of Accreditation for an Interstate Certification Assurance Arrangement* detailing the scope of the arrangement including –

- the facility location;
- the Operational Procedure;
- any restrictions on the accreditation such as –
 - type of produce,
 - chemical covered; and
- the period of accreditation.

The Accredited Certifier must maintain a current Certificate of Accreditation and make this available on request by an Inspector.

A Accredited Certifier may not commence or continue certification of produce under the ICA arrangement unless it is in possession of a valid and current Certificate of Accreditation for the facility, procedure, produce type and chemical covered by the Assurance Certificate.

7.3 Fumigation Facility Requirements

The Accredited Certifier shall maintain documentary evidence that the fumigation facility has current approval or has been deemed as an as of right use by the relevant Local Authority (City or Shire Council).

Each chamber operated at the facility for methyl bromide fumigation of produce under this Operational Procedure must -

- (a) be a permanently constructed fumigation chamber or a semi-permanent fumigation chamber made from gas-proof material designed specifically for the purpose of fumigation; and

- (b) be covered by a current and valid Gas Retention Test Certificate issued by a licensed fumigator within the last six months ([refer 7.3.1 Gas Retention Certificate](#)).

Stack fumigation under impervious gas sheets (tarpaulins) is not permitted under this Operational Procedure.

7.3.1 Fumigation Dosage Chart

The Accredited Certifier shall maintain a Fumigation Dosage Chart ([refer Attachment 3](#)) or similar record in close proximity to the chamber for each chamber used by the Accredited Certifier for fumigation under this Operational Procedure.

The chart shall provide the following details-

- (a) the Accredited Certifier's name and Interstate Produce (IP) number;
- (b) the identification of the chamber to which the chart applies;
- (c) the total chamber volume in cubic metres ([refer 7.4 Calculation of Fumigation Chamber Volume](#));
- (d) the quantity of methyl bromide in grams (g) required to be added to the chamber to achieve a concentration of 32, 40, 48 and 56 g/m³ ([refer 7.7.1 Calculation of Fumigant Dosage](#)).
- (e) the printed name and signature of the licensed fumigator responsible for the preparation of the chart and the date of preparation.

7.3.2 Fumigation Chamber and Fumigation Equipment Maintenance

The Fumigator shall carry out regular checks of the fumigation chamber and any fumigation equipment such as halide lamps, gas monitoring devices and gas sampling tubes to ensure they continue to operate effectively and remain free from malfunction, damage or excessive wear.

7.4 Gas Retention Testing

All chambers used for methyl bromide fumigation under an Interstate Certification Assurance arrangement must be covered by a valid Gas Retention Test Certificate issued by a licensed fumigator.

Operational chambers must be tested at least every six months, or as required by an Inspector.

Gas Retention Certificates shall be issued following testing under the supervision of an Inspector in accordance with the following -

- (a) After preparing the chamber in accordance with the requirements of this Operational Procedure, gas concentrations shall be measured and recorded 20 minutes after the start of the fumigation and at two hours after the start of the fumigation **prior** to venting.

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- (b) All monitoring points shall be measured to determine that the required concentration has been attained. All monitoring points shall equilibrate within $\pm 5\%$ of each other at the twenty minute monitoring where more than one monitoring point is in use ([refer 7.6.4 Placement of Gas Sampling Lines](#)).
- (c) Where monitoring points are not equilibrated within $\pm 5\%$ of each other at the twenty minute monitoring, the fumigation will be deemed to have failed and the Fumigator shall vent off all fumigant, ensure gas freedom and then inspect the chamber for the possible cause.
- (d) A minimum of 50% of the original fumigant concentration is required to be retained at the final monitoring (after two hours). If the required final concentrations are not reached then the fumigation will be deemed to have failed and the Fumigator shall vent off all fumigant, ensure gas freedom and then inspect the chamber for the possible cause.
- (e) At least one successful fumigation retention test for a chamber must be undertaken before a Gas Retention Test Certificate may be issued for that chamber. The Inspector supervising the test may require additional fumigation retention testing if this is considered necessary.

It is recommended that newly constructed chambers be tested for leakage using a coloured smoke generator prior to gas retention testing using methyl bromide.

