GAFTA TRADE ASSURANCE SCHEME

GTAS

TEL: +44 207 814 9666 FAX: +44 207 814 8383 post@gafta.com www.gafta.com

Fumigation and Pest Control

Scheme Year 2012

Gafta Promoting international trade

Code of Practice for Fumigation and Pest control

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A. REV	**Introduction** Pest control management and fumigation are important to all sectors of the food and animal feed industry. This Code of Practice and accompanying guidance notes are intended to improve the level of competence and understanding about infestation, pest control and fumigants in traded combinable crops and animal feed materials.
A.1	**Marine fumigation** is the fumigation of cargoes in ships' holds or in containers, which is often (but not always) continued in transit to ensure an efficient and safe fumigation with minimum delays to the ship. In transit fumigation is made possible by the use of phosphine gas (HydrogenPhosphide), which is the only fumigant allowed for this purpose by IMO Recommendations on the Safe Use of Pesticides in Ships (2002) which is now incorporated in the IMDG Code Supplement 2008 Edition. The process of in transit marine fumigation begins at the load port, continues for a defined time during the voyage to destination and ends at the discharge port. To provide for safety and efficacy this complicated workflow requires participation of at least three parties throughout this period of time: fumigators at the load port, mariners, and also fumigators at the discharge port. (Refer to Section 8).
A.2	**Store and Silo fumigation** is the fumigation of goods on land, in a recognised storage facility, e.g. a flat store in bays or a silo in bins. As in the case of marine fumigation this is made possible by the use of phosphine gas - though other fumigants may be used in some situations. Goods in silo bins are treated in similar fashion to those in a ship's hold. Goods in flat stores present different problems as flat stores are by their nature open spaces, and the space around the goods needs to be enclosed by other means such as gas-tight sheeting, and the fumigated area or building sealed off to prevent access by persons not involved in the fumigation.
A.3 REV	**Fumigation of Freight Containers** is the fumigation of goods that are being carried in freight containers. The fumigation may be completed before loading, or carried out in transit, provided that safety regulations as required by the mandatory IMDG Code and all other safety requirements are complied with. (Refer to Sections 7 and 8).
B. REV	**Scope** Outlined in this Manual are the main areas of importance with respect to pest control and fumigation matters relating to combinable crops and animal feed materials, and should be read in conjunction with the following Manuals/Guide Notes which address the individual requirements for particular logistical operation/procedures: - • Bulk Storage and Handling • Supervision, Sampling and Weighing • Transport by Road • Phytosanitary Measures (Part 3 Guide Notes) • Fumigation and Pest Control (Part 3 Guide Notes) • Fumigation Rules No. 132 (Part 3 Rules) • International Maritime Organisation (IMO) Safe use of Pesticides on Ships • International Maritime Dangerous Goods (IMDG) - relevant sections • All relevant local legislation and/or regulations
C.	**Definitions** General scheme "Definitions" relating to this Manual are set out in the Scheme Overview or are available separately in Part 3 of the scheme documentation.
C.1	Specific terms and definitions relating to this manual are as follows: **Fumigation** - is the process of application, exposure and dissipation of a toxic chemical in its gaseous state with the purpose of control of target pests in the product and its enclosure.
C.2	**In transit Fumigation** - is the process of fumigation during a voyage. Note: as the vessel will normally sail shortly after completion of fumigant application it is impossible to assess the full efficacy of the fumigation before sailing.

