

Zythor Fumigant

Structure Occupant Fact Sheet

Fumigant Preparation Checklist

You have decided to have your property fumigated and your fumigator has chosen to use Zythor Fumigant. The information provided here is intended to provide you with some basic information about Zythor Fumigant and why and how it is used.

Also, before a fumigation with Zythor can commence, there are certain steps that must be taken to prepare your property and protect certain of its contents. Some of these steps must involve action on your part. You will find here a full explanation of what you need to do to get ready.

If you have questions that are not answered here, please refer to other information you may have been given by your fumigator or call your fumigator. If you have specific questions about Zythor that your operator is unable to answer, visit our website at www.zythor.com or call us at 1-866-367-8467.

What is Zythor?

Zythor is the tradename for our brand of sulfuryl fluoride fumigant gas. The molecular formula is SO_2F_2 . Sulfuryl fluoride is an inorganic compound (does not contain carbon). It is a good choice as a fumigant because it has high penetrating power plus it does not adversely react with items normally found within structures. It is non-staining, non-corrosive and non-flammable. And it does not deplete the ozone layer.

Why fumigate to control certain insects such as drywood termites and wood boring beetles?

Unchecked, wood destroying insects can do considerable amounts of damage to structures that are built from or contain wood. Certain kinds of wood destroying insects inhabit wooden structures in such a way that fumigation is the only reliable way to totally control them and eliminate their presence.

What makes fumigation different from other insect control methods?

Fumigation is the only method of insect control that is able to kill a target insect regardless of its location within the structure. Unlike surface or localized injection treatments, sulfuryl fluoride fumigant gas penetrates to every possible point of the structure where a target insect may be located, no matter where within the structure it is located or what surface it may be behind. This means that wherever a target insect is located within the structure, it will be exposed to sulfuryl fluoride.

How are structures fumigated?

The objective of the fumigation process is to create a sealed space within which the target insects are located and to which the fumigant gas can be confined (fumigated space). The sealed fumigated space can be created two ways. If the exterior surfaces of the structure to be fumigated are reasonably gas tight, openings in its exterior surfaces such as doors and windows may be sealed with plastic and tape. More often, the structure is covered with a gas tight tent. Warning signs are posted on the exterior of the structure to warn persons to keep away from the fumigation. Special locks are also placed on the doors to prevent unauthorized entry during the fumigation.

The confinement of the sulfuryl fluoride (and exposure of the target insects to it) within the fumigated space must be for a predetermined period of time and at a predetermined concentration of the gas within the air of the fumigated space. This period of time and level of air concentration of the gas are calculated by your fumigator using a specialized calculator. This calculator takes into account the type of insect being targeted, the temperature of the air within the fumigated space and the length of the fumigant exposure period. The fumigant exposure period can be as short as

2 hours and as long as 72 hours however a more typical length of exposure is 20-24 hours.

What happens after the fumigation is completed?

At the end of the fumigant exposure period, the fumigation seal is removed (tarpaulins and/or tape and plastic are removed) thereby allowing the gas to escape into the atmosphere. Aeration is normally aided by opening windows and the use of electric fans. Aeration must occur for a predetermined minimum amount of time regardless of the size or type of structure fumigated. The sulfuryl fluoride will dissipate rapidly from the open air spaces of the structure out into the atmosphere once the aeration process begins. However it will dissipate at a slower rate from dead air spaces such as voids behind walls, areas below and behind cabinets and from within porous materials such as wood. Characteristics that make sulfuryl fluoride a good fumigant, such as an ability to penetrate almost any porous substance, aid in its rapid dissipation from a structure.

How do you make sure the level of sulfuryl fluoride in the air has fallen to a safe level before the structure is cleared for re-occupancy?

At the completion of certain periods of time during the aeration process the fumigator will use a specialized monitoring device to measure the amount, if any, of sulfuryl fluoride remaining in the air of the structure. If sulfuryl fluoride above a certain EPA mandated clearance level (1 ppm) is found to remain in the air of the structure, the aeration period will be extended until levels of sulfuryl fluoride are no longer above 1 ppm. This EPA mandated clearance level of 1 ppm of sulfuryl fluoride was determined based on studies using laboratory animals that showed they suffered no adverse effects from one week of continuous exposure to 100 ppm of sulfuryl fluoride. Other studies have shown that in most structures, the level of sulfuryl fluoride remaining in the air of the structure 6 hours after the start of the aeration period is less than 1 ppm and that within 24 hours after the start of the aeration period there are no detectable levels of sulfuryl fluoride remaining in the air of the structure.

Why do food items need to be protected against exposure to Zythor?