7.4.1 Gas Retention Test Certificate

The Gas Retention Test Certificate must record -

- the name and Interstate Produce (IP) number of the Accredited Certifier that operates the fumigation chamber;
- the facility address;
- the identification of the chamber to which the certificate applies;
- the date of the test
- the measurements of the chamber;
- the chamber volume;
- the volume of any external ducting;
- the total chamber volume in cubic metres;
- the fumigation rate (g/m^3);
- the time of vapourisation;
- the quantity of methyl bromide in grams (g) added to the chamber to achieve the concentration at the time of the test(s);
- the readings for each monitoring point for each test at 20 minutes after vapourisation is complete;
- the readings for the each monitoring point for each test at the end of the test (at two hours after vaporisation is complete);
- the time venting commenced;
- the percentage of gas retained for each test at the end of the test;
- the QDH licence number, printed name and signature of the licensed fumigator who performed the test(s);

- the printed name and signature of the Inspector that supervised the test(s).

This information shall be provided using the Gas Retention Test Certificate included as [Attachment 5](#), or a certificate which captures the same information.

7.5 Calculation of Fumigation Chamber Volume

The volume of the space to be fumigated is the volume of the total space enclosed for fumigation. It is to be calculated using a measuring tape or other suitable device to determine length, width and height and is to be expressed in cubic metres (m³).

Where an enclosed chamber is used for fumigation, the volume of any gas circulation equipment external to the chamber which is not sealed from the chamber during fumigation must also be included in calculation of the chamber volume.

The following calculation may be used to determine the volume of the chamber in cubic metres (m³) -

(chamber height (m) x chamber length (m) x chamber width (m))
+ external ducting volume (m³) = total chamber volume (m³)

For example-

Chamber Height	=	2.5 metres
Chamber Length	=	3 metres
Chamber Width	=	3 metres
Chamber Volume	=	2.5 x 3 x 3 = 22.5 m ³
External Ducting Volume	=	0.5 m ³ (if applicable)
Total Chamber Volume	=	22.5 m ³ + 0.5 m ³ = 23.0 m ³

Details of chamber volume, and fumigant dosage rates shall be prominently displayed in the vicinity of the chamber ([refer 7.2.1 Fumigation Dosage Chart](#)).

7.6 Calculation of Produce Temperature

Immediately prior to the commencement of a fumigation, the Fumigator shall determine the minimum flesh temperature of each load of produce to be fumigated.

7.6.1 Equipment

Thermometers used for measuring produce temperature may be of the bimetallic, glass (mercury or alcohol) or digital type and shall be uniquely identified for calibration purposes.

Thermometers capable of reading in graduations of 0.1° C or 0.2° C shall be used.

7.6.2 Calibration of Thermometers

Thermometers used for measuring produce temperature shall have been calibrated within the previous six months and shall be accurate to within +/- 0.5° C.

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Calibration may be undertaken using the ice-point check method, by checking against a calibrated reference platinum resistance thermometer, or by a recognised testing authority.

The Accredited Certifier shall maintain results of thermometer calibration checks.

Thermometer calibration records shall record the following information-

- the date of calibration;
- the identification of the thermometer calibrated;
- the temperature reading(s) and the correction if any to the thermometer reading to an accuracy of at least $\pm 0.1^{\circ}\text{C}$;
- the name of the officer or recognised testing authority responsible for conducting the calibration check.

Ice - Point Check Calibration

Thermometers should be washed with distilled or de-ionised water and stored for several hours at 0°C before the calibration check.

A slurry mixture of distilled or de-ionised water and shaved ice made from distilled water is prepared in an insulated vessel. Drain any excess free water and then fully immerse each thermometer to above the mercury column. Lift the thermometer until the mercury is just visible and read the indicated temperature. Repeat this procedure until there is no change in the reading and then record the indicated temperature.

The correction for the thermometer will be the deviation of the reading from 0°C .

If the indicated temperature is outside the range $0^{\circ}\text{C} \pm 0.5^{\circ}\text{C}$ the thermometer is unsuitable for use under this procedure.

Whilst it may be possible to adjust electronic thermometers, inaccurate glass thermometers shall be replaced and appropriate records made.

7.5.3 Produce Temperature Measurement

Fruits and Vegetables

The Fumigator shall measure the flesh temperature of one centre fruit or vegetable and one outer fruit or vegetable from each pallet or bulk bin.

For unpalletised fruit and vegetables, a minimum of one outer and one inner fruit or vegetable from every twentieth package shall be sampled.