C.3	**Fumigant Application** - is the process of introduction of a toxic gas or a chemical releasing toxic gas into the product to be treated and its enclosure for control of target pests.
C.4	**Exposure** - is the period of time required for toxic gas release, dissipation throughout the product and effective action on the target pests in the fumigated product and its enclosure.
C.5	**Degassing/Venting** - is the process at the end of the exposure period, after the fumigation enclosure is unsealed, when fumigant gas desorbs and diffuses out of the product that was fumigated and the fumigation enclosure.
C.6	**Removal/Disposal of Spent Fumigant** Removal - is the process of removal of retrievable parcels (sleeves, sachets, plates, blankets) of residues from the reacted metal phosphides at the end of the exposure/fumigation process. Residues must be handled in accordance with the applicable regulations and manufacturer's safety guidelines. Disposal - is the process of collection of the waste residues from onboard vessels and other means of transport for neutralisation and destruction by an approved and qualified operator.
C.7 REV	**Clearance (also known as "gas free")** - is the procedure after the degassing period when the fumigator tests the air in the workspace to make sure that the concentration of fumigant gas has fallen to or below safe levels as defined in the relevant employee safety regulation..
C.8	**Re-circulation System** – the ancillary equipment for improvement of gas penetration in the fumigated cargo.
C.9	**Fumigation Certificate (or Fumigant Application Certificate)** - is the document issued after fumigant application stating the characteristics and procedure applied.
C.10	**Clearance Certificate (or Gas Free Certificate)** - is the document issued after degassing (venting) of the cargo at or just prior to destination, indicating safe levels of the fumigant tested and declaring the area safe for workers to enter a fumigated space and/or handle a fumigated product.
C.11	**Fumigator** – means the appointed fumigation company

1.0	**General Obligations and Requirements**
1.1 K	This GTAS Fumigators Code of Practice requires fumigators and ship owners and their representatives to comply with all aspects of the international agreements that are relevant to marine fumigation under:- • SOLAS (Safety of Life at Sea) Convention • IMO (International Maritime Organisation) Safe Use of Pesticides on Ships • IMDG (International Maritime Dangerous Goods) Code and to take account of the Gafta Fumigation Guidance Notes and have the above documents available for inspection.
1.2 K	Fumigators and ship owners and their representatives are required to comply with all the relevant requirements of the country and ports that vessels are fumigated or ventilated in. For example, in USA ports to the requirements of the US Coastguard, in UK ports to the requirements of the UK Merchant Shipping Regulations and the UK Marine Coastguard Agency requirements, such as MGN284. In addition, any requirements of the country that the ship is flagged to must be adhered to. The fumigation materials used must be applied strictly in accordance with the manufacturer's instructions and safety precautions on the label, and records retained [R].
1.3 K	The materials used should also take into account any limitations applied by the law of the country of loading or destination or flag of the ship, contracts related to the cargo, or ship owner's instructions.
1.4	Fumigators are required to retain copies of all documents issued following any fumigation of goods, for a minimum period of five years.
2.0	**Training**
2.1 K	Only fumigation technicians trained and certificated to the requirements of the country where the fumigation or ventilation activities are taking place should be permitted to carry out any fumigation or ventilation work. Where fumigation takes place in international waters, training and certification should be in accordance with the safe practices of this Code of Practice.
3.0 REV K	**Fumigation of Bulk and Bagged Cargo in Ship's Holds with Phosphine** It is the responsibility of the principal to ensure that the suitability of the carrying vessel and the appropriate permissions regarding the operation of fumigation onboard a vessel are agreed and acceptable to the master/owners by incorporating suitable terms in the freight contract (Charter Party). Prior to the commencement of any fumigation operations a safety assessment must be carried out by the fumigator at load port taking into account the IMO Recommendations and also any limitations applied by the law of the country of loading and destination or flag of the ship, and contracts related to the cargo, or to the ship owner's instructions. A report of findings and any recommendations should be made in writing to all relevant parties.
3.1	**Before fumigant application:**
3.1.1 K	Ensure the inspection required in 3.0 and the recommendations made have been performed.
3.1.2 K	Ensure that all the cargo spaces to be fumigated are suitable for fumigation.
3.1.3 K	Ensure that the master or his trained representatives have been made familiar with the fumigant label, detection methods, safety procedures and emergency procedures.
3.1.4 REV K	The fumigator in charge should verify that gas detection and respiratory protection equipment (as required by IMDG and IMO recommendations) carried on the ship are all in good working order and are suitable and appropriate for the task, and that adequate fresh supplies of consumable items for this equipment are available to allow proper measurement (see also 3.3.1.1). In the event that sufficient quantities of effective safety equipment are not on board, the fumigator-in-charge should remind the master in writing of his responsibility to carry this and should assist the master wherever possible by either supplying the equipment or making arrangements for it to be supplied so that the ship fulfils its responsibility to carry sufficient items.
3.1.5 REV K	In accordance with IMDG and IMO Regulations, vessels should carry the necessary medicines and medical equipment, and the latest version of the Medical First Aid Guide for Use in Accident Involving Dangerous Goods (MFAG). In the event that any of these items are not being carried, the fumigator-in-charge should remind the master in writing of his responsibility to carry this and assist him wherever possible to obtain these items so that the ship fulfills its responsibility to carry these items.

