

The International Maritime Fumigation Organisation



Code Of Practice On Safety And Efficacy For Marine Fumigation

IMFO 2010

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1. Introduction

- 1.1. The main purpose of **marine fumigation** (or fumigation in ship's holds continued in transit) is to prevent from idle time of ships under fumigation in port. Marine fumigation became possible with introduction of Phosphine (or Hydrogen Phosphide) - the only fumigant used for this purpose nowadays according to IMO Recommendations on the Safe Use of Pesticides in Ships. The process of marine fumigation begins with fumigant application to the cargo at load port, continues with fumigant exposure during voyage and ends with degassing and fumigation efficacy control at discharge port. To provide for maximum safety and achieve the targeted efficiency for this complicated process the cooperation of all parties involved is essential: traders, fumigators, mariners, stevedores, etc. With the aim to increase the standards of marine fumigation, to improve cooperation between all parties concerned and to provide for comprehensive and guaranteed treatment the International Maritime Fumigation Organisation (IMFO) was founded.
- 1.2. The **IMFO** consisting of independent national fumigation companies located in many different countries at its creation was established as a non-profit making organisation with the objective of enabling member companies to provide levels of treatment to the international shipping market that they could not provide as individual companies. A decade of cooperation between IMFO members has shown that national fumigation companies may prove better at providing fumigation services both within export and import oriented countries of goods which are subject to fumigation, as national companies place greater emphasis on building consumer confidence and trust. National companies are also more accurate in observance of national law, as members of international organisation - also complying with international regulations, and in relation to customers – more precise in respect of handling of personal and other identifying information.
- 1.3. This **Code of Practice (COP)** is defined as a set of written rules and standards that serve as a guidance for conduct of IMFO members - participants in the field of marine fumigation.
- 1.4. The **requirements of the COP** are intended to be compatible with, where practicable, the Recommendations on the Safe Use of Pesticides in Ships (Edition 2008) of the International Maritime Organisation (IMO) and Code of Ethics of the IMFO. This COP is as well based on experience and qualification of the members of IMFO and also is about matters of fairness and honesty in relation to customers, port workers, ship crews and other participants of the process of marine fumigation.
- 1.5. This **COP is intended** to promote a common approach to safety and efficacy for marine fumigation amongst member companies.

- 1.6. This **COP provides** a method of identifying potential weaknesses in marine fumigation safety and efficacy and outlines safety roles, tasks and measures to deter, detect and respond to threats to human health by:
 - 1.6.1. Recommending that a marine fumigation is carried out by the IMFO member or an appropriate authority in each port.
 - 1.6.2. Recommending that a pre-fumigation check be carried out.
 - 1.6.3. Recommending that a safety voyage plan (SVP) be produced covering the issues identified in the assessment and identifying appropriate safety measures to be implemented.
 - 1.6.4. Applying safety guidelines to all areas and accommodations of the ship, and those working in, having business on and requiring access to the ship. This includes ship's crew, passengers and passengers' baggage, cargo, material, stores and equipment originating from within and outside the ship.
 - 1.6.5. Promoting safety awareness on board a ship and the training of personnel appropriate to their roles and responsibilities.
 - 1.6.6. Maximizing the effectiveness of safety measures through exercises, tests and audits of safety procedures to identify and correct non-compliance, failures and weaknesses.
- 1.7. This **COP is not a legally binding instrument** and it does not affect obligations to comply with applicable national laws, regulations and rules.

2. *Scope and definitions*

- 2.1. This COP applies, as appropriate, to all persons, organisations or entities operating in, or having any other legitimate reason to deal with marine fumigation.
- 2.2. This COP binds all IMFO members and is intended to promote positive relations of cooperation between all participants of the process of fumigation in transit.
- 2.3. Where there is any conflict or inconsistency between the COP and member company states legislation, national legislation shall prevail.
- 2.4. **Definitions** used in this part of the COP are, to the extent practicable, in keeping with those contained in the International Maritime Organisation (IMO), Recommendations on the Safe Use of Pesticides in Ships, 1996 Edition. For ease of reference certain terms used in this COP are defined in this section.
 - 2.4.1. **Fumigant** – is a chemical which, at the required temperature and pressure, exists in the gaseous state in sufficient concentrations to be lethal to a targeted pest.
 - 2.4.2. **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.
 - 2.4.3. **Fumigant exposure** – is the time of toxic gas action in the fumigated space to control the targeted pest.
 - 2.4.4. **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.
 - 2.4.5. **Gas** – is the state of matter distinguished from the solid and liquid states by very low density and viscosity, relatively great expansion and contraction with changes in pressure or temperature, the ability to diffuse readily, and the spontaneous tendency to become distributed uniformly throughout any chamber.
 - 2.4.6. **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.
 - 2.4.7. **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.