Temperatures shall be taken from each lot of fruit or vegetables in the load. A minimum of three temperature readings shall be taken from for each lot to be fumigated.

Live Plants and Plant Products

The Fumigator shall take sufficient temperature readings from each lot to be fumigated to determine the minimum and maximum temperatures of the load.

Temperatures shall be varied between the top middle and bottom and from outer and inner packages of each lot.

A minimum of three temperature readings shall be taken from each lot to be fumigated.

7.5.4 Produce Temperature Records

The Fumigator shall record each temperature reading and the maximum and minimum produce temperatures of the load on the Fumigation Treatment Record ([refer Attachment 4](#)).

7.7 Preparing, Loading and Sealing the Chamber

7.7.1 Preparing the Chamber

The Fumigator shall check the chamber for damage and possible leak sites prior to the chamber being loaded.

Any damage (eg damaged door seals or holes or tears in chamber walls) shall be made good prior to loading.

The Fumigator shall check chamber circulation and ventilation systems are operating correctly and ensure all vents are closed and sealed prior to the chamber being loaded.

7.7.2 Loading the Chamber

The Fumigator shall ensure that an adequate distance is maintained between each package, pallet or bulk bin and the sides and top of the chamber to allow circulation of the fumigant. A 5 cm space shall be left between each package, pallet load or bulk bin in the chamber with a minimum space of 10 cm between the top and sides of produce to the walls and ceiling.

The Fumigator shall calculate loading rates within the chamber to ensure specified loading rates are not exceeded for the commodity or commodities being fumigated.

Chamber loadings shall be recorded as a percentage of the chamber volume for each fumigation ([refer 7.9 Treatment Records](#)).

Loading rates within the chamber must be –

- (a) **for fruits and vegetables** - not less than 30% nor more than 50% of the volume of the chamber when empty;
- (b) **for all other plants and plant products** – not more than 50% of the volume of the chamber when empty.

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Produce may be fumigated either unpacked, in bulk bins or following packing.

The Fumigator shall ensure that any produce which is packaged or covered with impervious materials such as plastic bags or waxed paper are opened, cut or removed to allow adequate penetration of the gas.

Note:- To meet the Australian Fumigation Accreditation Scheme (AFAS) perforation requirements for fumigation using impervious materials must contain not less than four (4) perforation of 6mm diameter/100cm² (10 cm x 10 cm square) or five (5) perforations of 5mm diameter/100 cm². Plastic wraps containing numerous pinholes (at least 6 holes/cm², frequently used for transporation of fruit and vegetables are also acceptable).

7.7.3 Placement of Gas Supply Lines

The gas supply line(s) shall be strategically placed within the chamber to effectively introduce and allow dispersal of the gas. As the fumigant is more than three times heavier than air, the gas should be introduced directly into the airstream of the circulation fan. Precautions must be taken to prevent any liquid fumigant coming in contact with produce being fumigated.

A piece of impermeable sheeting (plastic or rubberised canvas) or a tray may be used.

Adequate fan circulation must be provided to circulate the fumigant ([refer 7.7.5 Mixing of Fumigant](#)).

7.7.4 Placement of Gas Sampling Lines

When gas concentrations are to be monitored during fumigations, gas sampling lines must be positioned within the chamber for each fumigation. Sampling lines must be crushproof (for example 6 mm internal diameter hydraulic hose is effective) and must be positioned as follows -

- (a) for chambers less than 5 m³ one gas sampling line shall be located in the centre of the stack;
- (b) for chambers 5 m³ or greater three sampling lines shall be used and located at the top back, centre, and base front of the stack.

7.7.5 Sealing the Chamber

Once all of the produce has been placed into the chamber, the Fumigator shall ensure the chamber is gas tight by closing all vents and access points and checking all possible leak sites such as doors, gaskets and joints.

7.8 Fumigation

After the chamber has been sealed the Fumigator turns on all circulation fan(s).

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7.8.1 Calculation of Fumigant Dosage

The fumigant dosage rate is specified in [6. Requirement](#). The dosage rate varies by 8g/m³ for the incremental change in temperature from a minimum of 10° C to 32 ° C in accordance with the Table.

The dosage rate applied to a fumigation shall be determined by the temperature of the **coldest** produce from any lot to be fumigated in the chamber load.

Treatment of **fruit** must not commence if the temperature of the fruit is below 10° C or is 31.2° C or above.

