

Glossary of Fumigation Terms

actionable pest

An agricultural pest species that is considered by the USDA to be a potential threat to U.S. agriculture and therefore must be eliminated from a shipment by fumigation

active aeration

Minimum one-hour aeration of a structure beginning when "Step 1" of SF aeration is completed in which the seal is open, one or more circulating fans are on, and all operable doors and windows are open.

Aeration Procedure 1

Label aeration procedure when fumigating a structure at 16 oz/Md or less Vikane®.

Aeration Procedure 2

Label aeration procedure when fumigating a structure at more than 16 oz/Md of Vikane®.

alates

Also called "swarmers," these mature, winged termites leave the colony during dispersal flights or swarms. After flight, males and females pair, locate nest sites, and become future kings and queens of colonies. Alates constitute the reproductive caste.

Anobiid beetles or "deathwatch" beetles

Wood-infesting beetles belonging to the insect family Anobiidae, having heads covered by a hood-shaped pronotum, producing bun-shaped fecal pellets, and infesting both hardwoods and softwoods.

APHIS (Animal and Plant Health Inspection Service)

A division of USDA that includes the Plant Protection and Quarantine (PPQ) program which oversees fumigation of some imported commodities.

boiling point

Temperature at a given pressure (usually atmospheric) when a liquid instantaneously changes into a gas.

bonnet

The screw-on metal cover that protects the valve and valve cover on the fumigation cylinder.

Bureau of Entomology and Pest Control

An office within the Division of Agriculture Environmental Services of Florida DACS that regulates and licenses the State's pest control industry.

Bureau of Pesticides

An office within the Division of Agriculture Environmental Services of Florida DACS that registers, tests, and evaluates pesticides used in the State.

Category I (highly toxic) pesticide

A pesticide that is considered highly toxic (LOSO < 50 mg/kg) and requires the signal words Danger - Poison and the skull and crossbones on its label.

certified operator

A person who has a current pest control operator's certificate from DACS [482.021(4)] in one of four categories of pest control.

certified operator in charge (CO)

A certified operator whose main occupation is pest control, is employed full-time by a licensee, and who is in charge of supervising the license holder's operation in the pest control category(ies) in which the operator is certified. [482.021(5)].

Cfm

Cubic feet per minute. A measure of fan air movement capacity.

Chloropicrin (CP)

The chemical used as a gaseous warning agent for fumigations; highly irritating at low concentrations causing immediate tearing and coughing.

clearance

The final phase (Step 3) of aeration in which a detection device such as an Interscan or Miran is used to determine that the fumigant concentration is at or below the threshold concentration that is required for reoccupancy.

clearance notice

A notice, signed by the CO or SPID, indicating the fumigated structure has been declared safe for human occupancy; it must be posted at all entrances to the structure.

Commercial driver's license, Class C or CDL

A special driver's license permitting the holder to drive a vehicle that carries hazmat in placardable amounts.

Commissioner of Agriculture

The statewide elected leader of the Florida DACS.

commodity

Any agricultural product for commercial consumption or 11sP.

commodity fumigation

The fumigation of a commodity, usually with methyl bromide or phosphine, often conducted on a commercial carrier such as a trailer.

condensation

The change of a substance from a gas to a liquid, as a result of temperature drop or pressure increase.

connected structures

Structures that are connected in such a way - by pipes, ducts, conduits, for example - that a fumigant can move by diffusion from one structure to another.

CT Product

The lethal dosage of fumigant expressed in ounce-hours (OH) obtained by multiplying the fumigant concentration (C, oz/Md) by the hours of exposure (T).

CT Rule

The principle that generally insures target pest kill as long as its CT product is achieved. This allows for shorter exposures at higher concentration or vice versa depending on job requirements.

dampwood termites

In Florida, termites belonging to the family Kalotermitidae that require a high moisture content for development and survival.

desorption

Latent release of gas molecules into an airspace from attachment or adsorption onto a material or surface; also known as "degassing."

detector tube

A monitoring tool used for clearance or measurement through which a specific volume of air is drawn followed by a graduated color change in the presence of a specific gas such as methyl bromide.

dew point

The temperature at which water condenses as a liquid from the air.

diffusion rate

The rate at which gas molecules disperse within spaces (such as rooms, cracks and crevices, voids, and termite galleries) from areas of high concentration to areas of low concentration.

dip tube

A plastic tube inside a Vikane® cylinder through which liquid fumigant is forced out of an upright cylinder through the release valve due to cylinder pressure.

dosage

The total number of ounce-hours during the fumigant exposure period.

