COMPARISON OF SULFURYL FLUORIDE LABELS AND APPLICATOR MANUALS

Dow AgroSciences, LLC
EPA Reg. No. 62719-4-ZA
Updated 2/23/11

Ensystex II, Inc.
EPA Reg. No. 81824-1-AA
Updated 2/23/11

Drexel Chemical Company
EPA Reg. No. 19713-596-AA
Updated 3/23/11

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DPR-ENFORCEMENT BRANCH (CRO)
STRUCTURAL REGULATORY TRAINING
2012
**Comparison Of Labels**

- **Active Ingredient Percentage**
  - **Vikane**: 99.8%
  - **Master Fume**: 99.8%
  - **Zythor**: 99.3%

- **Directions For Use**
  
  - **First Aid Statement**:
    - *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.
    - Call a poison control center or doctor for further treatment advice.
    - Move person to fresh air.
    - If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible.
    - Call a poison control center or doctor for further treatment advice.
COMPARISON OF LABELS

- STRUCTURAL FUMIGATION MANUAL
  - Now referenced on all 3 labels as part of labeling
  - All manuals have been stamped and registered in CA
  - **ONLY** Drexel Master Fume label states:
    “The Manual for Structural Fumigation Must be in the Possession of the Applicator During Use of This Product.”
  - Vikane and Zythor state the above in their manuals

- TRAINING & STEWARDSHIP PROGRAM
  - Now stated on all 3 labels as a requirement for application personnel to participate in prior to fumigation.

CHECK CYLINDER LABEL!!!
**Comparison of Labels**

- **Prior to the parties entering into a fumigation agreement**, the Fact Sheet for Vikane/this product must be provided to an adult occupant of the structure to be fumigated.

- **Prior to the application of Zythor to a structure**, the Zythor Fact Sheet must be provided to an adult occupant of the structure to be fumigated.

<table>
<thead>
<tr>
<th>FACT SHEET (Required)</th>
<th>DOSAGE &amp; EXPOSURE TIME (Sulfuryl Fluoride)</th>
</tr>
</thead>
<tbody>
<tr>
<td><a href="#">Fumiguide Calculator</a></td>
<td><a href="#">Drexel Chemical’s Master Rate Calculator</a></td>
</tr>
<tr>
<td><a href="#">Fumicalc Computer Program</a></td>
<td></td>
</tr>
</tbody>
</table>

**FACT SHEET**

- Fact Sheet (Required)

**DOSAGE & EXPOSURE TIME**

- Sulfuryl Fluoride

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**FAC 12973**

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WARNING AGENT

- CHLOROPICRIN CALCULATIONS & ALTERNATIVE

Fumiguide calculator
OR
1 fl. oz./10,000ft³-
15,000ft³ (pg. 29)

Master Fume Calculator
System OR
1fl. oz./10,000ft³-
15,000ft³ (pg. 11)

Fumicalc computer program
OR
1fl. oz./10,000ft³-
15,000ft³ (pg. 46)

BPC 8505.12
In order for Chloropicrin to perform effectively as a warning agent, it must be applied:

- In the air stream of a fan. (pg. 29)
- In the air stream of a fan. (pg. 11)
- Place a shallow, wide container directly behind a fan in its air stream. (pg. 46)

**Air Stream** = Is this behind or in front of the fan?

*Corrosion issues?
# Posting of Fumigated Space

The applicator must post all entrances to the fumigated areas with signs bearing, in English and Spanish:

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>The signal word <strong>DANGER/PELIGRO</strong> and the <strong>SKULL and CROSSBONES</strong> symbol.</td>
<td>1.</td>
</tr>
<tr>
<td>2.</td>
<td>The statement, “Area under fumigation, <strong>DO NOT ENTER/NO ENTRE</strong>.”</td>
<td>2.</td>
</tr>
<tr>
<td>3.</td>
<td>The date of fumigation.</td>
<td>3.</td>
</tr>
<tr>
<td>4.</td>
<td>Name of fumigant used.</td>
<td>4.</td>
</tr>
<tr>
<td>5.</td>
<td>Name, address, and telephone number of the applicator (pg. 20)</td>
<td>5.</td>
</tr>
</tbody>
</table>

BPC 8505.10, 16CCR 1974
To Distinguish Which Sulfuryl Flouride Product is Being Used:

The Structural Pest Control Board, amended the sections below, effective December 8, 2010.