Determine the amount of methyl bromide required in grams (g) using the following formula -

$$\text{chamber volume} \times \text{dosage rate} = \text{g methyl bromide}$$

For example -

$$22.5\text{m}^3 \times 32\text{g/m}^3 = 720 \text{ g methyl bromide}$$

The Fumigator shall maintain records of the total amount of methyl bromide applied for each fumigation on the Fumigation Treatment Record ([refer Attachment 4](#)).

7.8.2 Application of Fumigant

Sealed System

The Fumigator measures out the required amount of fumigant into the volumetric measuring cylinder. After the required amount of fumigant has been decanted and checked the fumigant is introduced into the chamber via the volatiliser.

Loss of Weight System

The Fumigator measures out the required amount of fumigant by the loss of weight in the dispensing cylinder.

To operate this method, the dispensing cylinder is placed onto scales to allow the weight of the cylinder to be determined before application of the fumigant.

The Fumigator must tare off the weight of the required amount of fumigant on the dispensing cylinder and open the valve to apply the required amount until the cylinder is at the tared weight.

7.8.3 Calibration of Weighing Scales

Scales used for the Loss of Weight System must be calibrated using a known weight at least every six months.

The Accredited Certifier shall maintain results of weighing scale calibration checks.

FUMIGATING WITH METHYL BROMIDE

Weighing scale calibration records shall record the following information-

- the date of calibration;
- the identification of the scales calibrated;
- confirmation that the equipment is accurate to within ± 1 percent of the minimum dosage (g) of methyl bromide used for the chamber;
- the officer responsible for conducting the calibration check.

7.8.4 Vaporiser/Volatiliser

Although methyl bromide has a boiling point of 3.6° C and will vaporise when released at temperatures above 4.0° C, freezing may occur as the gas is released from the delivery cylinder. For this reason a vaporiser or volatiliser must be used to introduce the methyl bromide as a hot gas.

A suitable device has part of the delivery tube of copper, coiled and submerged in hot water.

7.8.5 Mixing of Fumigant

To ensure adequate mixing of the fumigant, fans shall be used to disperse the gas throughout the chamber and thereby enhance the penetration of the fumigant. Once the gas is evenly distributed it maintains that condition unless an outside event such as excessive leakage occurs.

It is suggested that an axial fan capable of providing 60 room changes of volume per hour be used for 15 minutes after the introduction of the gas. Low velocity/low volume fans may be used for longer periods.

The use of high velocity/high volume fans for periods longer than 15 minutes may lead to the fumigant being forced from the chamber.

Fumigation commences once all the fumigant has been introduced into the chamber and vaporised (the time of vaporisation).

Effective mixing of the methyl bromide may be determined by monitoring gas concentrations at all monitoring points 20 minutes after the introduction of the gas ([refer 7.7.7 Monitoring Fumigant Concentration](#)). All monitoring points must equilibrate (equilibrium) within $\pm 5\%$ of each other (where more than one sampling point is used), otherwise the fumigation is deemed to have failed. (Equilibrium calculation - Highest – Lowest)/ Lowest x 100 =%

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7.8.6 Testing for Leaks

Once the fumigation has commenced, the Fumigator shall test the chamber for leaks using TIF or Riken leak detectors or other suitable gas monitoring device. Sites checked shall include -

- doors sealing points;
- external ducting; and
- exit points for supply lines and gas sampling lines.

Any leaks detected shall be repaired immediately. If leaks are detected that can not be repaired during the treatment, the fumigation must be aborted and the chamber repaired before further use.

7.8.7 Monitoring Fumigant Concentration

Effective fumigation is dependent on maintaining a satisfactory level of fumigant within the chamber during the fumigation. Monitoring of fumigant concentration is not mandatory for every fumigation, however this is a preferred practice ([refer 7.3 Gas Retention Testing](#)).

Fumigators may elect to monitor gas concentration during fumigations. Where monitoring indicates that the required concentration will not be achieved the Fumigator shall vent off all fumigant, ensure gas freedom and then inspect the chamber for the possible cause.

When the cause has been rectified the produce must be re-gassed at the specified rate prior to certification. However there may be a risk of excessive residue of fumigant in the product, depending on the amount absorbed by the product in the initial treatment.