- 2.4.8. **Removal** of spent fumigant- 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.
- 2.4.9. **Disposal** of spent fumigant - 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.
- 2.4.10. **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.
- 2.4.11. **Re-circulation System** – the ancillary equipment for improvement of gas penetration in the fumigated cargo.
- 2.4.12. **In-transit Fumigation Certificate (or Fumigant Application Certificate)** – is the document issued after fumigant application stating the characteristics and procedure applied, which does not guarantee efficacy of marine fumigation.
- 2.4.13. **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.
- 2.4.14. **Fumigator** – is the appointed fumigation company.
- 2.4.15. **Safety** – is a condition whereby the level of risk is deemed acceptable.
- 2.4.16. **TLV** – the threshold limit value for a substance in the air has been defined as the time-weighted average concentration for normal eight-hour working day to which nearly all workers may be repeatedly exposed, day after day, without adverse effect.
- 2.4.17. **Voyage safety plan (VSP)**. A written set of documents that describes the measures the Ship's crew should take to reduce poisoning hazards, deter threats and respond to danger situations.

3. *Aims and objectives*

- 3.1. **The objective of IMFO** is to market and promote certain ethics and technology of sanitary and phytosanitary services, and to establish a network of reliable companies with common technical procedures regarding safety and efficacy around the world exerting every effort to enhance the prestige of IMFO by means of performing excellent services.
- 3.2. **This COP** concerns security issues at the time of fumigation in transit and is a part of an integrated approach to fumigation in transit – related security, safety and health issues where security fits into existing health and safety guidance documents. This COP is intended to promote a common approach to safety and efficacy for marine fumigation amongst all IMFO members.
- 3.3. This COP provides a method of identifying potential weaknesses in a vessel/ fumigation object's security and outlines security roles, tasks and measures to deter, detect and respond to dangerous situations by:
 - 3.3.1. Recommending that a safety assessment is carried out by IMFO members on each vessel/ fumigation /object.
 - 3.3.2. Promoting safety awareness on vessels/ fumigation/ objects and the training of personnel appropriate to their roles and responsibilities.
 - 3.3.3. Maximizing the effectiveness of safety measures through systematic tests and audits of safety procedures to identify and correct non-compliance, failures and weaknesses.
- 3.4. The practical recommendations contained in this COP have been designed to:
 - 3.4.1. Provide guidance to all those responsible for addressing the issue of fumigation in transit. This COP will assist in the identification of the roles and responsibilities of fumigation companies, ship crew, customers, ship and forwarding agents.
 - 3.4.2. Provide that customers, ship and forwarding agents and ship crew are aware that their assistance and cooperation is of utmost importance for fumigation companies.
 - 3.4.3. Minimize cases of member organisations breaching the practice and principles identified in IMO Recommendations on the Safe Use of Pesticides in Ships, the IMFO Code of Ethics, and other international instruments, applicable in the field of marine fumigation.
 - 3.4.4. Minimize level of risk to ship's crew at sea and at discharge and increase quality of goods treatment to grain traders

- 3.4.5. Develop common and improved standards of efficacy and safety for marine fumigation;
 - 3.4.6. Provide grain traders with an option of guaranteed marine fumigation by controlling the fumigation at both load and discharge port;
 - 3.4.7. Enable seafarers, stevedores, workers and other stakeholders to minimize the risk to health from the threat posed by fumigant poisoning.
- 3.5. The COP provides a guidance framework to develop and implement the marine fumigation safety and efficacy strategy appropriate to identified threats to good marine fumigation practice
- 3.6. Safety measures should be devised to reduce risks and should in the main revolve around procedures to establish and control safety measures during voyage and cargo operations in the port.
- 3.7. This COP promotes common standards and a culture among member organisations of conducting their business in accordance with best practices and increase customers confidence in doing business with IMFO members, as fumigation in transit cannot be designated private business of a customer and a fumigation company, as it is about safety and security of many people, quality of fumigated goods that are mostly foodstuffs, and preservation of the environment.