Before a food item can be exposed to sulfuryl fluoride (or any pesticide) it must be extensively tested to show that no harmful residues are left behind by the exposure. This testing has been done for sulfuryl fluoride for a few food items (mainly raw nut and grain products before they are processed for consumption) but not for many others. As a safety measure, no food items can be left exposed to Zythor.

Is it possible for me to be exposed to sulfuryl fluoride as a result of my property being fumigated?

It is highly unlikely that as a result of the fumigation of your property that you would ever be exposed to excessive concentrations of sulfuryl fluoride. Symptoms of overexposure to sulfuryl fluoride include nose and throat irritation, nausea, excess fluid in the lungs, sleepiness, pneumonia and convulsions. These symptoms would appear within 8 hours of such an exposure. In the unlikely event that you experience these symptoms after having reoccupied a fumigated structure, leave the structure immediately and call your fumigator and your physician. Sulfuryl fluoride has not been shown to cause birth defects. Studies have also demonstrated that sulfuryl fluoride is not mutagenic or genotoxic.

What else should I know?

Sulfuryl fluoride is a colorless, odorless gas that gives no sensory warning of its presence such as taste or smell. For this reason, a small amount of a warning agent is placed within the structure prior to the release of sulfuryl fluoride to serve as a deterrent to early or accidental re-entry during the fumigation period. This warning agent is called chloropicrin. Chloropicrin is used as the warning agent because exposure to chloropicrin can cause watering of the eyes and scratchiness of the throat at very low levels in the air. However, there is a chance that upon completion of the aeration process and your reoccupancy of the fumigated structure that minute amounts of chloropicrin may remain in the air of the structure. If you experience watery eyes or scratchy throat after reoccupancy, you should leave the structure and call your fumigator for further instructions.

ZYTHOR FUMIGATION PREPARATION CHECKLIST

Before the fumigation of a structure with Zythor can be conducted, certain important preparatory steps must be taken to ensure the safety and effectiveness of the fumigant application. Close adherence to the steps below can help ensure that this occurs.

It is your responsibility to perform these preparatory steps before the fumigation crew arrives. The fumigation cannot proceed until all the items on this list of preparatory steps that are applicable to your structure have been completed.

Fumigated structures must be locked during the fumigation period. Make arrangements to leave the keys to the structure with your fumigator and to retrieve them afterwards.

Electricity must be on for the fumigation to be performed. It is needed to power the fans that circulate the Zythor throughout the structure.

Interior Preparations

Things that must be removed from the structure:

All persons, living plants and non-target animals including plants on outdoor patios that if left in place would be under or close to the fumigation tent.

Mattresses and pillows with waterproof covers that cannot be removed (not waterbeds). Items fitting this description that are not removed will be removed by your fumigator.

Fumigant sensitive items not properly sealed against exposure to the fumigant as explained next.

Things that must either be protected from exposure to the fumigant or removed from the structure:

Generally speaking, any food, beverage, drug, medicinal or toiletry item that is consumed or put in the mouth that is not still sealed within its manufacturer's original factory sealed airtight container must either be removed from the structure or specially sealed within gas tight Fumiguard bags provided by your fumigator. Items to be sealed include food within your refrigerator or freezer. After they are properly bagged, items from the refrigerator or freezer can be replaced there for the duration of the fumigation. Remove shelves if needed to create space for these items in bags. Items that must be removed or bagged that are not removed or bagged may be trashed by your fumigator.

Bag or remove these items:

Food packed in plastic bags such as chips, pasta and rice even if they have not been opened

Food packed in cardboard boxes such as cereal and crackers even if they have not been opened

Spices and salt and pepper shakers where the seal has been broken

Dairy products and eggs

Ice and opened bottled drinking water

Any item stored in a resealable container

Produce

Pet food and bird seed in bags

Tobacco products

Opened toothpaste, denture cleanser

Things that do not need to be bagged or removed:

Unopened plastic, metal or glass cans, jars or bottles

Shampoo, soap and cosmetics

Unopened toothpaste and mouthwash

Unopened bottles of liquor and wine sealed with a cork when stored horizontally.

Clothes

Things that must be turned off and/or extinguished:

Heating and air conditioning system (The fan in the air conditioning system may be used by your fumigator at different times during the fumigation to circulate the Zythor.)

Burglar alarm

Gas at the main valve or tank (In some areas this must be done by law be done by gas company.)

Heating elements in heaters, pianos and organs

Pilot lights in heaters, hot water heaters, ovens, ranges, broilers, gas refrigerators, dryers, automatic lighting systems, gas lamps, etc. (Your fumigator will not be responsible for relighting pilot lights.)

