

Appendix A. Sample Safety Checklists

Safety Checklist

The following safety checklists will help you organize the many aspects of fumigation. They are organized so that you can photocopy them directly from this manual. This information is general. It does not apply to all fumigants in all situations. You can modify these checklists to meet your specific needs. Some manufacturers provide checklists specific to their products. Use these as well.

Preliminary Planning A Safety Checklist for Fumigators

- ✓ Draw or locate a sketch of the structure you plan to fumigate. Indicate the layout of the structure, connecting structures and escape routes above and below ground.
- ✓ If you are in an industrial setting, inspect the equipment. It should be as tight as possible to prevent drafts or leaks. Be sure that production has stopped.
- ✓ Check all spouts, conveyors, conduits, heating ducts, or other possible openings leading from the areas that you plan to fumigate.
- ✓ Record the number and names of everyone who routinely enters the area. Also, note the proximity of other nearby people and animals. Keep children, unauthorized persons and pets away from the application site.
- ✓ If you plan to treat a commodity, learn about it. Find out its mode of storage and its condition. If possible, obtain a previous treatment history.
- ✓ If you plan to treat a structure, learn about it. What does it consist of: wood, brick, concrete? Note the locations of doors, windows and dividing walls. Predict airflow patterns.
- ✓ Locate connections and shut-offs for electricity, water and gas. Find the nearest telephone or communication device.
- ✓ Obtain and have handy telephone numbers for local health, fire, police and medical emergency services. Know how to contact the parties responsible for the structure and/or commodity you plan to fumigate.
- ✓ ONLY select a fumigant registered by the EPA and ASPB.
- ✓ Read and reread the label. Study the directions and precautions. Review the manufacturer's instruction manual. Make sure the fumigant is approved for the required work (site, commodity, etc.).
- ✓ Check, mark and prepare (tarp, seal, etc.) the points of application if the job involves spot fumigation.

- ✓ Notify the local health and fire departments, police and security personnel and the poison control center. Give them the following information: the location, the chemical name(s), the date and time of application, the type of gas mask and other safety equipment required, the fire hazard rating and literature about the safety measures you plan to use.
- ✓ Inform the occupants of the structure where treatment will occur. Also, notify the occupants of neighboring structures.
- ✓ Arrange for standby equipment and replacement parts. Outline an alternate plan of action.
- ✓ Review the fumigation plan with all workers. Explain the potential hazards to life and property, required safety measures and emergency procedures.
- ✓ Prepare warning signs to post near treated areas. Arrange for someone to monitor all entrances and exits during treatment.
- ✓ Have first aid equipment (including antidotes and plenty of fresh water) handy.
- ✓ If possible, plan for application from outside the structure.
- ✓ Seal all cracks, crevices, open fireplaces, broken windows, holes, pipes, chutes and conveyors.
- ✓ When necessary, obtain fans to evenly distribute the fumigant.
- ✓ Preplan how you will ventilate the area after treatment.
- ✓ Identify areas where you can store any excess fumigant(s). Be sure conditions in the storage area match those required by the label.
- ✓ Make sure no open fires, motors, or hot surfaces (heat pipes or electric fixtures) are within the space that you plan to treat.
- ✓ Know how to operate the gas detection devices.

Pre-Application Safety A Checklist for Fumigators

- ✓ Open all doors and drawers inside the area you plan to treat.
- ✓ Shut off pilot lights and gas lights. Disconnect electrical equipment.
- ✓ Remove plastic covers from mattresses.
- ✓ Remove food, feed, drugs and medicines or place them in airtight containers. Sealing freezers and refrigerators will NOT prevent fumigant gas from getting inside.
- ✓ Make a final check. Be sure all occupants, pets, fish and plants have been removed from the structure.
- ✓ Place warning signs at all entrances and exits.
- ✓ Assign someone to observe all entrances and exits.

During-Application Safety A Checklist for Fumigators

- ✓ Apply all fumigants according to label directions.
- ✓ Apply the fumigant from outside where appropriate.
- ✓ Consider the weather. Delay or cancel outdoor treatments on windy or stormy days.
- ✓ Do not enter the area where fumigant gas is being discharged, except in extreme emergencies.