4. *Technical Standards*

- 4.1. The IMFO Technical Committee (TC) is formed among IMFO members for determining Common Technical Standards (CTS) for guidance of all IMFO members.
- 4.2. The IMFO TC is responsible for advising members when required and for observing compliance with CTS by all IMFO members.
- 4.3. Only good quality fumigation materials should be used by IMFO members for marine fumigation.
- 4.4. The fumigation materials used by IMFO members should be applied strictly in accordance with the manufacturer's instructions and safety precautions given on the label with regard to any limitations applied by the law of the country of loading, destination or flag of the ship, contracts related to the cargo, or ship owner's instructions
- 4.5. All IMFO Members shall comply with CTS and report to TC all facts of CTS violation by IMFO members.
- 4.6. In case of iterative non-compliance with CTS by an IMFO Member the TC can apply to IMFO Board of Directors (BOD) with inquiry to suspend the member concerned.

5. *Roles and tasks*

- 5.1. In accordance with the IMFO Code of Ethics which was agreed at the Shareholders Meeting on 14 – 15 November 1997, based on IMO Recommendations on the Safe Use of Pesticides in Ships (1996 Edition) and in support of and compliance with other international regulations applicable in the sphere of fumigation in transit,
- 5.2. Members of the International Maritime Fumigation Organisation:
 - 5.2.1. In Relation to Public:
 - 5.2.1.1. In their advertisements or other solicitation of business, shall not use tricky, fraudulent, or misleading wording or methods.
 - 5.2.2. In Relation to Customers:
 - 5.2.2.1. The IMFO members shall render skilled, intelligent and conscientious service.
 - 5.2.2.2. The members shall thoroughly analyze the requirements of their customers, and shall conscientiously recommend the means best suited for the customer's needs.
 - 5.2.2.3. Any lack of awareness by a customer of the requirements and risks of the process of fumigation in transit, and inability to understand the offer shall not be exploited.
- 5.3. Relation of members to IMFO
 - 5.3.1. The members shall be loyal to the principles of the IMFO.
- 5.4. Grievance and disciplinary actions
 - 5.4.1. The conduct of members of IMFO shall be expected at all times to be in accordance with the provision of the Code of Ethics and the policies adopted by IMFO.
 - 5.4.2. A complaint against a member of the IMFO shall be referred to any director, who will report to the Board of Directors (BOD). The BOD will resolve the situation.
 - 5.4.3. It shall be the earnest endeavor of the BOD to remove the cause of complaint without taking recourse to punitive action against a member whose delinquency has been established. Expulsion from the membership shall be taken as a last resort where persuasion fails. In such an event and with reference to the Articles of the Shareholders

6. *Port-to-Port Service*

- 6.1. Port-to-port service (P2PS) can be defined as complete procedure of marine fumigation provided by the IMFO Group in similar stages as standard fumigation: fumigant application, exposure, degassing and efficacy control.
 - 6.1.1. Quarantine authorities in different countries often have different and very specific requirements to the method of fumigation and level of residues in the imported cargo.
 - 6.1.2. The IMFO member at origin of cargo having the information on requirements at destination from the IMFO member at discharge port enjoys the unique possibility to use the appropriate method of treatment preventing the shipper from unexpected delays due to improper fumigation.
 - 6.1.3. The IMFO member at destination, having the qualified and experienced staff and being properly equipped, can perform ventilation of the fumigated goods at discharge port and dispose of the spent fumigation materials.
 - 6.1.4. The Gas Free (or Clearance) Certificate issued by the IMFO member at discharge port declares the area safe for workers to enter a fumigated space and/or handle a fumigated product.
 - 6.1.5. In case of in-transit fumigation failure the re-fumigation of the cargo can be promptly arranged by the IMFO member at destination.
- 6.2. P2PS is rendered by IMFO group companies in both port of loading and port of destination to secure customers from losses due to incomplete marine fumigation, which may result in delay of discharge.
- 6.3. This COP recommends that upon receipt of the nomination for in-transit fumigation the IMFO member at origin shall inform all risks of marine fumigation to the customer and offer the P2PS explaining the advantages of this arrangement.
- 6.4. The customer shall be afforded an opportunity to make a free choice in respect of whether to use the P2PS option or not.
- 6.5. IMFO members at both port of loading and port of discharge shall accord favourable treatment for the vessel/ fumigation object and other parties concerned, shall exert every effort to render assistance to the IMFO member in need of degassing or re-fumigation services at the minimal cost agreed in the interest of each IMFO member and in the common interest of promotion and the prestige of the IMFO Group.

