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MAY 5 1992

Jeffrey D. Pinkham, Ph.D.
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9002 Purdue Road
Indianapolis, IN 46268-1189

Subject: Vikane
EPA Registration No. 62719-4
Revised Aeration Procedures and
General Label Revision
Your Applications of March 7, 1991
and April 14, 1992

Dear Dr. Pinkham:

The labeling referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, is acceptable, subject to the following comments. A stamped copy is enclosed for your records.

1. The revised aeration procedures are being accepted on an interim basis pending a complete review of the data base for this product through the reregistration of sulfuryl fluoride.

2. The proposed label changes on page 1, page 2, page 5, the first revision on page 6, and page 7 are also acceptable.

3. The second revision on page 6 is unacceptable. EPA considers the use of chloropicrin to aid in vacating premises prior to fumigation with sulfuryl fluoride to be a pesticidal use which is regulated under FIFRA. Therefore, the labeling for this product must specify that applicators use a chloropicrin product registered for clearing structures and observe the precautionary statements and safety recommendations appearing on the EPA approved label for chloropicrin.

The following revisions must also be made to the proposed labeling for Vikane:

4. Add the Structural Fumigation Fact Sheet language, enclosed as Attachment A, to the labeling or the fumigation manual for this product.

CONCURRENCES

SYMBOL							
SURNAME							
DATE							

5. Retain the following statements at the top of the front panel: "Restricted Use Pesticide Due To Inhalation Toxicity" and "For sale to and use by Certified Applicators or persons under their direct supervision and only for those uses covered by the Certified Applicator's certification."

6. On page 1, align the words, "Active Ingredients" and "Inert Ingredients," to the same margin.

7. On page 1, the words, "DANGER POISON," must appear in red on the finished label.

8. On page 3, expand the first sentence under "NOTICE" to state, "Read and understand the entire label before using."

9. On page 3, the two paragraphs relating to 40 degree F. restrictions prior to fumigation should be combined into a single paragraph.

Submit five (5) copies of the finished printed label before this product is released for shipment.

Sincerely yours,



Ruth G. Douglas
Product Manager (32)
Antimicrobial Program Branch
Registration Division (H7504C)

Enclosure

VIKANE*
Gas Fumigant

TO CONTROL EXISTING INFESTATIONS OF INSECTS AND RELATED PESTS such as (or including) Drywood Termites, Formosan Termites, Powder Post Beetles, Death Watch Beetles, Old House Borers, Bedbugs, Cockroaches, Clothes Moths, Rodents (Rats, Mice) and the Larvae and Adults of Carpet Beetles (Except Egg Stage), Oriental, American, and Brown-Banded Cockroaches.

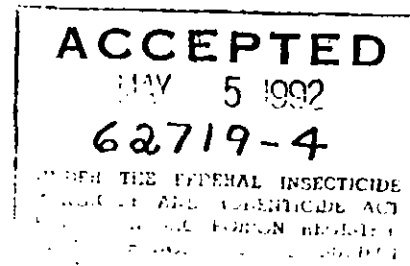
IN: Dwellings (including mobile homes), Buildings, Construction Materials, Furnishings (household effects) and Vehicles including automobiles, buses, surface ships, rail cars, recreational vehicles (but not including aircraft).

When fumigating, observe local, state and federal rules and regulations including such things as use of chloropicrin, clearing devices, positive-pressure self-contained breathing apparatus, security requirements, and placement of warning signs.

Active Ingredients:

Sulfuryl Fluoride 99%
Inert Ingredient(s) . . . 1%

EPA REG. NO. 62719-4
EPA Est. 464-CA-1



KEEP OUT OF REACH OF CHILDREN
DANGER POISON (SKULL AND CROSSBONES)

PELIGRO:

PRECAUCION AL USUARIO:

Si usted no lee ingles, no use este producto hasta que la etiqueta le haya sido explicada ampliamente.

*Trademark of DowElanco
DowElanco • Indianapolis, IN 46268, U.S.A.