DOT

The Department of Transportation - the federal department that develops and regulates all policies related to the transport of hazmat.

drywood termites

Termites of the family Kalotermitidae that live in sound, dry wood and require no connection to the soil or other water sources.

Emergency Response Plan

A required, written document detailing the steps to be taken should an emergency situation occur involving hazmat.

enclosed space

The area in which the fumigant is intended to be confined.

EPAorUSEPA

United States Environmental Protection Agency. The federal agency responsible for registering pesticides and enforcing pesticide regulations.

equilibrium

The time at which the concentration of fumigant is the same throughout the enclosed space indicating that the fumigant molecules are evenly dispersed.

evaporation pan

A nonmetallic container made for the placement of an absorbent material onto which liquid chloropicrin is poured before fumigant release.

experimental use permit (EUP)

A Special Registration Action that can be issued, reviewed or processed by DACS Bureau of Pesticides, operating under Chapter 487, Florida Statutes and Chapter 5E2 of the Florida Administrative Code.

fact sheet

An information sheet provided to the customer that describes the fumigation process, the health effects of sulfuryl fluoride, and safety precautions and preparations to be taken before the fumigation.

false powderpost beetles

Wood-infesting beetles in the beetle family Bostrichidae usually with heads hidden beneath a hood-like pronotum that has small bumps or projections on it. They produce a frass that is a coarse powder mixed with some small pellets.

false seam or cold seam

A seam consisting of excess or slack from a single tarp that is rolled and clamped to obtain a tighter fit on the structure.

fan capacity

The displacement of air by a fan measured in Md .

FDACS

The Florida Department of Agricultural and Consumer Services.

Federal Food, Drug and Cosmetic Act (FFDCA)

The federal law that requires EPA to set pesticide tolerances (maximum legally allowed levels) for pesticide residues in food.

Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)

A federal law which requires all pesticides used in the United States to be registered by the EPA, and authorizes EPA to set labeling requirements to prevent harmful effects on health or the environment.

Federal Motor Carrier Safety Administration (FMCSA)

Administration with the U.S. Department of Transportation responsible for reducing accidents involving large trucks and buses.

first opening

The initial step in the aeration procedure when the enclosed space is first opened for aeration after the exposure period is completed.

Florida Administrative Code, 5E-14

A set of rules and regulations created and enforced by the FDACS Bureau of Entomology and Pest Control to regulate the profession of pest control including fumigation.

Florida Department of Transportation Office of Motor Carrier Compliance (OMCC)

The state agency that enforces laws pertaining to commercial use of vehicles on public roads.

Florida Structural Pest Control Act, Chapter 482

The chapter within Title XXXII (32) of the Florida Statutes which is a collection of state laws to regulate the profession of pest control including fumigation.

fog out

Condensation of fumigant gas in an air space caused by introducing a gas too rapidly into a space resulting in rapid cooling of air below dew point. Contributing factors include insufficient fan capacity, a shooting hose that has too large a diameter or is too short, and introducing fumigant into an enclosed space with a volume that is too small.

Food Quality Protection Act

Enacted in 1996, this federal law amends both FIFRA and FFDCA, uses a single, health-based standard for all pesticides in all foods; uses special standards for infants and children; speeds up approval of 'safer' pesticides; and requires periodic reevaluation of pesticide registrations and tolerances.

frass

Insect fecal material and debris.

fumigant

A chemical that, under room conditions, exists as a gas at a concentration lethal to a pest organism [482.021 (8)].

fumigation

The use of a fumigant within a measured and enclosed space at a concentration and duration that is lethal to the target organism [482.021 (9)].