- 6.6. On providing the P2PS, IMFO members may also resort to assistance of other fumigation companies where there is no IMFO membership.
- 6.7. In countries, ports and all areas where IMFO members are available they shall cooperate with each other on mutually agreed favourable terms based on the interests of each IMFO member.

7. *Load port*

7.1. Prior to application of fumigant safety assessment should be carried out by IMFO member at load port considering IMO Recommendations, requirements of IMFO CTS and with regard to any limitations applied by the law of the country of loading, destination or flag of the ship, contracts related to the cargo, or ship owner's instructions.

7.2. The Voyage Safety Plan (VSP) should be discussed with and signed by the shipmaster prior to sailing to discharge port including checklist confirming the following:

7.2.1. **Before fumigant application:**

7.2.1.1. The inspection required before loading has been performed

7.2.1.2. All the cargo spaces to be fumigated are satisfactory for fumigation

7.2.1.3. Spaces, where found not be satisfactory, have been sealed

7.2.1.4. The master or his trained representatives have been made aware of the specific areas to be checked for gas concentrations throughout the fumigation period

7.2.1.5. The master or his trained representatives have been made familiar with the fumigant label, detection methods, safety procedures and emergency procedures

7.2.1.6. The fumigator-in-charge has ensured that gas-detection and respiratory protection equipment carried on the ship is in good order, and that adequate fresh supplies of consumable items for this equipment are available to allow sampling

7.2.1.7. The fumigator-in-charge has ensured that the necessary medicines and medical equipment, and the latest version of the Medical First Aid Guide for Use in Accident Involving Dangerous Goods (MFAG) are available on board the ship

7.2.1.8. The master has been notified in writing of:

a. the spaces containing cargo to be fumigated

b. any other spaces that are considered unsafe to enter during the fumigation

7.2.2. **After fumigant application:**

- 7.2.2.1. Presence of gas has been confirmed inside each hold under fumigation
- 7.2.2.2. Each hold has been checked for leakage and sealed properly
- 7.2.2.3. Spaces adjacent to the treated cargo spaces have been checked and found gas-free
- 7.2.2.4. The responsible crew members have been shown how to take gas readings properly when gas is present and they are fully conversant with the use of gas-detection equipment provided
- 7.2.2.5. Methods of application described
- 7.2.2.6. The master or trained representatives have been briefed fully on the method of application and the spread of the gas throughout the hold
- 7.2.2.7. The master or trained representatives have been made:
 - a. 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
 - b. aware of the possibility of the spreading of gas throughout the duct keel and/or ballast tanks
 - c. 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..
- 7.2.2.8. The fumigator-in-charge has supplied a signed statement to the master conforming to the provisions of IMO Recommendations.

8. *Voyage Safety Plan*

- 8.1. The IMFO Members should produce a common Voyage Safety Plan (VSP) that provides the foundation to develop directives, rules and regulations as appropriate.
- 8.2. VSP should take into account provisions of IMO Recommendations, relevant international conventions, codes and other established national practices for both load and discharge port and include the following:
 - 8.2.1. PREFUMIGATION NOTICE
 - 8.2.2. STATEMENT OF THE VESSEL SUITABILITY FOR FUMIGATION
 - 8.2.3. EMERGENCY PROCEDURES
 - 8.2.4. STATEMENT OF HAND OVER RESPONSIBILITY FOR MAINTAINING SAFE CONDITIONS
 - 8.2.5. FUMIGATION PLAN
 - 8.2.6. PRECAUTIONS DURING VOYAGE NOTICE
 - 8.2.7. INSTRUCTION FOR AERATING THE HOLDS
 - 8.2.8. IN-TRANSIT FUMIGATION CERTIFICATE (or FUMIGANT APPLICATION CERTIFICATE)
- 8.3. The In-Transit Fumigation Certificate is issued, where insects-free and gas-free condition of goods cannot be certified. This certificate indicates only initial data of fumigation, such as dosage applied and required exposure time and cannot guarantee efficacy of marine fumigation.
- 8.4. Along with In-transit Fumigation Certificate clear written instructions must be given to the master of the ship, to the receiver of the cargo and to the authorities at the discharging port if no IMFO member has been appointed, as to how any powdery residues are to be disposed of.
 - 8.4.1. With use of the VSP IMFO Members ensure a legal framework is in place to carry out the provision of this COP.
- 8.5. The VSP should be periodically reviewed and updated to reflect changing circumstances