Specialty Insecticide

Precautionary Statements

Hazards to Humans

Extremely Hazardous Liquid And Vapor Under Pressure •
Inhalation of Vapors May Be Fatal • Liquid May Cause Freeze
Burns of Exposed Skin • Do Not Get In Eyes, On Skin Or On
Clothing • Sulfuryl Fluoride Is Odorless • Exposure To Toxic
Levels May Occur Without Warning Or Detection By The User

STATEMENTS OF PRACTICAL TREATMENT:

In all cases of overexposure, such as nausea, difficulty in breathing, abdominal pain, slowing of movements and speech, numbness in extremities, get medical attention immediately. Take person to a doctor or emergency treatment facility.

If Inhaled: Get exposed person to fresh air. Keep warm and at rest. Make sure person can breathe freely. If breathing has stopped, give artificial respiration. Do not put anything in the mouth of an unconscious person.

If Liquid Is On Skin: Immediately remove contaminated clothing, shoes, and other items covering skin. Wash contaminated skin area thoroughly or shower.

If Liquid Is In Eyes: Flush with plenty of water for at least five minutes. Get medical attention.

NOTE TO PHYSICIAN: Sulfuryl fluoride is a gas which has no warning properties such as odor or eye irritation. (However, chloropicrin is used as a warning agent and is a known lachrymator.) Early symptoms of exposure to sulfuryl fluoride are respiratory irritation and central nervous system depression. Excitation may follow. Slowed movement, reduced awareness and slow or garbled speech may be noted. Prolonged exposure can produce lung irritation, pulmonary edema, nausea and abdominal pain. Repeated exposure to high concentrations can result in significant lung and kidney damage. Single exposures at high concentrations have resulted in death. Treat symptomatically.

Liquid sulfuryl fluoride in the eye may cause damage due to refrigeration or freezing.

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NOTICE

Read the entire label. Use only according to label directions.
Before buying or using this product, read Warranty Disclaimer and Limitation of Remedies sections elsewhere on this label.

IN CASE OF AN EMERGENCY

endangering life or property involving this product, call collect 517-636-4400. Do Not Ship or Store with Foods, Feeds, Drugs, or Clothing

Directions For Use

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

General Information

Before using, read and follow all label precautions and directions.

This fumigant is highly hazardous material and should be used only by individuals knowledgeable of the hazards of this chemical and trained in the use of required respiratory equipment, detector devices, emergency procedures, and the proper use of this fumigant.

When used for fumigation of enclosed spaces, such as houses and other structures, warehouses, vaults, chambers, trucks, vans, boxcars, ships, and other transport vehicles, two persons trained in the use of this product must be present at all times during introduction of fumigant, reentry prior to aeration, and during the initiation of the initial aeration procedure when exposure exceeds 5 ppm. Two persons need not be present if monitoring is conducted remotely (outside the area being fumigated).

Do not apply when area to be fumigated is below 40°F. This restriction does not apply when fumigating for rodents.

When fumigating a single unit/room within or connected to a larger structure (such as townhouses, apartments, condominiums), all units of the entire structure must be vacated during the fumigation and aeration periods.

If fumigating for insect pests, do not apply when temperature at site of pest activity is below 40°F. This temperature may be measured at the

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slab foundation, sub-floor soil, or wherever the coolest part of the structure may be.

Remove edible items from the structure before the fumigation if they cannot be adequately sealed to prevent exposure to sulfuryl fluoride. Chloropicrin must be used as described on the label to ensure evacuation of structures by humans or animals before fumigation.

Preparation For Fumigation

Structural Fumigations: Remove from the structure to be fumigated all persons, domestic animals, pets - including fish and desirable growing plants. Remove mattresses (except waterbeds) and pillows completely enveloped in water proof covers or remove covers. Food, feed, drugs and medicinals (including those items in refrigerators and freezers) must be removed from fumigation site or sealed in highly resistant containers such as glass, metal or bags made of nylon polymers (such as Nylofume™, Fumebag™, or Reynolon HRF™. These protective bags are available only from distributors of this product). **EXTINGUISH ALL FLAMES, INCLUDING PILOT LIGHTS OF HOT WATER HEATERS, GAS REFRIGERATORS, RANGES, OVENS, BROILERS, ETC. TURN OFF OR UNPLUG ALL ELECTRICAL HEATING ELEMENTS SUCH AS THOSE IN HEATERS, PIANOS, ORGANS, ETC. SHUT OFF AUTOMATIC SWITCH CONTROLS FOR APPLIANCES AND LIGHTING SYSTEMS WHICH WILL BE INCLUDED IN THE SPACE TO BE FUMIGATED.**

Open internal doors, internal openings to attics and subareas, storage chests, cabinets, drawers, closets, and appliances (such as washers, dishwashers, dryers, microwave or conventional ovens, etc.). Using electric fan(s) will help provide for forced distribution and aeration of air in basements and other dead air spaces to facilitate rapid dispersion of gas. Refrigerator and freezer doors may be left open if the units are turned off or disconnected and all food items have been removed. If the applicator chooses to leave sealed food items in closed refrigerators and freezers during the fumigation, the appliances should be opened when clearing the structure until the sulfuryl fluoride concentration in them is 5 ppm or less.