3.1.6 K	Ensure that the master has been notified in writing of the spaces containing cargo to be fumigated.
3.1.7 K	Ensure that the master has been notified in writing of any other spaces that are considered unsafe to enter during the fumigation.
3.2 3.2.1 K	**Following fumigant application:** Ensure that each hold has been checked for leakage and secured properly.
3.2.2 K REV	Ensure that the spaces adjacent to (or with possible connection to) the treated cargo spaces have been checked and found to be gas-free.
3.2.3 K	Ensure that the master or his trained representatives have been made aware of the specific areas to be checked for gas concentrations throughout the fumigation period.
3.2.4 K	Ensure that responsible crew members have been shown how to take gas readings correctly when gas is present, and they are fully conversant with the use of gas-detection equipment provided.
3.2.5 K	Ensure that the master or trained representatives have been made aware that even though the initial check may not indicate any leaks, it is essential that monitoring is to be continued in the accommodation, engine–room, etc. because concentrations may reach their highest levels after several days.
3.2.6 K REV	Ensure that the master or trained representatives have been made aware of the possibility of gas diffusing throughout the duct keel and/or ballast tanks and/or fire warning system.
3.2.7 K	Ensure that the master or trained representatives have been made aware that the master is responsible for all aspects of the safety of the fumigation once the fumigator-in-charge has formally handed over responsibility to him, and left the vessel.
3.2.8 K	The fumigator-in-charge should ensure that he has supplied a signed statement to the master confirming all points as listed under 3.0 above and all other requirements of the IMO Recommendations and any other relevant requirements as in 1.1 above have been adhered to.
3.3 K	**Obligations on the Parties:** When the owners/charterers/master agree to fumigation being carried out in transit with phosphine, the master should ensure he is familiar with the requirements of IMO Recommendations 3.4.3.1. – 3.4.3.20. This will enable the master to be clear what the obligations of both fumigator and master are. A checklist of these obligations are as follows:
3.3.1	**Fumigator** To provide written documentation in respect of the following: • Pre-Fumigation Inspection Certificate • Safety recommendations for vessels with fumigated cargoes • Manufacturer's information or safety data sheet • First aid and medical treatment instructions • Fumigation certificate • Fumigation plan – for examples of a schematic fumigation plan see Appendix 2 • Instructions for the use of the Phosphine Gas Detecting Equipment • Precautions and procedures during voyage • Instructions for aeration and ventilation • Precautions and procedures during discharge
3.3.1.1 REV K	Verify that sufficient additional Respiratory Protective Equipment (RPE) is available on board, to ensure that the requirements of IMO in respect of RPE are available for the duration of the voyage. (Note; the RPE may consist of Self Containing Breathing Apparatus (SCBA) or Canister respirators properly designed for the fumigant used and not expired, or a combination of both but the minimum requirement is for 4 sets of RPE). Refer also to IMO Recommendations Annex 4