9. *Safety during voyage*

- 9.1. The IMFO member at load port is responsible for Safety awareness of the ship's master and crew with information vital to the safety, security and health of ship's crew during voyage.
- 9.2. The shipmaster should be informed by IMFO member at load port of the minimum precautions during voyage to be observed in accordance with IMO Recommendations and VSP.
- 9.3. The IMFO member at load port should ensure that necessary gas-detection and respiratory protection equipment carried on the ship is in good order, and that adequate fresh supplies of consumable items are available and the captain or his designated representatives are familiar with their use.
- 9.4. On application of the fumigant, the IMFO member at load port should post warning signs at all entrances to places notified to the master according to the provisions of IMO Recommendations and VSP.
- 9.5. Areas considered safe and/or non-safe during voyage should be clearly explained and indicated by IMFO member in the VSP. Although areas listed in the VSP considered safe during voyage the master should be recommended that any accommodations or storage areas next to fumigated areas to be periodically monitored with the detection equipment.
- 9.6. Prior to sailing to discharge port the IMFO member at load port should formally hand over to the master in writing responsibility for maintaining safe conditions in all occupied spaces of the ship.

10. Discharge port

- 10.8. Safety and efficacy measures at discharge port are most effectively performed based on information received in advance from the IMFO member applying fumigant at load port. This will normally require the authorization from the shipper.
- 10.9. The IMFO member at discharge port being nominated for P2PS should carefully study the information provided by the IMFO member at origin for ventilation/aeration procedure assessment.
- 10.10. The IMFO member at discharge port should take all necessary actions for ventilation/aeration allowing safe discharge of the fumigated goods with accordance to local health regulations and other rules of discharge port. Such ventilation/aeration may be considered under two headings:
 - 10.10.1. **Additional cargo ventilation/aeration** where some ventilation/aeration have been done prior to ship's docking. In such case remaining fumigant concentration level should be checked to establish necessity of further ventilation/aeration for safe discharge.
 - 10.10.2. **Complete cargo ventilation/aeration** where on aeration/ventilation has been started prior to ship's docking. In such case an auxiliary equipment for faster aeration/ventilation can be used.
- 10.11. The IMFO member's own findings or information from the parties involved can be used for evaluation of the fumigation efficacy. These findings should be informed to the IMFO member at load port.
- 10.12. All residue-retaining bags, if used, should be retrieved from the fumigated holds by the IMFO member at destination and disposed of safely at the approved site.
- 10.13. The re-circulation equipment, if used, should be retrieved by the IMFO member at destination from the fumigated holds and, according to order of IMFO member at load port, either disposed of, or shipped back to IMFO member at load port.
- 10.14. The appropriate Gas-Free (or Clearance) Certificate should be issued in favour of the IMFO member at load port. Copy of such Gas-Free (or Clearance) Certificate can be delivered to sanitary or port authorities at destination after authorization from the IMFO member at load port.

11. Review

- 11.1. The COP shall be subject to review whenever the IMFO members or the Board of Directors considers necessary.
- 11.2. In conducting the review, opinion of all IMFO members shall be taken into consideration by the IMFO Management and the Board of Directors.
- 11.3. The review shall be presented to all IMFO members.