7.9 Completion of Fumigation

7.9.1 Venting

After two hours of treatment the chamber shall be ventilated by running the exhaust system to extract all of the remaining gas and ensure that the concentration of methyl bromide is below 5 ppm before produce is released from the chamber.

The Fumigator should check fumigant concentrations before releasing the produce by drawing an air sample from the chamber into a colorimetric tube before releasing the chamber. Air samples must be taken near the floor of the chamber in the vicinity of the exhaust duct. This can be accomplished by installing a metal tube in the chamber to transport the sample from the floor to an opening in the chamber wall.

The concentration of methyl bromide in the chamber must be below the Exposure Standard of 5 ppm or less before the product can be released. If the concentration is greater than 5 ppm then forced venting should be resumed and further measurements of concentration taken.

Inadequate aeration of produce poses grave risks to the health of workers involved in unpacking, transport and marketing of fumigated fruit.

7.9.2 Unloading the Chamber

Unloading of the chamber may commence after the Fumigator has released the produce. The ventilation system should be kept running during this process.

7.9.3 Aeration of Produce

Treated produce shall be given sufficient time to air after treatment to allow adequate dispersal of the fumigant out of the produce and ensure that the Exposure Standard of 5 ppm of methyl bromide and any applicable maximum residue limits are not exceeded.

7.9.4 Identification and Control of Treated and Untreated Produce

The Accredited Certifier shall have adequate procedures in place which prevent mixing of treated and untreated produce at the facility.

Examples of acceptable methods of identifying the treatment status of treated and untreated produce after fumigation include -

- (a) locating untreated produce in a clearly identified and separate area to treated produce and maintaining separation until dispatch; or
- (b) marking each package of treated produce in a manner that clearly identifies the produce as conforming to the requirements specified under this Operational Procedure ([refer 7.11.1 Package Identification](#)).

Other methods may be used provided they clearly identify and segregate treated and untreated produce.

7.10 Treatment Records

The Fumigator must record each fumigation using a Fumigation Treatment Record ([refer Attachment 4](#)) or records which capture the same information.

Treatment records must identify -

- the date of fumigation;
- the grower's/packer's identification;
- the type of produce treated;
- the quantity of produce treated;
- all temperature measurements taken prior to fumigation;
- the fumigation dosage rate;
- the total quantity in grams of fumigant released in the fumigation;
- the chamber loading expressed as a percentage of the chamber volume;
- the commencement time of the fumigation (the time vaporisation is completed);
- the completion time of the fumigation (the time venting commenced);
- the Fumigator's QDH licence number, name and signature.

7.11 Post Treatment Security (Tasmania only)

The following requirements apply to **fruit consigned to Tasmania** only.

Treated fruit may be allowed to air adequately prior to securing the produce against reinfestation. Treated fruit shall be held for the minimum practical period after fumigation and airing before it must be secured against reinfestation.

Any fruit which is stored outside the treatment facility after treatment and prior to dispatch must be held under secure conditions.

Any treated fruit which remains unpacked at the end of the day must be held in secure conditions until packed.

Completed pallets shall be held for the minimum practical period before placing in secure conditions.

Certified fruit must be transported from the facility in secure conditions which prevent infestation by fruit fly.

Secure conditions include-

- (a) unvented packages;
- (b) vented packages with the vents secured with gauze/mesh with a maximum aperture of 1.6 mm;
- (c) fully enclosed under tarpaulins, hessian, shade cloth, mesh or other covering which provides a maximum aperture of 1.6 mm;
- (d) shrinkwrapped and sealed as a palletised unit;
- (e) fully enclosed or screened buildings, coldrooms, vehicles or other facilities free from gaps or other entry points greater than 1.6 mm.

Fruit consigned to Tasmania must be transported in full container lots sealed prior to transport, or as lesser container lots in accordance with the requirements of (a), (b) or (d) above.

Where consignments are transported to Tasmania as full container lots, the seal number must be included in the Brand Name or Identifying Marks section of the Assurance Certificate covering the consignment ([refer Attachment 2](#)).

Where consignments are transported in vented packages that are sealed as a palletised unit in accordance with (d) above, the Accredited Certifier must secure the top layer of the pallet by applying a continuous band of tape over the shrinkwrap and have applied to the tape in waterproof ink the signature of an Authorised Signatory, the number of the Plant Health Assurance Certificate covering the consignment and the date.