Fumiguide

An electronic (or slide rule) calculator, used to determine the amount (lbs.) of sulfuryl fluoride required for a given fumigation; variables such as target pest, volume, tarp or seal condition, ground seal condition, wind speed, undersea! type, temperature, and exposure time are used in calculating this amount.

Fumiscope®

A thermal conductivity detector that measures the amount of fumigant present in an enclosed space. The RDA Fumiscope® allows for monitoring fumigant concentrations off-site.

GVWR (Gross Vehicle Weight Rating)

The maximum loaded weight of a vehicle, including fuel, fluids, and full payload.

ground seal

The boundary formed between the tarpaulin or wall construction and the ground.

half loss time or HLT

The amount of time it takes to lose half the amount of fumigant from an enclosed space as a result of leakage or sorption.

halide

salts (ionic molecules) containing a negative ion of fluorine, chlorine, bromine, iodine, or astatine (known as halogens).

halogen leak detector

A device used for locating fumigant leaks from an enclosed space.

hazardous material

Any substance that has been determined to be capable of posing an unreasonable risk to health, safety, and property when transported in commerce.

hazmat

A contracted form of the term 'hazardous material'.

heat of vaporization

The amount of energy, in the form of heat, needed to convert a liquid into a gas.

higher termites

The most advanced termites having a sterile worker caste and no single-celled organisms to aid digestion of wood. They are in the termite family 'Termitidae'.

hot seam

A seam that is formed when two separate tarps are rolled and clamped together. A poorly clamped hot seam will leak fumigant.

Interscan gas analyzer

A portable instrument that detects sulfur dioxide concentrations between 1 to 50 ppm. It is used mainly as a clearance device/detector.

label

A document containing detailed instructions for the legal and proper use of an EPA-registered pesticide.

larva

The immature stage of insects that undergo complete metamorphosis in which the young look completely different than the adult, for example caterpillar/butterfly, maggot/fly. The name also is used for very young termites.

Mcf

One thousand cubic feet. Mis the Roman numeral representing 1000.

measuring wheel

A wheel equipped with a handle and calibrated counter that is pushed along a surface to measure linear distances.

metallic phosphide

A metallic salt of aluminum or magnesium phosphorous that reacts with water vapor to produce phosphine gas.

methyl bromide

A chemical once widely used for structural, soil, and commodity fumigations but its use now is more limited. Because it has a relatively high boiling point (38° F) the liquid is heated using a heat exchanger in order to introduce it into a structure as a gas.

Miran infrared gas analyzer

A portable instrument used to measure fumigant concentrations during clearance. It houses a pump to draw in air samples and an infrared analyzer to detect sulfur dioxide in an airspace.

monitoring lines

Plastic tubes that run from separated locations in a structure to a Fumiscope; used for monitoring large-scale fumigations or when actual rather than estimated fumigant concentrations are needed during a fumigation.

MSDS (Material Safety Data Sheet)

A document containing information on a specific chemical's physical and chemical properties; data on toxicity and other health-related concerns; as well as instructions for treatment in case of accidental exposure.

multiunit dwelling

A structure having one or more stories containing tenants that occupy stores, offices, apartments, townhouses, and condominiums, sharing common walls.

notification

A requirement before any fumigation in which the CO must give written notice of intent to fumigate to the DACS inspector who has jurisdiction of the area where the fumigation will take place.

Nylofurne® bags

Special clear, nylon bags that are resistant to penetration by sulfuryl fluoride and used to protect foods and medicines during a fumigation.

Occupational Safety and Health Administration (OSHA)

The federal agency responsible for the on-the-job safety of American workers. A subset of the Department of Labor (DOL).

Office of Motor Carrier Compliance (OMCC)

The federal office responsible for enforcing the federal Department of Transportation (DOT) regulations governing the transportation of hazardous materials on the highways.

old house borer

A beetle in the family Cerambycidae that infests lumber. Larvae chew extensive galleries and adults leave oval-shaped exit holes in infested wood when they emerge.

ounce hours or OH

The effective total accumulated dosage. It is determined by multiplying the fumigant concentration in ounces/Mc£ by the exposure time in hours. Final ounce-hour accumulations must exceed the specified ounce hours required to eradicate the target pest.

parts per million or PPM

A measure of concentration in which there is a number of parts of a substance in 1,000,000 total parts of substance. Thus one ppm equals one part in 1 million total parts.

passive aeration

The minimum six- or eight-hour period between the first opening of the seal until clearance begins. Clearance cannot begin until active aeration is completed.