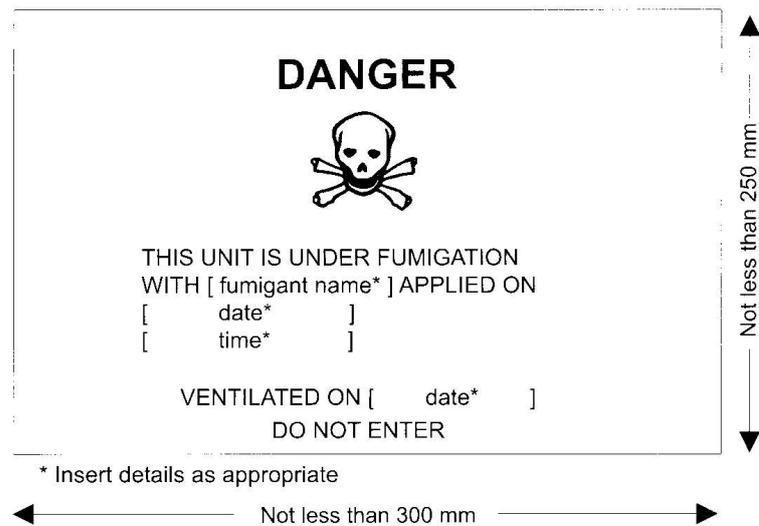
12. Amendment

- 12.1. The IMFO Management or the Board of Directors may at any time resolve to amend the COP.
- 12.2. Once an amendment has been made, the IMFO Management will ensure that:
 - 12.2.1. Each IMFO member receives notice of the amendment,
 - 12.2.2. The amendment is adequately publicized so that all those non-IMFO-members concerned may be made aware of the amendment.
- 12.3. This COP will always be available at www.imfo.com

Appendix A

(A Danger sign example)

The markings should be black print on a white background with lettering not less than 25 mm high.



Appendix B

VOYAGE SAFETY PLAN

Ship's name		IMO Number	
Ship's registry		Port of registry	
Cargo		Destination	
Quantity loaded		Holds loaded	
Holds fumigated		Fumigant used	
Application date/time		Exposure time	

Safety of operations requires that all questions should be answered by ticking the appropriate boxes. If a question is considered to be not applicable write "n/a", explaining why if appropriate.

PART A.

The following documents have been provided and required minimal preparations have been done: Yes No

- 1. PREFUMIGATION NOTICE
- 2. STATEMENT OF THE VESSEL SUITABILITY FOR FUMIGATION
- 3. FUMIGANT LABEL
- 4. STATEMENT OF HAND OVER RESPONSIBILITY FOR MAINTAINING SAFE CONDITIONS
- 5. FUMIGATION PLAN
- 6. PRECAUTIONS DURING VOYAGE NOTICE
- 7. INSTRUCTION FOR AERATING THE HOLDS
- 8. CERTIFICATE OF FUMIGATION IN TRANSIT
- 9. Two crewmembers have been designated as the Master's representative for maintaining safe conditions during the voyage:
 (print the name and rank)
- 10. The crew has been briefed in regards of minimal safety precautions
- 11. Precautions during the voyage have been posted on the information board
- 12. Dangerous areas have been placarded with danger signs

PART B:
Maintaining safe conditions:

The following procedure should be carried out after application of fumigant and closing and sealing of cargo spaces.

The following areas of the vessel are not safe during the voyage:

CARGO HOLDS _____ AND ANY OTHER AREA PLACARDED WITH DANGER SIGNS.

Except in extreme emergency, cargo spaces sealed for fumigation in transit should never be opened at sea before exposure period is over.

Gas concentration safety checks at all appropriate locations should be continued throughout the voyage beginning from the time of application at eight-hour intervals first three days and at least once an each following day. Such checks should be recorded in official log book.

TLV :
(to be advised by fumigator-in-charge)

Indicate the spaces to be checked for gas concentration:

.....
(should include accommodation, engine-room, navigation room, forecastle, frequently visited working areas, adjacent to the fumigated holds)

Number & location of gas testing equipment:.....

Number & location of respiratory protective equipment:

Number & location of SCBA:

Number & location of EEBA:

Not less than 24 Hrs prior to arrival the Master should inform the appropriate authorities of the country of destination and port of call that fumigation in transit is being carried out.

Quarantine authorities contact:.....

Agent's contact.....

Date/time of ship's arrival: Port of arrival:

Hold aeration commenced:..... Hold aeration completed:.....

Yes No

Mechanical ventilation engaged

The results of final check of gas concentration after hold aeration:

Ship holds NoNo.(one meter above the cargo) less than **0,1 ppm**

Work areas on the weather deck (adjacent to the cargo holds)..... less than **0,1 ppm**

Workshop and lockers in the forecastle less than **0,01 ppm**

Living quarters and engine room..... less than **0,01 ppm**

Discharging commenced: Discharging completed:

Comments:.....

.....

In all your action follow the instructions given by the fumigator-in-charge.

PART C:
Emergency procedures:

Gas leakage from the hold.

All actions should be confirmed by ticking the appropriate boxes. In the event of gas leakage the following steps should be done.

Date/time of occurrence:.....

Comments:.....

.....