Post-Application Safety A Checklist for Fumigators

- ✓ Aerate according to structural limitations.
- ✓ Turn on ventilation fans where appropriate.
- ✓ Before reentering a treated area, use a suitable gas detector to determine the fumigant concentration. Some fumigants do not provide an adequate odor warning. Others aerate slowly.
- ✓ Remove warning signs only when aeration is complete.
- ✓ Dispose of or return empty containers per the manufacturer's instructions.
- ✓ When using metal phosphide fumigants, return any unused solid chemicals to clearly labeled containers. Store them properly.

Personnel Safety

A Checklist for Fumigators

To protect yourself and others, be sure you and your supervisor(s) always:

- ✓ Know the location of all entrances and exits.
- ✓ Know the location of all fumigant containers and aerating fans.
- ✓ Rehearse the fumigation plan so that each worker knows what to do.
- ✓ Remove all rings, jewelry and watches as required by the label.
- ✓ Have current health records for all employees. All workers that take part in fumigations must have a physical exam at least once a year. During fumigation, no worker should have a cold or other condition that may impair breathing, nor should any worker be undergoing medical or dental treatment, unless a physician certifies that they may work with fumigants.
- ✓ Survey workers to make sure they have abstained from alcoholic beverages 24 hours before and will abstain 24 hours after a fumigation job.
- ✓ Instruct all workers about first aid, emergency procedures, antidotes and decontamination.
- ✓ Work in pairs, especially when entry into a fumigated area is necessary. Stay in sight of one another while inside a treatment area.
- ✓ Report any accidents to your employer or supervisor.
- ✓ Report any signs of illness or discomfort, regardless of how minor they may seem. This includes dizziness, diarrhea, nausea, headaches and lack of coordination.
- ✓ Teach all workers how to select, operate and maintain protection devices. Warn them about the hazards that they may encounter if the chemicals are misused.
- ✓ Have and use the necessary personal protective equipment (PPE). Know where emergency equipment is located.
- ✓ Make sure there is enough water on site to wash or flush skin and eyes if an accident should occur.

Preliminary Planning

A Safety Checklist for Raw Commodity Fumigators

- ✓ Draw or locate a sketch of the structure you plan to fumigate. Indicate the layout of the structure, connecting structures and escape routes above and below ground.
- ✓ Seal all spouts, conveyors, conduits, heating ducts, pipes, cracks, crevices, broken windows and other possible openings leading from the areas that you plan to treat.
- ✓ Record the number and names of everyone who routinely enters the area. Note the proximity of other nearby people and animals. Keep children, unauthorized persons and pets away from the application site.
- ✓ If you plan to treat a commodity, learn about it. Find out its mode of storage and its condition. If possible, get a previous treatment history.
- ✓ If you plan to treat a commodity within a structure, learn about the structure. What does it consist of: wood, brick, concrete? Note the locations of doors, windows and dividing walls. Check airflow patterns.
- ✓ Study the pest(s) you plan to control. When is it most vulnerable to fumigants? Where are its numbers the highest?
- ✓ Check and adjust all safety and application equipment. Be sure the components can withstand the corrosiveness of the fumigant(s). When applying compressed gas, use pressure-approved components. Seal them tightly.
- ✓ Locate connections and shut-offs for electricity, water and gas. Test these shut-offs to be sure they are working. Find the nearest telephone or communication device.
- ✓ Obtain and have handy telephone numbers for local health, fire, police and medical emergency services. Know how to contact the parties responsible for the structure and/or commodity you plan to fumigate.
- ✓ ONLY select a fumigant registered by the EPA and ASPB.
- ✓ Read and reread the label information. Study the directions and precautions. Make sure the fumigant is labeled for the required work (site, commodity, etc.).
- ✓ Notify the local health and fire departments, police and security personnel and hospital. Give them the following information: the location, the chemical name(s), the date and time of application, the type of gas mask and other safety equipment required, the fire hazard rating and literature about the safety measures you plan to use.
- ✓ Inform the occupants of the structure where treatment will occur. Also, notify the occupants of neighboring structures.
- ✓ Arrange for standby equipment and replacement parts for application equipment and PPE. Outline an alternate plan of action.
- ✓ Review your treatment plan with all workers. Explain the potential hazards to life and property. Identify the safety measures and emergency procedures that are required by the label.