- Fumigation Warning Signs (16CCR, 1974)
- Inspection /Completion Tag (16CCR, 1996.1)

Both of these regulations now require:
1. The trade name of the fumigant used
2. And its active ingredient
# Types Of Fumigant Bags Used

<table>
<thead>
<tr>
<th>Nylofume bags (pg. 16)</th>
<th>Master Fume bags</th>
<th>Nylofume bags</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Nylofume bags</td>
<td>Fumiguard bags (pg. 8)</td>
</tr>
<tr>
<td></td>
<td>Fumiguard bags</td>
<td>Masterfume bags (pg. 34)</td>
</tr>
</tbody>
</table>

3CCR 6614, FAC 12973
Removal Prior to Fumigation

- On Vikane label (Very similar to Drexel Master Fume/Zythor)
  Remove from the structure to be fumigated all persons, domestic animals, pets, and desirable growing plants. See the Structural Fumigation Manual for instructions regarding the handling of fish tanks. Remove mattresses (except waterbeds) and pillows completely enveloped in waterproof covers or remove covers (or open seal of waterproof covers). Food, feed, drugs (including tobacco products), and medicinals (including those items in refrigerators and freezers) can remain in the structure if they are in plastic, glass, or metal bottles, cans, or jars with the original manufacturer's air-tight seal intact. Food, feed, drugs (including tobacco products), and medicinals (including those items in refrigerators and freezers) not in plastic, glass, or metal bottles, cans, or jars with the original manufacturer's air-tight seal intact, need to be removed from the fumigation site, or double bagged in Nylofume® bags, which are available from distributors of Vikane.

- Only in Vikane Applicator Manual
  Food, feed, drugs (including tobacco products), and medicinals (including those items in refrigerators and freezers) can remain in the structure if they are in plastic, glass, or metal bottles, cans, or jars with the original manufacturer's air-tight seal intact. Food, feed, drugs (including tobacco products), and medicinals (including those items in refrigerators and freezers) not in plastic, glass, or metal bottles, cans, or jars with the original manufacturer's air-tight seal intact, need to be removed from the fumigation site, or double bagged in Nylofume® bags, which are available from distributors of Vikane. Opened items that do not need to be removed or sealed in Nylofume bags include dental hygiene products (including toothpaste, mouthwash, dental adhesives, and dental whitening products), cosmetics including lipstick, all externally applied lotions and ointments, ice and water.
PREPARATION FOR FUMIGATION

- All 3 labels advise "Remove from the structure to be fumigated all persons, domestic animals, pets and desirable growing plants"

- NOW, all 3 labels mention how to handle FISH TANKS, but Vikane’s label refers to their manual to view this information.
Fish Tanks

- Remove fish tanks containing live fish, or remove the fish, or develop a plan for preparing the tank for fumigation. If necessary, exclude water in the tank and biological filters, if present, from the fumigated space by sealing with gas resistant tarps or sheeting.

(Zythor-pg. 34, Vikane-pg. 16, MF-pg. 8)
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 concentration of this product in them is 1ppm or less. (pg. 8) *Correcting this with U.S. EPA by the end of July ’12

If the applicator chooses to leave sealed food items in closed refrigerators and freezers during the fumigation, the appliances must be opened when clearing the structure until the concentration of Vikane in them is 1ppm or less. (pg. 2)

If the choice is made to leave sealed items in closed refrigerators and freezers during the exposure period, the appliance’s doors must be opened and left open at some point during aeration and clearance of the fumigated space until the concentration of Zythor within their interior is 1ppm or less as measured by an approved and properly calibrated Low Fumigant Level Detection Device. (pg. 3)
BREATHING ZONE

“Structure may be reoccupied when concentrations in the breathing zones in all units is 1ppm or less.”

-Now all 3 labels have a definition:
  - “Areas within the structure or units/rooms where individuals typically stand, sit or lie down.”

(Zythor-pg. 2, Vikane-pg. 3, Master Fume-pg. 6)

16CCR 1973, 3CCR 6780(b), 6782(d,f)
PERSONAL PROTECTIVE EQUIPMENT (PPE)

Sulfuryl Fluoride (SF)

Product Label:
- **Eye Protection:**
  - Splash-resistant goggles
  - or Full face shield
- **Do NOT wear rubber boots**
- **Do not wear gloves**
- **Shirt/pants:** no mention
- Positive pressure SCBA or air-supplied/SCBA

**Applicator Manual:**
- **Eye Protection:**
  - Face Shield
  - Protective eyewear
  - (Do **NOT** wear goggles)
- **Gloves:** chemical-resistant (nitrile/butyl, F)
- **L/S shirt & long pants**
- Same SCBA info as Sulfuryl Fluoride

