

INFORMATION SHEET

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Safety Precautions for Fumigated Freight Containers

Introduction

The use of freight containers or ISO containers has increased over the last 20 years to a point where nearly all freight is now carried this way. Regulatory authorities around the world are increasingly aware of the need for good biosecurity practices to prevent the spread of disease and unwanted pests between countries. Fumigation of freight containers is an effective biosecurity control when used correctly and in accordance with accepted standards.

Labelling and documentation can't always be relied on

Unfortunately the presence of fumigant residues in freight containers is a common occurrence. Its presence is often undeclared, undocumented, and external warning signs either not applied or removed. Employees and others, including inspection staff from MAF or Customs, who open or enter containers, are therefore potentially exposed to the fumigant gas. This publication provides information for the development of safe working practices.

Common fumigants

The most commonly used fumigants in freight containers are Methyl Bromide or Phosphine. Both these fumigants are highly toxic in small quantities.

Methyl Bromide - is used as gas and has a general lack of odour therefore provides little warning of its presence in a container.

Phosphine - has a garlic type odour and therefore is more easily detected. Phosphine gas is generated by a reaction from moisture in the air to Aluminium or Magnesium Phosphide which are usually in pellet form. The residue from these pellets is a greyish white powder and must also be treated with care.

Fumigation practice

Containers can be fumigated at different times in the transport chain. If done offshore before shipment, the container will usually be aerated or ventilated before loading on a ship. Under international maritime rules containers under fumigation are only permitted on a ship at the discretion of the master, who will usually require them to be aerated or ventilated. Even if these containers are aerated before shipping, some residue of fumigant is likely to remain because of the slow release of gas absorbed into the cargo. Documentation about fumigation of a container such as treatment certificates, customs declaration or warning labels may not be a reliable indication that fumigation has been carried out. Therefore anybody required to open a container must do so with great care and take appropriate precautions to prevent exposure to possible toxic gases.

Fumigation after arrival in New Zealand is a common occurrence for biosecurity reasons. The controls placed on the use of fumigants under the Hazardous Substances and New Organisms (HSNO) Act require that all fumigated containers must be ventilated at the completion of the fumigation period. It is usual to place a warning sticker on the outside of the container giving fumigation details. The container will be locked and there should be signage around the fumigated container.

Hazard assessment

Potential exposure to fumigants in containers should be identified and managed as part of normal health and safety measures by all personnel involved in unloading or accessing cargo in containers. This means:

- carrying out a hazard assessment before opening a container
- identifying the likely presence of a fumigant in the container using appropriate safety precautions
- being aware that the cargo may emit an odour, which may be confused with fumigants. This applies in particular to furniture or other cargo that may have been treated with organic solvent materials such as paint.

Safety precautions

If a container shows signs of having been fumigated, either offshore or in New Zealand then:

- anyone involved with these containers must be careful when opening them
- all workers must be protected against exposure, this may involve wearing appropriate respiratory protection
- assess whether a secondary ventilation period may be required to remove any residual gas
- ventilation should only be carried out in a secure but open area which the public and others do not have access.

Ventilation procedures

Where secondary ventilation is necessary this will usually involve opening the doors and forcing air into the container using fans to displace the fumigant which can collect in pockets in the cargo. Good ventilation for a period of **at least two hours** should be sufficient to displace most fumigant residues or other fumes generated from the cargo.

Respiratory protection

Where respiratory protection is considered necessary because of the type of cargo, for example tightly packed or granular materials, then self-contained breathing apparatus or air-supplied respirators offer the best form of protection. If the levels of gas can be determined by testing, and are lower than the Workplace Exposure Standard (WES), then a lesser level of respiratory protection can be used, such as a filter face piece using an appropriate filter for the gas. Care needs to be taken to ensure that the testing method and type of gas is properly identified. Most commercial fumigation companies have testing devices for this purpose and can be contracted to provide this service.

Conclusion

Always be aware that:

- a residual fumigant may be present in freight containers following legitimate fumigation
- other contaminate gases may also be present
- despite initial ventilation of the container the level of gas may still be sufficient to cause health effects to anyone opening or working in the container
- following sensible precautionary measures when opening a container will usually keep workers safe
- forced ventilation should clear the air to allow work to proceed safely
- if in doubt, workers should wear adequate respiratory protection.

Assistance with this procedure may be obtained from commercial fumigation companies who have experience working with these products.

Further information or feedback

For further information on fumigants visit our website at www.ermanz.govt.nz/hs/compliance/fumigants.asp

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