7.12 Dispatch

7.12.1 Package Identification

The Authorised Dispatcher shall ensure that each package of certified produce is marked in indelible and legible characters of at least 5mm, with -

- the Interstate Produce number of the Accredited Certifier that operates the approved facility in which the produce was treated; and
- the words “MEETS ICA-04”; and
- the date (or date code) on which the produce was treated;

prior to the issuance of an Assurance Certificate by the Accredited Certifier under this Operational Procedure.

For entry into specified states (Tasmania) the acceptance may be available in lieu of the individual package markings for a secure palletised unit that is shrinkwrapped and has secured the top layer of the pallet by applying a row of tape over the shrinkwrap. Applied to the tape in waterproof ink shall be the signature of the Authorised Signatory and the number of the Plant Health Interstate Assurance Certificate covering the consignment and the date of issue of the consignment.

Packages may be marked prior to fumigation, however any packages containing produce that has not been treated in accordance with the requirements of this Operational Procedure shall not leave the fumigation facility if marked as stated above.

7.12.2 Assurance Certificates

The Authorised Dispatcher shall ensure an Assurance Certificate is completed and signed by an Authorised Signatory of the Accredited Certifier prior to dispatch of the consignment from the facility to a market requiring certification of fumigation with methyl bromide.

Assurance Certificates shall be in the form of a *Plant Health Assurance Certificate* [CAF 16]. A completed example is shown as [Attachment 2](#).

Individual Assurance Certificates shall be issued to cover each consignment (ie. a discrete quantity of product transported to a single consignee at one time) to avoid splitting of consignments.

Interstate Assurance Certificates shall be completed, issued to cover each consignment (ie. a discrete quantity of product transported to a single consignee at one time) to avoid splitting of consignments.

PHAC must state fumigation date, concentration, duration and temperature.

Assurance Certificates shall be completed, issued and distributed in accordance with the Work Instruction *Guidelines for Completion of Plant Health Assurance Certificates* [WI-02].

7.12.3 Assurance Certificate Distribution

The **original** (yellow copy) must accompany the consignment.

The **duplicate** (white copy) must be retained by the Business.

7.13 ICA System Records

The Accredited Certifier shall maintain the following records-

- (a) Fumigation Dosage Chart for each chamber ([refer 7.2.1](#));
- (b) Gas Retention Test Certificate for each chamber ([refer 7.3.1](#));
- (c) if applicable, thermometer calibration records ([refer 7.5.2](#));
- (d) if applicable, scale calibration records ([refer 7.7.3](#));
- (e) Fumigation Treatment Record ([refer 7.9](#));
- (f) a copy of each *Plant Health Assurance Certificate* [FDU 384] issued by the Accredited Certifier ([refer 7.11.3](#)).

ICA system records shall be retained for a period of at least 12 months from completion, or until the next compliance audit of the ICA arrangement, whichever is the later.

An accredited Accredited Certifier must hold a minimum of 12 months ICA system records at the time of any compliance audit. If the compliance audit is conducted more than 12 months from the last compliance audit, the Accredited Certifier must maintain all records completed since the previous compliance audit.

ICA system records shall be made available on request by an Inspector.

7.14 ICA System Documentation

The Accredited Certifier shall maintain the following documentation-

- (a) a copy of the Business's current Application for Accreditation ([refer Attachment 1 ATTACHMENT 1](#));
- (b) a current copy of this Operational Procedure;
- (c) a current *Certificate of Accreditation for an Interstate Certification Assurance (ICA) Arrangement*.

ICA system documentation shall be made available on request by an Inspector.

8. ATTACHMENTS

Attachment 1	Application for Accreditation of a Business for an Interstate Certification Assurance (ICA) Arrangement	CAF-47 (BLANK)
Attachment 2	Plant Health Assurance Certificate	CAF-16 (COMPLETED EXAMPLE)
Attachment 3	Fumigation Dosage Chart	CAF-127 (BLANK)
Attachment 4	Fumigation Treatment Record	CAF-125 (BLANK)
Attachment 5	Gas Retention Test Certificate	CAF-126 (BLANK)

Application for accreditation of an accredited certifier for an Interstate Certification Assurance (ICA) arrangement

Pursuant to section 420 of the *Biosecurity Act 2014*

OFFICE USE ONLY

DATE RECEIVED:
PNIS NUMBER:
DATE APPROVED OR REFUSED:
FURTHER INFORMATION REQUEST DATE:
DATE FURTHER INFORMATION RECEIVED:
PAYMENT PROCESSED DATE:
PAYMENT AMOUNT RECEIVED:
RECEIPT NUMBER:

Important information for applicants

This form is to be used to apply as an accredited certifier for an Interstate Certification Assurance (ICA) arrangement.