- ✓ Prepare warning signs to post near treated areas. Arrange for someone to monitor all entrances and exits during treatment.
- ✓ Have first aid equipment (including antidotes and plenty of fresh water) handy.
- ✓ If possible, plan for application from outside the structure.
- ✓ When necessary, obtain fans to evenly distribute the fumigant
- ✓ Preplan how you will aerate the area after treatment.
- ✓ Identify areas where you can store any excess fumigant(s). Be sure conditions in the storage area match those required by the label information.
- ✓ Make sure no open fires, motors, or hot surfaces (heat pipes or electric fixtures) are within the space that you plan to treat.
- ✓ Know how to operate the gas detection devices.
- ✓ Have on hand all the PPE you would need to enter a treated area in an emergency. Check to be sure that this equipment is working properly.

Application Safety

A Checklist for Raw Commodity Fumigators

Pre-Application

- ✓ Open all doors and drawers inside the area you plan to treat.
- ✓ Turn off pilot lights and gas lights. Disconnect electrical equipment.
- ✓ Make a final check. Be sure all occupants, pets and livestock have been removed from the structure.
- ✓ Place warning signs at all entrances and exits.
- ✓ Assign someone to observe all entrances and exits.

During Application

- ✓ Apply all fumigants according to the directions in the label information.
- ✓ Apply the fumigant from outside where appropriate.
- ✓ Consider the weather. You may need to delay or cancel outdoor treatments on windy or stormy days.
- ✓ Do not enter the area where fumigant gas is being discharged, except in extreme emergencies.

Post Application

- ✓ Aerate according to structural limitations.
- ✓ Turn on ventilation fans where appropriate.
- ✓ Before reentering a treated area, use a suitable gas detector to determine the fumigant concentration. Some fumigants do not provide an adequate odor warning. Others aerate slowly.
- ✓ Remove warning signs only when aeration is complete.
- ✓ Dispose of or return empty containers per the manufacturer's instructions.
- ✓ When using metal phosphide fumigants, return any unused, solid chemicals to clearly labeled containers. Store them properly.

Personnel Safety

A Checklist for Commodity Fumigators

To protect yourself and others, be sure you and your supervisor(s) always:

- ✓ Know the location of all entrances and exits.
- ✓ Know the location of all fumigant containers and aerating fans.
- ✓ Rehearse the fumigation plan so that each worker knows what to do.
- ✓ Remove all rings, jewelry and watches as required by the label.
- ✓ Have current health records for all employees. All workers that take part in fumigations must have a physical exam at least once a year. During fumigation, no worker should have a cold or other condition that may impair breathing. Nor should any worker be undergoing medical or dental treatment, unless a physician certifies that they may work with fumigants.
- ✓ Survey workers to make sure they have abstained from alcoholic beverages 24 hours before and will abstain 24 hours after a fumigation job.
- ✓ Instruct all workers about first aid, emergency procedures, antidotes and decontamination.
- ✓ Work in pairs, especially when entry into a fumigated area is necessary. Stay in sight of one another while inside a treatment area.
- ✓ Report any accidents to your employer or supervisor.
- ✓ Report any signs of illness or discomfort, regardless of how minor they may seem. This includes dizziness, diarrhea, nausea, headaches and lack of coordination.
- ✓ Teach all workers how to select, operate and maintain protection devices. Warn them about the hazards that they may encounter if the chemicals are misused.
- ✓ Have and use the necessary PPE. Inspect all PPE for defects. Know where emergency equipment is located.
- ✓ Make sure there is enough water on site to wash or flush skin and eyes if an accident should occur.