	Yes	No
1 Presence of gas has been confirmed by appropriate testing equipment	<input type="checkbox"/>	<input type="checkbox"/>
2 Gas concentration exceeds the TLV on weather deck adjacent to the leaking hold	<input type="checkbox"/>	<input type="checkbox"/>
3 Crew evacuated from the weather deck	<input type="checkbox"/>	<input type="checkbox"/>
4 Accommodation has been sealed effectively	<input type="checkbox"/>	<input type="checkbox"/>
5 Ship has been brought down wind (Living quarter should be brought windward)	<input type="checkbox"/>	<input type="checkbox"/>
6 Two designated crew, wearing adequate gas protection equipment, have detected the leak	<input type="checkbox"/>	<input type="checkbox"/>
7 Leaking cargo space has been re-sealed (use all sealing materials such as sealing tape, sealing foam, tarpaulin, all kind of PHV film etc.)	<input type="checkbox"/>	<input type="checkbox"/>
8 Gas concentration has been checked	<input type="checkbox"/>	<input type="checkbox"/>
9 Gas concentration less than TLV	<input type="checkbox"/>	<input type="checkbox"/>

If NO, try to find the source of leaking again and contact with fumigation company by the mean of emergency call:.....

(contact phone no. or email)

Coordinate all your actions in accordance with given instructions and you SMS Fleet Manual in regards of emergency procedures.

Entry into the hold in emergency case

Except in extreme emergency, cargo spaces sealed for fumigation in transit should never be entered.
If entry is imperative, the following steps should be done.

Date/time of occurrence:

Reason of entry:

.....

- | | | | |
|---|---|--------------------------|--------------------------|
| 1 | At least two crew are ready to enter the hold, wearing SCBA, safety harness and lifeline | <input type="checkbox"/> | <input type="checkbox"/> |
| 2 | One person outside the space, similarly equipped, has been appointed to tend the lifeline | <input type="checkbox"/> | <input type="checkbox"/> |
| 3 | All other personal have been evacuated from weather deck | <input type="checkbox"/> | <input type="checkbox"/> |
| 4 | Accommodation has been sealed effectively | <input type="checkbox"/> | <input type="checkbox"/> |
| 5 | Ship has been brought down wind (Living quarter should be brought windward) | <input type="checkbox"/> | <input type="checkbox"/> |
| 6 | Hold has been re-sealed on completion of operation | <input type="checkbox"/> | <input type="checkbox"/> |
| 7 | Gas concentration has been checked | <input type="checkbox"/> | <input type="checkbox"/> |
| 8 | Gas concentration less than TLV | <input type="checkbox"/> | <input type="checkbox"/> |

All operations should be recorded as prescribed by the ENTRY IN ENCLOSED SPACE procedures in your SMS Fleet Manual. In case of fire do not use the water or foam for extinguishing of fire in the fumigated hold. The case of emergency entry should be reported to the fumigation company:

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GAS Poisoning

Follow the Annex 1 to PRECAUTIONS DURING THE VOYAGE NOTICE and MFAG, and coordinate your actions in accordance with appropriate chapter of your SMS Fleet Manual.

Date/time of occurrence: Comments:

		Yes	No
1	The victim has been removed on fresh air	<input type="checkbox"/>	<input type="checkbox"/>
2	Oxygen has been given to him	<input type="checkbox"/>	<input type="checkbox"/>
3	Appropriate first medical aid has been given in accordance with the Annex 1 to PRECAUTIONS DURING THE VOYAGE NOTICE, MFAG and fumigant label	<input type="checkbox"/>	<input type="checkbox"/>
4	Contact with the shore based hospital has been established via INMARSAT	<input type="checkbox"/>	<input type="checkbox"/>
UHF telephone	<input type="checkbox"/>	<input type="checkbox"/>
HF/MF telephone	<input type="checkbox"/>	<input type="checkbox"/>
	<i>(indicate time the station and p.i.c. is being contacted)</i>		
8.	Contact with shipping company emergency team has been established	<input type="checkbox"/>	<input type="checkbox"/>

The above mentioned voyage safety plan has been agreed :

Time: Date:

Master: Fumigator-in-charge:

Appendix C

References

The information given in this appendix is intended to provide background and references on the COP and other sources of information that may be of interest.

2. Details of the following may be found on the IMFO web site – www.imfo.com
3. The Recommendations on the Safe Use of Pesticides in Ships (Edition 1996) of the International Maritime Organisation (IMO).
4. USDA Fumigation Handbook
5. IMFO Code of Ethics