Information requested will enable your application to be processed as prescribed by the *Biosecurity Act 2014*. Your application must be assessed and granted by the chief executive before you can proceed with the proposed activity.

Before lodging this application you should be familiar with the requirements of the *Biosecurity Act 2014* available on the Office of the Queensland Parliamentary Counsel website www.legislation.qld.gov.au.

How to complete form for a new application

- Must complete entire form.

How to complete form for an amendment or renewal

- Update any areas that require amendments;
- Must complete part A section 1, part B sections 2-4 and part C.

How to submit this form

- In person to:
Any [Department of Agriculture and Fisheries regional office](#); or
- Via post to:
Department of Agriculture and Fisheries
PO Box 5083
Nambour Qld 4560

Prescribed fee

- For the current fees visit www.daf.qld.gov.au/biosecurity-fees
- Fees are applicable until the end of the financial year.
- The prescribed fee must be paid at the time the application is submitted for it to be processed.

Term of accreditation

The term of this accreditation shall be one (1) year unless sooner cancelled or suspended from the date of your application being approved.

Notification

The applicant will be notified of the outcome within thirty (30) days of receipt of the application. The applicant will be notified by post to the applicant's postal address.

The application is deemed to have been received when the [District Co-ordinator \(Certification and Accreditation Services\)](#) in your district is in receipt of an accurate and complete application and payment of the prescribed fee has been received, processed and cleared.

Contact us

For more information please contact the District Co-ordinator (Certification and Accreditation Services), Plant Biosecurity & Product Integrity, Biosecurity Queensland, Department of Agriculture and Fisheries in your district or the Department of Agriculture and Fisheries Customer Service Centre on 13 25 23.

Type of application *(select one only)*

- New application Amendment Renewal

Part A – Accredited certifier application

1. Applicant details

Please supply ACN or ARBN *(if applicable)*

<input type="text"/>	<input type="text"/>	<input type="text"/>
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Please supply Interstate Produce Number (IPN) *(if known)*

Q	<input type="text"/>	<input type="text"/>	<input type="text"/>
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Applicant is: *(select one only)*

- an individual a partnership an incorporated company a co-operative association
 other *(please specify)*

If applicant is an individual, please complete the following *Supply full legal name including first name, surname and any other name/s.* First name

Last name

Other name/s

If applicant is a partnership, please complete the following *Supply the full legal name of each partner in their normal order.*

First name

Last name

First name

Last name

First name

Last name

If applicant is an incorporated company, co-operative association or other type of legal entity, please complete the following *Supply the full legal name.*

Trading name/s of the applicant *Supply any business names or brand names used by the applicant on packages of certified items.*

2. Address details

Street address

Suburb/Town/Locality

Country

State

Postcode

Postal address *(if different to street address)*

Suburb/Town/Locality

Country

State

Postcode

3. Contact details

Phone

Fax *(if applicable)*

Mobile *(if applicable)*

E-mail address

Preferred method of contact

- Any E-mail Phone Mail



Plant Health Assurance Certificate

Pursuant to Sections 412 and 413 of the Biosecurity Act 2014
(Means a biosecurity certificate issued in accordance with Chapter 15 of the Biosecurity Act.)

ORIGINAL

Consignment Details (Please print)

Certificate Number **9999999**

Consignor

Name	Joe's Strawberries Pty Ltd
Address	Plantation Road Atherton Qld 4883

Consignee

Name	F & V Wholesalers Pty Ltd
Address	Adelaide Produce Markets Pooroka SA 5000

Reconsigned To (Splitting consignments or recognizing whole consignments)

Name	
Address	

Method of Transport (Provide details where known)

<input checked="" type="checkbox"/> Road	Truck/Trailer Registration
<input type="checkbox"/> Rail	Consignment
<input type="checkbox"/> Air	Airline Flight no.
<input type="checkbox"/> Sea	Vessel Name & Voyage no.