Preliminary Planning

A Safety Checklist for Soil Fumigators

- ✓ Note the proximity of nearby people and animals. Keep children, unauthorized persons and pets away from the application site.
- ✓ Know the soil you plan to treat. What is its temperature, moisture level and texture? How much organic matter does it contain? Is it well aerated or compacted?
- ✓ Know the pest(s) you plan to control. When is it most vulnerable to fumigants? Which application methods are most effective and efficient?
- ✓ Check and adjust all safety and application equipment. Be sure the components can withstand the corrosiveness of the fumigant(s). When applying compressed gas, use pressure-approved components. Seal them tightly.
- ✓ Be sure that there is a properly-functioning check valve in the line between the cylinder of propellant and the fumigant cylinder.
- ✓ Find the nearest telephone or communication device.
- ✓ Obtain and have handy telephone numbers for local health, fire, police and medical emergency services.
- ✓ ONLY select a fumigant registered by the EPA and ASPB.
- ✓ Read and reread the label information. Study the directions and precautions. Make sure the fumigant is labeled for the desired use.
- ✓ Arrange for standby equipment and replacement parts. Outline an alternate plan of action.
- ✓ Review the fumigation plan with all workers. Explain the potential hazards to life and property, required safety measures and emergency procedures.
- ✓ Prepare warning signs to post near treated areas.
- ✓ Have first aid equipment (including antidotes and plenty of fresh water) handy.
- ✓ Identify areas where you can store any excess fumigant(s). Be sure conditions in the storage area match those required by the label information.
- ✓ Have on hand all the PPE you would need to enter a treated area in an emergency. Check to be sure that this equipment is working properly.

Application Safety

A Checklist for Soil Fumigators

Pre-Application

- ✓ Place warning signs at all appropriate access points.

During Application

- ✓ Apply all fumigants according to the directions in the label information.
- ✓ Consider the weather. You may need to delay or cancel treatments on windy or stormy days.
- ✓ Do not enter the area where fumigant gas is being discharged, except in extreme emergencies.

Post Application

- ✓ Observe all reentry period, PPE and waiting period specifications on the label for the fumigant that you use.
- ✓ Avoid reentering treated areas when you can still detect the fumigant odor. Although gas detectors are rarely used with soil fumigation, they may be appropriate in some situations where fumigant concentrations may be high. You will need to use a gas detector when reentering an enclosed structure where soil or potting mixes have been fumigated. Remember that some fumigants do not provide an adequate odor warning. Others aerate slowly.
- ✓ Do not begin planting until after the “waiting period” is over. The waiting period is the number of days between when you apply a fumigant and when aeration is complete.
- ✓ Remove warning signs once the reentry interval has expired.
- ✓ Dispose of or return empty containers per the manufacturer’s instructions.

Personnel Safety

A Checklist for Soil Fumigators

To protect yourself and others, always:

- ✓ Rehearse the fumigation plan so that each worker knows what to do.
- ✓ Remove all rings, jewelry and watches as required by the label.
- ✓ Have current health records for all employees. During fumigation, no worker should have a cold or other condition that may impair breathing. Nor should any worker be undergoing medical or dental treatment, unless a physician certifies that they may work with fumigants.
- ✓ Survey workers to make sure they have abstained from alcoholic beverages 24 hours before and will abstain 24 hours after a fumigation job.
- ✓ Instruct all workers about first aid, emergency procedures, antidotes and decontamination.
- ✓ Work in pairs, especially when entry into a fumigated area is necessary. Stay in sight of one another while inside a treatment area.
- ✓ Report any accidents to your employer or supervisor.
- ✓ Report any signs of illness or physical discomfort, regardless of how minor they may seem. This includes dizziness, diarrhea, nausea, headaches and lack of coordination.
- ✓ Teach all workers how to select, operate and maintain protection devices. Warn them about the hazards that they may encounter if the chemicals are misused.
- ✓ Have and use the necessary PPE. Inspect all PPE for defects. Know where emergency equipment is located.
- ✓ Make sure there is enough water on site to wash or flush skin and eyes if an accident should occur.