Tarpaulin Fumigations: Open operable windows. When tarping, use a highly resistant material such as a vinyl coated nylon, or polyethylene sheeting of at least 4 mil thickness. Seal all seams. Seal all low edges of the cover (such as with soil, sand, or weighted "snakes"). To minimize escape of gas through the soil and to avoid injury to nearby plants, wet

and set the container in the air stream of a fan. Pour chloropicrin over the cotton. Use 1 fluid oz/10,000 to 15,000 cubic feet - (30 ml/293 to 425 cubic meters) of space to be fumigated.

Since chloropicrin aids in vacating the structure of animals prior to releasing the fumigant, it is not required to be used when doing a taped fumigation of railcars for rodent control. If this option is taken, a thorough walk-through inspection must be performed of each railcar with doors being immediately locked upon leaving each car, and a guard must be posted during fumigant introduction, exposure period, and aeration.

Chloropicrin is a warning agent which causes smarting of the eyes, tears, discomfort, and has a very disagreeable pungent odor at very low concentrations. Chloropicrin must be used by a person certified to apply VIKANE or under their supervision. Fumigators must observe the precautionary statements and safety recommendations appearing on the label of this product.

Protective Clothing: Wear goggles or full face shield for eye protection during introduction of the fumigant. Do not wear gloves or rubber boots. Do not reuse clothing or shoes that have become contaminated with liquid VIKANE until thoroughly aerated and cleaned.

RESPIRATORY PROTECTION: If the concentration of sulfuryl fluoride in the fumigated area, as measured by a detector device with sufficient sensitivity such as an INTERSCAN or MIRAN gas analyzer, does not exceed 5 ppm (20 mg/cubic meter), no respiratory protection is required. When this concentration is exceeded, all persons in the exposed area must wear a NIOSH or MSHA approved positive pressure self-contained breathing apparatus (SCBA, not SCUBA) or combination air-supplied/SCBA respirator such as manufactured by Ranger, Survivair, Scott, or MSA.

Before using any make or brand of SCBA, learn how to use it correctly. Determine that it has an adequate air supply for the job at hand, that it fits properly, providing an adequate seal around the face, and that it is in good working order. For more detailed information on the source and use of air monitoring devices and respirators, consult the VIKANE Fumigation Manual.

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Prefumigation Check: Check for leaks.

DOSAGE AND EXPOSURE TIME: For fumigation to control drywood termites and non-egg stages of other insect and related structural, and household pests, the FUMIGUIDE* calculator(s) is to be used for the coordination of fumigant rates with soil or slab temperature, exposure

period, and fumigant loss rate measured as half-loss-time (HLT). When control of the egg stage is desired or when fumigating for Formosan termites, use the indicated multiple factor of the drywood termite dosage (as determined by Fumiguides) for pests listed in the following table:

Pest	Dosage Factor (as a multiple of dry-wood termite dosage)
Rodents**	1/2X
Carpet Beetles *** and Cockroaches	1X
Furniture Carpet Beetles *** and Bedbugs	3X
Old House Borers and Formosan Termites	4X
Clothes Moths	6X
Powder Post Beetles and Death Watch Beetles	10X

These dosages apply to dwellings, buildings, construction materials, furnishings, and vehicles.

** To determine the proper dose for rodent control, use 80°F as the calculating temperature. Unlike insects, rodents are warm blooded and do not require increased dosages at lower temperatures.

*** More than one fumigation at reduced dosages may be needed to control the infestation after egg hatch.

For fumigation to control rodents, use sufficient gas to accumulate at least 36 ounce-hours following equilibrium, regardless of ambient air temperature. Refer to the VIKANE Fumigation Manual.