Pest Control Enforcement Advisory Council

An 11-member council appointed by the Commissioner of Agriculture that gives advice on pest control regulation to the Commissioner, advises state agencies on regulation enforcement, compliance, and consumer protection, and promotes public understanding of the pest control industry.

phosphine

Hydrogen phosphide (PH₃) gas. A commodity fumigant produced from the reaction of aluminum or magnesium phosphide pellets with moisture in air.

placard

A durable sign required on all vehicles transporting hazmat, it must have on it the hazard class text and number of the hazmat on board.

Plant Protection and Quarantine (PPQ)

Every required commodity fumigation is directed and supervised by a USDA-APHIS Plant Protection and Quarantine (PPQ) officer using the PPQ Treatment Manual as a guide.

polyethylene

A plastic composed of a strong, lightweight, chemical-resistant polymer (molecule made of repeated units).

prefumigation checklist

A list given to the occupants of the structure to be fumigated that details preparations and duties that occupants must perform to prepare for the fumigation.

pronotum

The part of an insect located just behind the head, it is the upper surface of the first segment of the thorax; in termites it is a shield-like plate; in some beetles it is a bell- or hood-shaped piece that projects over the head.

ProFume®

The trade name of sulfuryl fluoride used for commodity fumigation.

quarantine fumigation

Fumigations, usually conducted at international ports-of-entry, to eradicate exotic pests that may be infesting shipments of agricultural or material goods.

Quality Assurance Review (QAR)

A job site inspection conducted by a manufacturer or fumigation company representative not in charge of the job site to ensure that a fumigation is done per label and local requirements.

RDA Fumiscope®

See Fumiscope®

Reentry concentration

The threshold concentration of a fumigant at or below which it is safe for a structure to be reoccupied; for sulfur dioxide it is 1 ppm.

release valve

The valve at the top of the cylinder which must be turned to release the fumigant.

reoccupancy

The point after a fumigation when a structure can be safely entered and inhabited without the use of safety equipment.

SCBA or Self-contained breathing apparatus

A breathing device that allows the wearer to safely occupy a structure that has above-threshold levels of fumigant and chloropicrin. It consists of a full face mask with a hose connected to an air tank carried on the back; air is delivered via positive pressure thus preventing harmful gas from entering the mask.

secondary locks

Any type of device on a door, window, or other such barricade to entry that is not the primary locking mechanism, that prevents an outside door or entrance from being opened or entered by normal means by anyone other than the CO or SPID; examples include clam shell locks, split keys, a pole or bar placed in the rail of a sliding glass door, chains with a lock, etc.

secure the structure

The process of removing all normal means of entry into a structure to be fumigated by locking all doors, barring all entries, and conducting a thorough inspection of all rooms and spaces to ensure that the structure is completely unoccupied.

shipping papers

A document that describes a hazmat being transported; it contains the name, hazard class or division, amount, identification number, and packing group of the material.

shooting hose

The tube through which a fumigant is introduced or 'shot' into a structure or space; it runs from the fumigant cylinder release valve and ends inside the space to be fumigated; it should be kink-resistant, flexible, and have a minimum burst pressure of 500 pounds per square inch.

shooting stand

A supporting structure that securely holds the end of the shooting hose to keep it off the floor and direct the incoming fumigant towards the circulating fan thus ensuring rapid dispersion to prevent a 'fog-out.'

special local need registration (SLN)

A Special Registration Action that can be issued, reviewed or processed by DACS Bureau of Pesticides, operating under Chapter 487, Florida Statutes and Chapter SE2 of the Florida Administrative Code.

snake

Tubular bags filled with sand or water that are used to weigh down the tarps and establish an effective ground seal. They can also prevent tarps from being blown loose by winds.

soldier

A caste in a termite colony that is specially adapted for defending the colony against enemies; adaptations include large, heavy mandibles, thick, plug-shaped heads, or pores or snouts that secrete noxious chemicals. Soldiers are very useful for species identification.

sorption

The process of fumigant being taken up (absorption) or held (adsorption) onto materials and surfaces.