*Employers must make sure that required PPE is: Provided/Worn/Cleaned

(Zythor-2, 42; Vikane-3, 28; MF-6, 11)

Chloropicrin (Pic)

**Applicator Manual:**
- **Eye Protection:**
  - Face Shield
  - Protective eyewear
  - (Do **NOT** wear goggles)
- **Gloves:** chemical-resistant (nitrile/butyl, F)
- **L/S shirt & long pants**
- Same SCBA info as Sulfuryl Fluoride

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(Zythor-2, 42; Vikane-3, 28; MF-6, 11)
## Chloropicrin/PPE

<table>
<thead>
<tr>
<th>• IF Multiple Introduction Points w/in a structure:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• When applying chloropicrin:</td>
</tr>
<tr>
<td>• Start at point <strong>farthest from exit</strong></td>
</tr>
<tr>
<td>• Work <strong>toward exit</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>• IF GREATER THAN 2 Introduction Points w/in a single structure, must wear:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Positive pressure SCBA or</td>
</tr>
<tr>
<td>• Combo air-supplied/SCBA</td>
</tr>
</tbody>
</table>
Connected Structures

- All 3 labels now define it as:
  “Any structure connected with the structures to be fumigated by construction elements (e.g., pipes, conduits, ducts, etc.) which may allow passage of fumigant between the structures.”

*Chloropicrin **ONLY** applied where Sulfuryl Fluoride is introduced.

(Zythor-pg. 32; Vikane-pg. 2, 15; MF-pg. 2)
MULTI-UNIT STRUCTURES

- Vikane, Drexel Master Fume and Zythor labels have the same verbiage now BUT:
  How will the California Aeration Plan (CAP) effect the use of Sulfuryl Fluoride on Multi-Unit Structures?

- DPR letter dated 10/14/09
  - SF Reevaluation: Need data on multiple-story multiple dwelling units to determine if the CAP will reduce SF levels to below 1ppm in larger structures

(Zythor-pg. 32, Vikane-pg. 2/15, MF-pg. 2)
Fumigation Of Construction Materials, Furnishings, Vehicles And Shipping Containers

- Specific instructions on ONLY Zythor label, but detailed information is on Vikane and Drexel Master Fume applicator manuals

(Zythor-pg. 3; Vikane-pg. 39-41; MF-pg. 14-16)
All 3 labels state that, “Chloropicrin need not be used when fumigating passenger railcars; however, 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.”

**ONLY** label that has specific instructions for Securing and Aeration of Passenger Railcars on a Supplemental label. (Also, pg. 37-38 & 41)

Drexel Master Fume’s applicator manual does have a section that includes “Railroad Cars”- considers them Small Structures (pg. 16)

Zythor label and manual mention “rail cars” as a site under Fumigation of Construction Materials, Furnishings (Household effects), Vehicles and Shipping Containers. (pg. 3, 41)
# Devices Used To Monitor A Fumigation

<table>
<thead>
<tr>
<th>Device</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fumiguide Calculator</td>
<td>Used for both non-monitored &amp; monitored</td>
</tr>
<tr>
<td>Fumiguide Y</td>
<td>Another calculator specific for monitored fumigations</td>
</tr>
<tr>
<td>Fumiscope</td>
<td>Only for monitored fumigations (pg. 3, 34)</td>
</tr>
<tr>
<td>Master Fume Calculator</td>
<td>Used for both non-monitored &amp; monitored</td>
</tr>
<tr>
<td>Fumiscope</td>
<td>Only for monitored fumigations</td>
</tr>
<tr>
<td>ReportIR™</td>
<td>Only for monitored for fumigations (pg. 7, 13)</td>
</tr>
<tr>
<td>Fumiscope</td>
<td>Only for monitored fumigations &gt;&gt; then data is entered into the Fumicalc program (pg. 54-55)</td>
</tr>
</tbody>
</table>

Fumiscope is NOT sensitive enough to use as a clearing device AFTER the exposure period.
Vikane, Zythor and Drexel Master Fume labels all refer to these devices:

- INTERSCAN
- MIRAN [SapphIRe]
- SPECTROS SF-ExplorIR

Zythor and Vikane labels reference the fact that the INTERSCAN must be calibrated within one month prior to its use as a Low Fumigant Level Detection Device. Drexel Master Fume NOW has this information as well and other specific details in its label and applicator manual. (Zythor-pg. 2, 5, 25; Vikane-pg. 36-37; MF-1, 6, 8)
ANY QUESTIONS???

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