FUMIGUIDE B calculator is to be used for unmonitored structures to coordinate fumigant rates with temperatures, a 20 to 24 hour exposure period, and an estimated HLT.

FUMIGUIDE Y calculator is used in conjunction with FUMIGUIDE B when fumigant concentrations are monitored and/or there are measured variations in exposure time.

VIKANE CALCULATOR is a hand held microprocessor which performs the functions of both the FUMIGUIDE B and Y calculators and includes relative humidity as a calculating factor.

These calculators, directions for use and referenced literature may be obtained from DowElanco.

INTRODUCING THE FUMIGANT: Release the fumigant from outside the structure, tent or vehicle. The release point(s) should be into a large open space(s) in the fumigation site(s). Release the fumigant through a suitable leak-proof tube with a minimum burst pressure of 500 P.S.I. Direct the fumigant into the blast of air from a fan(s) having a capacity of at least 1,000 cfm for each pound of VIKANE shot per minute. Damage to household materials can occur if insufficient fan capacity is used for the rate of VIKANE shot. Protective sheeting, such as polyethylene plastic under the shooting stand, hose, and fan can be used to further protect floors during application. **TO PREVENT DAMAGE, DO NOT APPLY FUMIGANT DIRECTLY TO ANY SURFACES.**

Placarding of Fumigated Areas: The applicator must placard or post all entrances to the fumigated areas with signs bearing, in English and Spanish:

1. The signal word DANGER/PELIGRO and the SKULL and CROSSBONES symbol.
2. The statement, "Area under fumigation , DO NOT ENTER/NO ENTRE".
3. The date of fumigation.
4. Name of fumigant used.
5. Name, address and telephone number of the applicator.

Only a certified applicator may authorize removal of placards, and only when the concentration of sulfuryl fluoride in the treated site is 5 ppm or less.

Aeration and Reentry: No one should be in treated areas if the level of sulfuryl fluoride is above 5 ppm unless provided with a NIOSH or MSHA approved positive pressure self-contained breathing apparatus (SCBA, not SCUBA) or combination air supplied/SCBA respirator, such as manufactured by Ranger, Survivair, Scott, or MSA. Since the INTERSCAN and MIRAN gas analyzers give immediate readings, respiratory protection is not required when clearing with these instruments after having completed the initial 1 hour aeration procedure. If a reading indicates levels in excess of 5 ppm, leave the affected area immediately.

Only an approved detection device of sufficient sensitivity, such as the INTERSCAN or MIRAN, can be used to confirm SF concentration of 5 ppm or less. SF concentration must be monitored in breathing zones. Structure must remain posted for fumigation until cleared for reentry.

Select the appropriate procedure based on the fumigation rate:

All structures fumigated at ~~2x the calculated drywood termite rate or less~~ (or 16 oz/MCF or less) may be aerated using procedures ~~X~~ ~~X~~ or ~~X~~.
1 2.

All structures fumigated at concentrations ~~greater than 2x the calculated drywood termite rate~~ (or greater than 16 oz/MCF) must be aerated using procedure B or C.

Aeration Procedure X 1

Each fan shall be capable of displacing a total of 5,000 cubic feet per minute.

Step (1): Aerate structure with operable windows and doors open, aided by the use of one or more fans, for a minimum of 1 hour. Step (2): Secure structure and do not allow a reentry for a minimum of six hours from the start of aeration (first opening of the seal). Structure must remain posted. Step (3): After the minimum six hour waiting period, measure the SF concentration in breathing zones. If SF concentration is greater than 5 ppm, ventilate structure with operable doors and windows open for at least ten minutes. Structure may be reoccupied when concentration is below 5 ppm.

Aeration Procedure X

Step (1): Aerate structure with all operable doors and windows open and air circulation aided by the use of one or more fans until SF concentration is 5 ppm or less. Step (2): Close operable doors and windows. Select a room in the structure and take a reading of the SF concentration from the approximate center of the room. Step (3): After a minimum of 20 minutes, take another reading of the SF concentration from the same room used in Step 2. If the SF concentration has increased by more than 1 ppm over the reading taken in Step 2, wait another 20 minutes and retest. If the SF concentration is greater than 5 ppm in any room, ventilate the structure by opening operable doors and windows for at least 10 minutes and repeat Steps 2 and 3.

The structure is cleared for reentry when the SF concentration has not increased by more than 1 ppm over a minimum 20 minute waiting period and 5 ppm or less.