SPID or Special fumigation identification card holder

A person who has an FDACS-issued ID card showing that he or she is licensed to perform fumigations under the direction of a certified operator in charge.

spot fumigation

A fumigation applied to a restricted or localized space within a larger structure that has no connection to other parts of the structure so that area can be separately sealed and fumigated.

Step 1 of aeration

The aeration phase when the seal is opened, all doors and windows are open, and all aeration fans are activated.

Step 2 of aeration

The aeration phase when the structure is secured after a minimum of one-hour active aeration.

Step 3 of aeration

The aeration phase when all breathing zones of the structure have been determined to be at 5 ppm SF or less using appropriate detection equipment.

Structural Pest Control Act, Chapter 482

The chapter within Title XXXII (32) of the Florida Statutes, which is a collection of state laws that contains all the state regulations for pest control including fumigation.

subterranean termites

Termites, in the families Rhinotermitidae and Termitidae, that nest underground, build subterranean tunnels, and forage above ground for wood and other materials containing cellulose.

Sulfuryl fluoride (SF)

The active ingredient in the fumigant known by the trade name Vikane®. At atmospheric pressure, it becomes a gas at -67° F.

swarmers

Also called alates, these mature, winged termites leave the colony during dispersal flights or swarms. After flight, males and females pair, locate nest sites, and become future kings and queens of colonies. Swarmers constitute the reproductive caste.

swarming

Dispersal of winged, sexually mature termites for the purpose of mating and starting new colonies.

tape-and-seal

A type of fumigation which is allowed when the main exterior of a structure is relatively gas tight so that tarping is not required. Areas of leakage such as windows, doorways, and vents, are made gas-tight using polyethylene sheeting and tape.

tarpaulin

A large vinyl-coated nylon, canvas, or polyester sheet used to seal a structure or other spaces for fumigation.

TIF leak detector

A commercially available electronic device that detects leaks of halogenated gasses at working concentrations.

Transportation Security Administration (TSA)

The federal agency responsible for the security of aviation and transportation created November 19, 2001 by the Aviation and Transportation Security Act (ATSA). A subset of the Department of Homeland Security (OHS). TSA is within the federal Department of Transportation (DOT).

true powderpost beetles

Small, elongate beetles in the family Lyctidae that attack hardwood and bamboo, and produce a fine, powder-like frass.

underseal

The substrate beneath a structure being fumigated, either concrete foundation or a crawl space and the soil type beneath it.

USDA

United States Department of Agriculture. The federal department in charge of all aspects of agriculture; it also manages agricultural, forest, and range lands; supports farming; and promotes domestic agriculture and forestry in the world economy.

valve cover

A cap that screws on to the cylinder valve opening used to prevent accidental release of fumigant even if the valve is opened.

vapor density

The weight of a gas compared to the weight of air.

vapor

A term often used in place of "gas."

vapor pressure

The pressure exerted within a space by a gas evaporating from a liquid.

Vikane®

The trade name for sulfuryl fluoride used in fumigation. Profume® is the name of sulfuryl fluoride used for commodity fumigation.

warning sign

A sign that must be posted at all external entrances and all sides of a structure warning that the structure is being fumigated, it also contains information on who is performing the fumigation and contact information in case of emergency.

wing venation

The pattern of veins on an insect wing.

wood-boring beetles

Beetles whose larvae feed on and whose adults bore through wood.

wood-destroying insect (WDI)

Any insect that attacks and damages wood, especially termites and wood-boring beetles.

wood-destroying organism (WDO)

Any organism that attacks and damages wood, including insects, wood-decaying fungi, and marine borers.

Wood-Destroying Organism (WDO) inspection report (Florida Form 13645)

A WDO report is not required for the fumigation inspection but must be completed when a customer requests a written report. It is usually requested for a real estate transaction and a fee is charged for the inspection and report.

workers

In termites, the caste in a termite colony responsible for maintaining the nest, caring for the eggs, feeding the reproductives, young, and soldiers, and foraging for food.