3.3.2 3.3.2.1 K	**Master** Appoint a competent crew member to accompany the fumigator during the inspections/testing of empty holds prior to loading to determine whether they are gas tight, or can be made gas tight and if necessary what work is to be carried out to ensure they are gas tight.
3.3.2.2	Ensure the crew is briefed on the fumigation process before fumigation takes place.
3.3.2.3 K	Ensure the crew search the vessel thoroughly to ensure there are no stowaways or other unauthorised personnel on board before fumigation takes place.
3.3.2.4 K	Appoint at least two members of the crew to be trained by the fumigator to act as representatives of the master during the voyage to ensure safe conditions in respect of the fumigations are maintained on board the ship during the voyage.
3.3.2.5 K	After the fumigant has been applied and appropriate tests have been completed the master should provide his representative to accompany the fumigator to make a check that all working spaces are free of harmful concentration of gas (Ref. IMO Recommendations 3.4.3.11).
3.3.2.6 K	When the fumigator has discharged his responsibilities the fumigator should formally hand over in writing responsibility to the master for maintaining safe conditions in all occupied areas, which the master should accept (IMO Recommendations 3.4.3.12).
3.3.2.7	It must be clearly understood by the master that even if no leakage of fumigant is detectable at the time of sailing this does not mean that leakage will not occur at some time during the voyage due to the movement of the ship or other factors. This is why it is essential the master ensure regular checks are carried out during the voyage.
3.3.2.8	During the voyage, the master should ensure that regular checks for gas leakage should be made throughout all occupied areas and the findings recorded in the ship's log (IMO Recommendations 3.4.3.13). If any leakage is detected, appropriate precautions to avoid any crew being exposed to harmful concentrations must be taken. If requested to do so by the fumigator the master may prior to arrival at the first discharge port, start the ventilation of the cargo spaces.
3.3.2.9	Prior to arrival at the first discharge port the master should inform the authorities at the port that the cargo has been fumigated in transit. (Ref. IMO Recommendations 3.4.3.16)
3.3.2.10	On arrival at the discharge port the master should not allow discharge of the cargo to commence until he is satisfied that the cargo has been correctly ventilated and aluminium phosphide residues that can be removed, have been removed, and that any other requirements of the discharge port have been met (IMO Recommendations 3.4.3.17).
3.3.2.11	Refer also to IMO recommendations Annex 4
4.0	**Fumigation of Bulk and Bagged Cargo with Ventilation in Port.** This procedure can be used either after loading and prior to sailing (4.1) or on arrival at the discharge port prior to discharging (4.2).
4.1 REV	**After loading and prior to sailing** Phosphine fumigation is the fumigant that is widely accepted for this procedure as methyl bromide (though frequently used) is not recommended (refer to IMO Recommendations Annex D Para 1.) Phosphine fumigation and ventilation in port prior to sailing will normally take from 1-2 weeks to complete and therefore is only occasionally specified. All procedures as for intransit fumigation should be followed to ensure a safe and effective fumigation.
4.2	**At discharge port prior to discharge**
4.2.1	Methyl bromide is the most common fumigant used for this purpose [in those countries where its use is allowed] as it is normally possible to achieve an effective fumigation of the cargo in 24-48 hours. The crew should be landed and remain ashore until the ship is certified "gas free" in writing by the fumigator-in-charge. The fumigator is responsible for the safety and efficiency of the fumigation, though crew members may remain in attendance to ensure the safety of the ship provided they adhere to safety instructions issued by the fumigator-in-charge.
4.2.2 K	The ventilation of methyl bromide from cargoes can be a very slow process if sufficient powered ventilation is not available and the master (or his representative) should ensure that the fumigator has ensured that residues of gas are below the TLV or equivalent (Ref IMO Recommendations Annex 2) throughout all parts of the cargo and holds.