Certification Details (Please print)

Accredited Certifier that Prepared the Produce

Name	MB Fumigators Pty Ltd
Address	Industrial Road Atherton Qld 4883

Grower or Packer

Name	Joe's Strawberries Pty Ltd
Address	Plantation Road Atherton Qld 4883

IP No. of Acc. Certifier

Q 9999

Brand Name or Identifying Marks (as marked on packages)

Joe's Strawberries

Date Code (as marked on packages)

6/01/2018

Facility No.	Procedure Code	Expiry Date	Facility No.	Procedure Code	Expiry Date
01	ICA-04	01/01/19			/ /

Number of Packages	Type of Packages (e.g. trays, cartons)	Type of Produce	Authorisation for Split Consignment
2000	Crates	Strawberries	

Date	Treatment	Chemical (Active Ingredient)	Concentration	Duration and Temperature
/ /	<input type="checkbox"/> Dipping	Dimethoate	400ppm	<input type="checkbox"/> One min. <input type="checkbox"/> 10 sec. then wet for 60 sec.
/ /	<input type="checkbox"/> Flood Spraying	Dimethoate	400ppm	10 seconds then wet for 60 seconds
06 / 01 / 2018	<input checked="" type="checkbox"/> Fumigation	Methyl Bromide	24 g/m ³	Two hours @ 26 °C
/ /	<input type="checkbox"/> Heat Treatment	<input type="checkbox"/> Hot Air <input type="checkbox"/> Hot Water		min @ °C
/ /	<input type="checkbox"/> Pre-harvest cover spray			
/ /	<input type="checkbox"/>			
/ /	<input type="checkbox"/>			
/ /	<input type="checkbox"/>			
/ /	<input type="checkbox"/> Bananas in a hard green condition with unbroken skin			

Additional Certification

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Declaration

I, an Authorised Signatory of the accredited certifier that prepared the plants or plant produce described above, hereby declare that the plants or plant produce have been prepared in the accredited certifier's approved facilities in accordance with the accreditation(s) granted to the accredited certifier under the Biosecurity Act 2014 and that the details shown above are true and correct in every particular.

Authorised Signatory's Name (Please print)

Arthur John Signatory

Signature

Arthur John Signatory

Date

7/01/2018

FUMIGATION DOSAGE CHART

Business Name: _____

Facility Address _____

Interstate Produce No. Q _____

Chamber Identification: _____

Total Chamber Volume: _____ m³

DOSAGE CHART

Concentration (g/m ³)	Quantity of Methyl Bromide Grams (g)
32	
40	
48	
56	

Prepared by: _____ / /
Printed Name Signature Date

FUMIGATION TREATMENT RECORD

Owner of Fumigation Facility:					Interstate Produce No.:	Q	
Date of Fumigation:	/ /	Chamber ID:			Chamber Volume:	m ³	
Fumigator's Name:					QDH Licence No:		
Temperature Readings (°C):					Fumigation Rate:		
Temperature Range (°C):	Maximum Temperature °C		Minimum Temperature °C		Amount of Fumigant Used:		
Grower/Packer Name	Number of Packages	Product Type (eg Banana)	Type of Packages (Cartons, Bins etc.)	Time Vaporisation Completed	Time Venting Commenced	Chamber Loading (%)	ID Code (If applicable)
Comments:							

GAS RETENTION TEST CERTIFICATE

Operator of Fumigation Chamber:		Interstate Produce No.:	Q
Facility Address:			Chamber Identification:
			Date of Test: / /
Chamber Dimensions (internal):	length m	width m	height m
Chamber Volume:			m ³
Fumigator's Printed Name:			External Ducting (if applicable): m ³
Fumigator's QDH License No.:		Expiry Date: / /	Total Chamber Volume: m ³

Test Number	Fumigation Rate (g/m ³)	Quantity of Methyl Bromide added (g)	Time Vaporisation Completed	Gas Concentration at Monitoring Point(s) after 20 minutes	Gas Concentration at Monitoring Point(s) after 2 hours	Time Venting Commenced	Percentage of Methyl Bromide Retained after 2 Hours

The fumigation chamber described above has been tested in accordance with requirements of the Queensland Department of Agriculture and Fisheries' Operational Procedure *Fumigating with Methyl Bromide* [ICA-04] and has been shown to achieve at least 50% retention of methyl bromide gas after a 2 hour fumigation period.

Fumigator's Name

Signature

Date

Inspector's Name

Signature

Date