Requirements

FOR buyers, sellers and users of

Methyl Bromide (MB)

What is Methyl Bromide?

Methyl Bromide is a toxic pesticide used to kill unwanted organisms in soil, agricultural commodities and in homes and buildings. After usage of methyl bromide, it drifts into the upper atmosphere where it destroys the Earths protective ozone layer.

Montreal Protocol

Methyl bromide (MB) was officially listed as an ozone depleting substance by the Montreal Protocol in 1992. Governments including Fiji have agreed that individual Article 5(1) ('developing') countries will limit their consumption of MB in 2002 to not more than their baseline consumption, being the average of their 1995-98 consumption, make a 20% reduction in consumption in 2005 relative to their baseline and phase out MB by 2015 at the latest.

The Montreal Protocol is currently discussing additional MB reduction steps for the period between 2005 and 2015. Fiji has ratified the Montreal Protocol and Vienna Convention on the 23rd October 1989, London Amendment on the 9th December 1994 and the Copenhagen Amendment on 17th May 2000.

Uses of Methyl Bromide

Soil Fumigation, commodities and building disinfecting [eg. disinfecting insects, deratting of ships, insect pest control in stored grains & mills, disinfestations of museums, cultural materials & wooden artifacts (including vau roses). MB is no longer used for agricultural purposes.

Some examples of pests that are treated/fumigated in Fiji

GIANT AFRICAN SNAIL

KHAPRA BEETLE

MITE

WHITE ANT

RICE WEEVIL

RHINOCEROUS BEETLE

Adverse Effects on people

Methyl Bromide is extremely toxic and particularly dangerous as it is both hard to detect and signs of poisoning may not be apparent until several hours after exposure. Thus, without proper precautions, persons may continue to expose and further endanger themselves unaware that all is not well.

Methyl bromide can cause:

- damage to the brain and nervous system and possibility the kidneys;
- Severe burns and blistering of the skin and
- Massive accumulation of fluid in the lungs (oedema);

The effects of exposure to the gas depend on the concentration, and on the period and frequency of exposure . Harmful effects may result not only from the exposure to a high concentration, but also from continued or repeated exposure to low pressure.

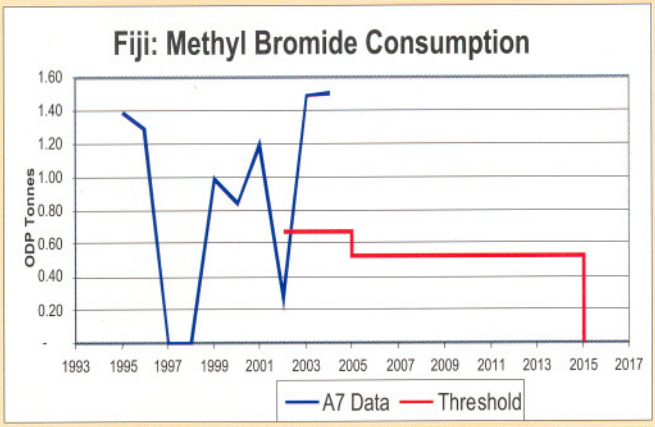
Methyl Bromide is 50 times more destructive to the ozone layer than chlorine from the more well known ozone depleter, CFC's.

Methyl Bromide vs Ozone Layer.

Ozone in the upper atmosphere is critical to maintaining life on earth. Without ozone protection, all living creatures, plants and many manufactured materials are vulnerable to UV-B's damaging rays. Excess UV-B rays threatens human health and natural ecosystems. Beneath the Antarctic ozone 'hole", phyto-plankton populations have declined as much as 12% during peak periods of ozone depletion. Phytoplankton serve as the basis. Methyl bromide remains in the stratosphere less than two years, on a per atom basis, bromine from Methyl Bromide is 50 times more destructive to the ozone layer than chlorine from the more well known ozone depleter, CFC's.

National Imports of MB

As there is no production of MB in Fiji, all MB is imported. The MB for fumigation is imported from New Zealand. Detailed records (i.e. location, date, and quantity used) are kept for official fumigations carried out by fumigators under the supervision of Quarantine officers of the Ministry of Agriculture, Sugar and Land Resettlement. Fumigations carried out by private companies are not always officially registered and fully recorded under present circumstances. The Government of Fiji has implemented its import licensing system for ODS since 2000.



Graph 1: Methyl bromide consumption in Fiji. Fiji is the first country in the Pacific Islands to phase out the use of methyl bromide in the tobacco sector.

