PI 173

UF UNIVERSITY of FLORIDA
IFAS Extension

Handling Total Release Foggers[1]

Frederick M. Fishel[2]

Introduction

Total release foggers -- sometimes called “bug bombs,” “insect foggers,” or “total release insecticides” -- can be hazardous. It is not uncommon to find reports in the mass media of a fire or an explosion in a home caused by a total release fogger. (See Figure 1.)

Total release foggers (TRFs) are pesticide products designed to fill an area with insecticide and often are used in homes, workplaces, and greenhouses to kill indoor pests. The active ingredients in TRFs usually contain pyrethroid, pyrethrin, or both, and may also contain piperonyl butoxide. Additionally, TRFs contain flammable aerosol propellants that can cause fires or explosions

Risks

When nonchemical measures are not effective in controlling indoor pests, some people choose to use a chemical pesticide. One type of chemical product is the TRF. While these products can be effective under the proper circumstances, they can also pose real risks to residences, people, and pets if used improperly. Besides causing fires and explosions,

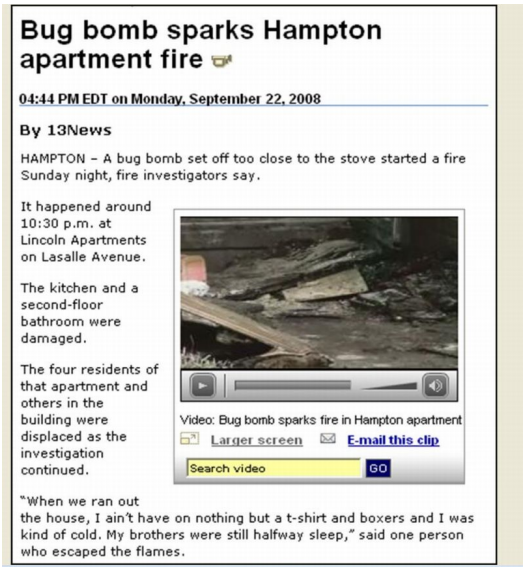

Figure 1. Media report of bug bomb causing a residential fire. Credits: WVEC.com

there have been cases of acute health problems associated with TRF use. According to the Centers for Disease Control and Prevention, investigations conducted in eight states, including Florida, report 466 cases of TRF-related illnesses or injuries during the period, 2001 – 2006. Of that total number, 62 cases (13 percent of the total) were reported in Florida. Some causes of those illnesses or injuries were the following:

1. This document is PI 173, one of a series of the Agronomy Department, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida. Original publication date March 2009. Visit the EDIS Web Site at http://edis.ifas.ufl.edu.
2. Frederick M Fishel, associate professor, Department of Agronomy, and director, Pesticide Information Office, Institute of Food and Agricultural Sciences, University of Florida, Gainesville, FL.

• Inability or failure to vacate before the TRF discharged;

• Reentry into the treated space too soon after the TRF was discharged;

• Excessive use of TRFs for the space being treated;

• Failure to notify others nearby.

The severity of reported illnesses or injuries, factors contributing to the exposures, and the 10 most common active ingredients involved are shown in Tables 1 – 3, respectively. The signs and symptoms typically reported were respiratory and gastrointestinal-tract irritation and neurological disorders, which are typical for exposure to organophosphate and pyrethroid insecticides.

Common Sense Precautions

Before using a TRF in any building, including a home, read and follow the product's label directions. TRF common sense precautions include the following:

• Do not use more foggers than necessary. Their label statements are based upon the recommended area that a single container will effectively and safely treat.

• Keep foggers away from ignition sources, such as pilot lights or sparks from an electrical appliance that cycle on and off. All ignition sources should be extinguished.

• Remove all children, pets, toys, and uncovered food from the area to be treated.

• Stay out of the treated area for as long as the label directs.

• Properly ventilate the treated area after releasing foggers.

• Wash all surfaces where food has contact.

• Keep the product away from children, such as in a locked cabinet or closet.

• Thoroughly read and follow the product s label for any additional precautions and other specific directions.