4.2.3	Phosphine fumigation and ventilation in port prior to discharge will normally take from 1-2 weeks to complete and therefore whilst only occasionally specified is likely to be required more often following the general ban on the use of methyl bromide. All procedures as for intransit fumigation should be followed to ensure a safe and effective fumigation.
5.0	**Fumigation of empty cargo holds and/or accommodation to eradicate rodent or insect infestation**
5.1 REV	Methyl bromide is the most common fumigant used for this purpose (though hydrogen cyanide (HCN) or sulfuryl fluoride may increasingly be used in some countries) as it is normally possible to achieve an effective fumigation of the empty spaces in 12-24 hours. Note: Each type of fumigation product requires specific procedures and expertise from the applicator/fumigator.
5.2 K	The crew should be landed and remain ashore until the ship is certified "gas free" in writing by the fumigator-in-charge as per 4.2.1 above.
6.0	**In Transit Fumigation of Freight Containers**
6.1 REV	The reason for fumigating containers used to carry agricommodities is normally to try to ensure that when the goods arrive at the discharge port they are free of live pests/insects.
6.2 REV	Containers are normally fumigated and subsequently ventilated prior to being loaded on board the ship. Containers that have been fumigated and subsequently ventilated and where a "certificate of freedom from harmful concentrations of the fumigant used" has been issued, can be loaded on board ships as if they had not been fumigated (Ref IMO Recommendations 3.5.2.1).
6.3 REV	Frequently, containers are fumigated but not ventilated prior to loading and these containers are therefore fumigated in transit, as the ventilation process will not take place until after they have been discharged from the ship. The carriage of containers in transit under fumigation is covered by the IMDG Code whereby these containers are classified in Section 3.2 Dangerous Goods List as "FUMIGATED UNIT Class 9 UN 3359". Also refer to the IMDG Code Supplement Section 3.5.1 and 3.5.2 of chapter called "SAFE USE OF PESTICIDES IN SHIPS". WARNING – CONTAINERS ARE STILL SOMETIMES SHIPPED UNDER FUMIGATION WITH NO WARNING NOTICES ATTACHED AND NO ACCOMPANYING DOCUMENTATION STATING THEY HAVE BEEN FUMIGATED. THIS PROCESS IS IN DIRECT CONTRAVENTION OF THE IMDG CODE. THERE MAY BE DANGEROUS AND UNKNOWN LEVELS OF FUMIGANT GAS INSIDE THE CONTAINER WHEN IT ARRIVES AT ITS DESTINATION WHICH IS BOTH ILLEGAL AND DANGEROUS. WARNING – A CERTIFICATE OF FREEDOM FROM HARMFUL CONCENTRATIONS OF THE FUMIGANT USED IS ONLY VALID AT THE TIME AND PLACE OF ISSUANCE SINCE COMMODITIES CAN DESORB NOXIOUS FUMES FOLLOWING VENTILATION RESULTING IN THE RETURN OF A TOXIC ATMOSPHERE.
6.4	**Obligations on the Fumigator**
6.4.1 K	The Fumigator must ensure that as far as is practicable the container is made gas tight before the fumigant is applied either by sealing as necessary, pressure testing or some other accepted method [R].
6.4.2 K	The Fumigator must ensure that the containers are clearly marked with appropriate warning signs stating the type of fumigant used and the date applied and all other details as required by the IMDG Code and IMO Recommendations Annex 3 [R].
6.4.3 K	The Fumigator must ensure the agreed formulation of fumigant is used at the correct dosage to comply with the contractual requirements, and records retained [R].
6.5	**Obligations on the Exporter**
6.5.1	The exporter is advised to ensure that the containers are clearly marked by the fumigator with appropriate warning signs stating the type of fumigant used and the date applied and all other details as required by the IMDG Code and IMO Recommendations Annex 3.
6.5.2	The exporter is advised to ensure that the master is informed prior to the loading of the containers.
6.5.3	The exporter must ensure that shipping documents show the date of fumigation and the type of fumigant and the amount used all as required in the IMDG Code volume 1 page 35 and specifically section 9.9.