Alternatives to MB

The floatation method in the Greenhouse System is the best alternative in the agriculture sector. British American Tobacco is the first company in Fiji to phase out MB and is the only company using the Greenhouse System.

Advantages of Greenhouse System

- High crop yield
- Decrease in labour/manpower
- Increase in cost savings
- 98% in seedling production per harvest compared to 65% growth when using MB

Caption 1 & 2: Matured tobacco seedling; It is grown in the greenhouse and is able to withstand any climatic condition.

Hydrogen Cyanide and Phosphine are two alternatives that the Ministry of Environment and Methyl Bromide Consultative Working Group is considering.

When to use and when not to use methyl bromide as a fumigant

Methyl bromide must be used:

- When treatment must be completed within 4 days or less
- For most quarantine treatments

Methyl Bromide must not be used:

- When there is no trained, qualified, and properly protected fumigation team
- In unsealed enclosures
- On seed required for planting or malting
- On very absorbent materials, such as expeller cake or oilseeds
- In areas immediately adjacent to workspaces or places where people live
- On materials previously fumigated with methyl bromide more than once.

There may be occasions when methyl bromide must be used to fulfill quarantine or contractual obligations, but where it would not otherwise be the fumigant of choice.

Some safety rules for fumigators when using MBr

- Check all equipments before you use it
- Check weather conditions before fumigation [wind may damage fumigation sheets]
- Fumigators must not consume alcohol less than 24 hours before the start of fumigation
- Put warning signs around the danger area.

Make sure all fumigation staff:

- Know what first aid action to take in case anyone is injured
- Are equipped with, and know how to treat, personal-protection equipment appropriate for fumigation with MB (self contained breathing apparatus, gas masks).
- Understand that gloves must not be worn during fumigations with MB because they increase the risk of skin contact with liquid MB.

Clothing:

- After fumigation, fumigators must was thoroughly and change their clothes immediately.
- Dirty clothing worn by fumigators must be washed separately from other clothes, especially infant's clothes.

Definition of Quarantine and Pre-shipment [QPS] Users

Why QPS?

The methyl bromide [MB] used for quarantine and pre-shipment applications is completely exempted from controlled measures. Many perishable and durable commodities in trade and storage can be attacked by pests, including insects, mites and fungi, causing loss of quality and value. These commodities may also carry pests and diseases that can be a threat to agriculture, health or the environment.

What are pre-shipment applications of methyl bromide?

Pre-shipment applications are those treatments done for products exported within 21 days after the treatment, either to meet the official phyto-sanitary or sanitary requirements of either the exporting or importing country.

Requirements for obtaining a Licence to Handle Controlled Substances

The minimum requirements for a technician to obtain a licence are:

- 3 years of trade experience [Methyl Bromide fumigation]
- Have adequate knowledge of relevant Codes of Practice
- A letter from Quarantine Department for an approval to fumigate goods/container under the Quarantine Pre-shipment imports/exports requirements.

Below is a QPS Logic Diagram to assist in deciding whether a treatment should be categorized as a "quarantine treatment", "pre-shipment" treatment or neither.

Disclaimer

Due to a possibility that there may be a misinterpretation or misrepresentation of the facts stated here, this brochure is not to be used as evidence in court or any legal proceedings. This brochure is not a legal document. Please refer to the ODS Act for verification of clauses inserted herein.

***Controlled substance is the legal term used to define ozone depleting substances in the ACT.**

Source:

- **New Legal Requirements for buyers, sellers and users of Methyl Bromide**, January 2005, Australian Government, Department of Environment and Heritage
- **Guide for National Ozone Officers**, Multilateral Fund for the Implementation of Montreal Protocol, United Nations Environment Programme , 2005
- Ozone Depleting Substance Act (1998) & Regulations (1998)
- Technical assistance project to install alternatives, achieve compliance and phase-out methyl bromide in Fiji
- **Methyl bromide, Briefing Kit**, Methyl bromide Alternatives Network.
- **Management of British American Tobacco** - Saten Reddy,
- **Suggested Recommendations for the** Fumigation of Grain in the ASEAN Region, ASEAN Food Handling Bureau, Kuala Lumpur, Australian Centre for International Agricultural Research, Canberra, July 1989
- **Jan van Someren Graver**, Guide for Fumigation under Gas-Proof Sheets, 2005, FAO, Australian Centre for International Agricultural Research, Canberra.
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