Automatic lighting and appliance controls

Other preparations:

Unlock and open all cabinets, drawers, closets, attic accesses and interior doors. Safes and locked storage areas must be left unlocked or keys/combinations must be provided to your fumigator.

Remove vehicles from garages and carports. (Unlock and open trunk if they cannot be moved.)

Unzip plastic garment bags.

Raise blinds and open drapes.

Remove valuables such as jewelry and furs and empty safes

Exterior Preparations

The evening before the fumigation, thoroughly water the soil around shrubs and plants immediately adjacent to the structure and the soil within 18 inches of the structure. This is intended to protect these items from damage from fumigant seeping into the ground around the perimeter of the structure. There is no guarantee that this watering will completely protect these or any plants from damage.

Move items and trim trees sufficiently to allow the fumigation tent to fall freely from the roof edge straight down to the ground.

Mulch, rocks, stones or debris may have to be moved at points around the structure in order to create points where the fumigation tent can rest firmly against the ground. At your option, ask your fumigator exactly what needs to be done and you can make these preparations yourself. If instead you allow your fumigator to move these items, there is no guarantee that they will be placed back into the exact same area or configuration from which they were removed.

Fences and other abutments to the structure that extend more than 5 feet out from the structure may need to be detached in order to drop the tent to the ground at that point. Your fumigator will inform you if this is the case at your structure and if a craftsman such as a carpenter or bricklayer is needed to make any necessary alterations.

Retract any awnings, valences or shades.

Remove (as requested) any TV antenna guidewires.

Special Note About Cats

Be particularly careful to make sure that no cats, including neighbor's cats, are left within or under the structure during the fumigation. You may want to notify neighbors with cats when your house is going to be fumigated if there is a space in or under your house that cats can occupy without your knowledge.

USING FUMIGUARD BAGS

Fumiguard bags are made from a special nylon based film-like material that is highly resistant to the passage of Zythor gas. In order to adequately protect the contents placed inside the bag, the bags must be packed and sealed according to the following directions. Bags can be placed inside refrigerators and freezers.

Only use Fumiguard bags to protect items against exposure to Zythor. Regular garbage-type plastic bags do not provide protection.

Keep Fumiguard bags out of the reach of children.



Step One - Packing a Bag

Place items to be protected inside a Fumiguard bag. Fill the bag only half to two-thirds full to allow it to be closed properly.



Step Two - Closing the Bag

Twist the top of the bag tightly into a long neck.

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Step Three - Sealing the Bag

Double the twisted neck of the bag over on itself and secure it with a twist tie, tape, string or rubber band.



Step Four - Double Bagging

Place the sealed bag inside of a second bag. Secure this second bag according to steps two and three.



Step Five - Testing the Seal

Test the seal of the outer bag by pushing gently against its sides and listening for an air leak.

THINGS FOR WHICH YOUR FUMIGATOR CANNOT BE RESPONSIBLE

Broken roof shingles or tiles, patio covers, gutters, antennas, electrical wires or solar heater panels

Damage caused by the application and removal of tape to a painted or plaster surface of the structure

Vandalism, theft or breaking and entering at the structure (The structure is not guarded during the fumigation period. At your option you may guard the structure yourself or you may make arrangements to hire a guard service.)

Damage to trees, shrubs or plants due to breakage or exposure to the fumigant

Damage to plant and vine trellises

The weather, which may delay the fumigation if unsafe conditions such as high wind or lightning are present or expected or if low temperatures occur that would make the fumigant less effective.

Damage to doors that must be secured by nailing shut that cannot be properly locked

THINGS YOU SHOULD TELL YOUR FUMIGATOR

Advise your fumigator if there are any connections between the structure and another structure such as conduits, ducting, drain lines, vacuum lines or tunnels that could possibly allow the passage of fumigant from the fumigated structure to another structure. Severe injury or death could result.

Normally, all operable windows will be opened by your fumigator after the structure is tented and will remain open until the initial aeration procedure is completed. Let your fumigator know if any windows cannot be opened.

AFTER THE FUMIGATION IS COMPLETED

Do not attempt to reenter or reoccupy the structure until you are told by your fumigator that the structure is clear for reentry.

If you are interested or concerned, you should ask your fumigator to show you the records of how your structure was aerated before it was cleared for reentry.

It is not necessary to wash dishes, linens or clothes exposed to Zythor.

You may wish to increase ventilation of your structure by opening doors and windows for a period of time after your return. This may reduce the chances of encountering any residual chloropicrin warning agent.

Structure Occupant Acknowledgement

I certify that all items on this Preparation Checklist applicable to my structure have been completed:

Signature: _____

Date: _____

If you have any questions, please contact your fumigator at:



ZYTHOR

Structural Fumigant