Aeration Procedure X 2

Each fan shall be capable of displacing a total of 5,000 cubic feet per minute.

Step (1): Aerate structure with all operable windows and doors open, aided with the use of one or more fans, for a minimum of 1 hour. Step (2):

Secure the structure and do not allow reentry for a minimum of eight hours from the start of aeration (first opening of the seal). Step (3): If after the minimum 8 hour waiting period, SF concentration is greater than 5 ppm, ventilate structure with operable doors and windows open for at least ten minutes. Structure may be reoccupied when SF concentration is below 5 ppm.

For more detailed information on the source and use of air monitoring devices or respirators, consult the VIKANE Fumigation Manual. Do not reoccupy fumigation site, i.e. building, ship, vehicle or chamber, nor move vehicle until aeration is complete. Warning signs must remain posted until aeration is determined to be complete.

STORAGE AND HANDLING

Store in dry, cool, well ventilated area under lock and key. Post as a pesticide storage area. Do not contaminate water, food, or feed by storage.

Store cylinders upright, secured to a rack or wall to prevent tipping. Cylinders should not be subjected to rough handling or mechanical shock such as dropping, bumping, dragging, or sliding. Do not use rope slings, hooks, tongs or similar devices to unload cylinders. Transport cylinders using hand truck or fork truck to which the cylinder can be firmly secured. Do not transport any cylinders in closed vehicles where they occupy the same common airspace as personnel. Transport securely only in an upright position.

Do not remove valve protection bonnet and safety cap until immediately before use. Replace safety cap, and valve protection bonnet when cylinder is not in use.

When cylinder is empty, close valve, screw safety cap onto valve outlet and replace protection bonnet before returning to supplier. Only the registrant is authorized to refill cylinders. Do not use cylinders for any other purpose. Follow registrant's instructions for return of empty or partially empty cylinders.

Leak Procedures: Evacuate immediate area of leak. Use a NIOSH or MSHA approved positive pressure self-contained breathing apparatus (SCBA, not SCUBA) or combination air-supplied/SCBA respirator, such as manufactured by Ranger, Survivair, Scott, or MSA, for entry into affected areas to correct problem. Move leaking or damaged cylinder outdoors or to

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an isolated location, observing strict safety precautions. Work upwind if possible. Do not permit entry into leakage area by unprotected persons until concentration of fumigant is determined to be 5 ppm or less, as determined by a detection device with sufficient sensitivity such as an INTERSCAN or MIRAN gas analyzer. For more detailed information on the source and use of air monitoring devices or respirators, consult the VIKANE Fumigation Manual.

CYLINDER AND PRODUCT DISPOSAL

Promptly return all empty cylinders to your distributor of VIKANE. Follow proper cylinder handling directions above.

Pesticide wastes are toxic. Improper disposal of excess pesticide is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instructions, consult your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

Warranty Disclaimer

DowElanco warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated on the label when used in strict accordance with the directions, subject to the inherent risks set forth below. DOWELANCO MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER EXPRESS OR IMPLIED WARRANTY.

Inherent Risks of Use

It is impossible to eliminate all risks associated with use of this product. Plant injury, lack of performance, or other unintended consequences may result because of such factors as use of the product contrary to label instructions (including conditions noted on the label, such as unfavorable temperatures, soil conditions, etc.), abnormal conditions (such as excessive rainfall, drought, tornadoes, hurricanes), presence of other materials, the manner of application, or other factors, all of which are beyond the control of DowElanco or the seller. All such risks shall be assumed by Buyer.

Limitation of Remedies

The exclusive remedy for losses or damages resulting from this product (including claims based on contract, negligence, strict liability, or other legal theories), shall be limited to, at DowElanco's election, one of the following:

1. Refund of purchase price paid by buyer or user for product bought, or
2. Replacement of amount of product used.

DowElanco shall not be liable for losses or damages resulting from handling or use of this product unless DowElanco is promptly notified of such loss or damage in writing. In no case shall DowElanco be liable for consequential or incidental damages or losses.

The terms of the Warranty Disclaimer above and this Limitation of Remedies cannot be varied by any written or verbal statements or agreements. No employee or sales agent of DowElanco or the seller is authorized to vary or exceed the terms of the Warranty. Disclaimer or this Limitation of Remedies in any manner.