6.5.4	The exporter must follow all specific port regulations.
7.0	**Fumigation of Freight Containers** Containers that are transported whilst under in transit fumigation are classified by the IMDG Code Dangerous Goods Section as "FUMIGATED UNIT CLASS 9 UN 3359". The GAFTA Code therefore requires the Fumigator to perform his operations all in accordance with the IMDG Code Supplement Sections 3.5.1 and 3.5.2. For additional information refer to the GAFTA Fumigation Guidance Notes.
8.0 8.1	**Store and Silo Fumigation** The GTAS Fumigators Code of Practice requires fumigators, storekeepers and silo operators to comply with all the relevant requirements of the country in which fumigation is taking place, together with the fumigant manufacturers requirements and the fumigation guidelines within this manual, and to the treatment options detailed in Annex 1.
8.2 K	The GTAS Code of Practice requires that accredited fumigators maintain a detailed record of all fumigations carried out under all sections of this standard, including the following: • method of fumigation, • date of application • date of ventilation • type, quantity and dosage rate of fumigant used
9.0 9.1	**Bulk Shipments – Insecticide Treatments** Bulk cargoes are sometimes treated either in silo or store shortly before loading, or during the actual loading process, by the application of one of a number of different insecticides.
9.1.1K	The insecticide must be applied strictly in accordance with the manufacturer's label.
9.1.2	The insecticide must be applied strictly in accordance with the local regulations.
9.1.3	The insecticide must be applied strictly in accordance with phytosanitary requirements.
9.1.4	The insecticide must be applied strictly in accordance with any contractual obligations.
9.2	Insecticide is normally applied either mixed with water or as a concentrate, and is applied to a moving stream of grain in order to achieve a sufficiently even and effective distribution of the insecticide.
9.3 K	It is a requirement to record all details of the treatments applied, including: • name of insecticide applied [R] • date of treatment [R] • cargo/batch volume and identification [R] • dosage rate applied [R] • total amount of insecticide applied [R] • method of application [R]
10.0	**Complaints Procedure** The fumigator must have a documented procedure for handling complaints. This procedure must include systems for: • The prompt documentation and investigation of complaints • The prompt feedback to the Company with findings • Deciding on internal actions required to prevent re-occurrence
11.0 11.1	**Records** Internally produced records must be signed by the person carrying out the task/activity.
11.2	Records must be legible and kept in suitable conditions that allow ready retrieval and prevent deterioration.
11.3	Records must be kept for a minimum of three years unless there are additional requirements.

Attachments

Appendix 1 A summary of the various methods of phosphine application methodology that can be considered for intransit fumigation of bulk or bagged cargo in ship's holds.

APPENDIX 1

A SUMMARY OF THE VARIOUS METHODS OF PHOSPHINE APPLICATION METHODOLOGY THAT CAN BE CONSIDERED FOR IN TRANSIT FUMIGATION OF BULK OR BAGGED CARGO IN SHIPS HOLDS

Note: these methods can also be used for store and silo fumigation when the appropriate gas-tight sheeting or other sealing materials are used.

i) Application of tablets or pellets to cargo surface (or into the top half meter)
High concentrations of gas build up in the head space, potentially resulting in a lot of leakage through the hatch covers unless they are very well sealed. Very little penetration down into the cargo. Powdery residues cannot be removed.

Good kill of insects in top part of cargo but negligible effect on eggs or juvenile or even adults in lower part of cargo.

ii) Application of tablets or pellets by probing into the cargo a few meters
Less loss of gas through hatch covers than in No i). Better penetration of gas than when applied on surface only but unlikely to be fully effective unless holds are relatively shallow and voyage time relatively long. Powdery residues cannot be removed.

iii) Application of tablets or pellets by deep probing into the full depth of the cargo
This is difficult to achieve and currently practically impossible if the cargo is more than 10 metres deep. Ensures effective fumigation provided voyage time is relatively long to allow gas to distribute. Powdery residues cannot be removed.

iv) Application of aluminium phosphide in blankets, sachets or sleeves, placed on the surface of the cargo (or into the top half metre).
All points the same as No i) except that with this method powdery residues can be removed prior to discharge.

v) Application of tablets or pellets by probing into the cargo a few meters in retrievable sleeves
All points as for No ii) except that with this method powdery residues can be removed prior to discharge.

vi) Fitting of an enclosed powered re-circulation system to the hold and application of aluminium phosphide tablets or pellets to the surface
Will ensure the gas is distributed throughout the cargo evenly and rapidly making maximum use of the fumigant in the shortest possible time. Powdery residues cannot be removed.

vii) Fitting of an enclosed powered re-circulation system to the hold and application of aluminium phosphide in blankets, sachets or sleeves on the surface or probed into the top one or two metres
As for No vi) except that with this method, powdery residues can be removed. Also gaseous residues can be removed more easily than with other methods, as once the powdery residues have been removed the re-circulation system can be used to assist this to happen rapidly.

viii) Deep probing into the full depth of the cargo (however deep) with tablets or pellets (in retrievable sleeves when required)
This is being developed but is not yet fully available.

Will enable good distribution of gas to be achieved without the requirement for a powered re-circulation system, provided the voyage is long enough.

ix) Use of powered re-circulation system with phosphine from cylinders
This is not yet available but could be in the future and will enable phosphine fumigation to be carried out without using aluminium phosphide. This will mean no powdery residues to deal with and therefore residue and safety problems at discharge port will be minimised. A powered re-circulation system will be needed to enable this system to work with maximum efficacy. The diagrams below compare the distribution pattern from a powered re-circulation system with fumigation and no re-circulation.

The re-circulation system consists of a permeable tubular loop placed in the lower part of a hold prior to commencement of loading operations. The tubular loop is connected via an impermeable tube/hose to the headspace of the hold. The mixture of gas and air is circulated by a spark proof ventilator.

FUMIGATION OF CARGO IN SHIP'S HOLD USING PHOSPHINE AND A POWERED RE-CIRCULATION SYSTEM

TRADITIONAL FUMIGATION OF CARGO IN SHIP'S HOLD USING PHOSPHINE

APPENDIX 2

Example of Schematic Fumigation Plan

Vessel Name: _____

Date of Fumigation: _____

Place of Fumigation: _____

Port of Destination: _____

Fumigant used: ☐ Aluminium Phosphide ☐ Magnesium Phosphide

Method of fumigant application:

☐ Short Probe ☐ Long Probe ☐ Residue retaining sleeves ☐ Surface application ☐ Recirculation ☐ Other

Recirculation method:

Annotate amounts of fumigant blankets, sleeves, plates, sachets, ducts, pipes or fans placed in each hold:

Hold 1	Hold 2	Hold 3	Hold 4	Hold 5	Hold 6	Hold 7
Volume 0000 m3	Volume 0000 m3	Volume 0000 m3	Volume 0000 m3	Volume 0000 m3	Volume 0000 m3	Volume 0000 m3
AP/MP 00.0 kgs	AP/MP 00.0 kgs	AP/MP 00.0 kgs	AP/MP 00.0 kgs	AP/MP 00.0 kgs	AP/MP 00.0 kgs	AP/MP 00.0 kgs
No. Retaining sleeves:	No. Retaining sleeves:	No. Retaining sleeves:	No. Retaining sleeves:	No. Retaining sleeves:	No. Retaining sleeves:	No. Retaining sleeves:
Total volume = 0000 m3 Total fumigant AP/MP = 00 kgs						

It is hereby certified that the above mentioned fumigant formulation was applied to the above vessel on (date). After the application of the fumigant all holds were closed and sealed and warning placards posted on all entrances to all fumigated holds. The cargo was treated at the rate of (00) grams per cubic metre of hold space using the ( ) method.

Total amount of residue retaining sleeves (if applicable): _____

Required minimum exposure time: _____

Estimated voyage time: _____

Date: _____ Port: _____

Fumigator-in-charge: _____ Master: _____

Acknowledgements

UK P&I Club "Carefully to Carry" Committee

the International Maritime Fumigation Organisation (IMFO).

Gafta Promoting international trade

LONDON
9 Lincoln's Inn Fields
London
WC2A 3BP
United Kingdom

T: +44 20 7814 9666
F: +44 20 7814 8383
E: post@gafta.com
W: www.gafta.com

BEIJING
Leading International Center,
No.1 Guang Qu Men Nan Xiao Jie
ChongWen District, 100061,
Beijing China

T: +86 10 6712 1741
F: +86 10 6712 1742
E: beijing@gafta.com
W: www.gafta.com.cn

GENEVA
8 Rue de la Cloche
1201 Geneva
Switzerland

T: +41 22 715 24 30
F: +41 22 731 72 79
E: geneva@gafta.com
W: www.gafta.com

KIEV
8 Saperno Slobidska Street
Kiev
03039
Ukraine

T: +380 44 524 0329
F: +380 44 524 0231
E: kiev@gafta.com
W: www.gaftakyiv.com