Label Amendments to Reduce Risks

In 1998, the EPA approved requirements for fogger products to ensure that consumers are provided adequate information to use such products safely. There were two general amendments concerning these products:

• The “Physical and Chemical Hazards” section of the label must contain a graphic symbol depicting fire and contain language regarding highly flammable and explosive ingredients (Figure 2). The “Directions for Use” section of the label includes specific wording that addresses pilot lights and other potential ignition sources (Figure 3).

• The “Directions for Use” section of the label must contain wording that specifically addresses the area that one TRF can treats (Figure 4).

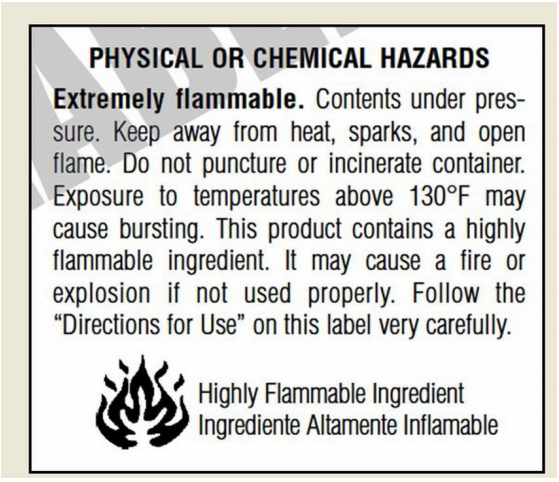

Figure 2. Fire-and-explosion warning of TRF product label. Credits: Whitmire Micro-Gen.

Although labeling requirements for TRFs have increased in recent years, all accidents have not been prevented since 1998. EPA expects the revised label warnings to reduce risks. Any reduction of accidents would be considered an accomplishment. As with all pesticides, read and follow all label directions.

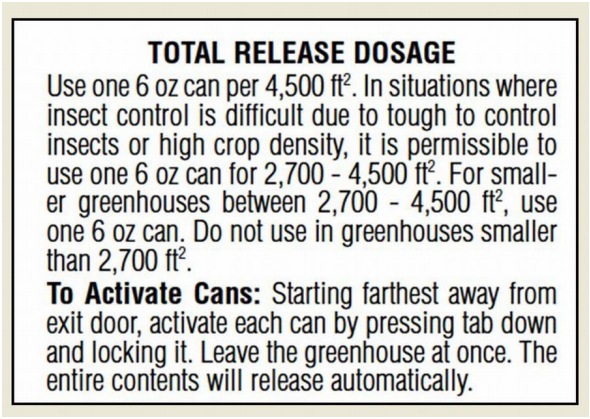

Figure 3. Potential ignition source warning of TRF product label. Credits: Whitmire Micro-Gen.

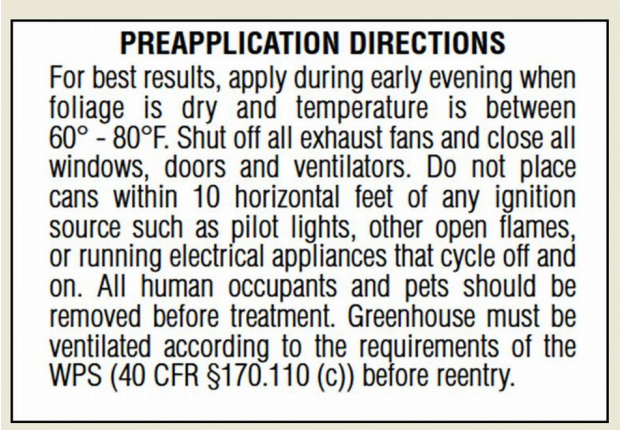

Figure 4. Dosage statement of TRF product label. Credits: Whitmire Micro-Gen.

Additional Information

Centers for Disease Control and Prevention. 2008. Illnesses and injuries related to total release foggers – eight states, 2001 – 2006. http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5741a3.htm (accessed October, 2008).

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Table 1. Severity of illness or injury reported with TRF exposure incidents (2001 – 06).

Severity[1]	Number of incidents (% of total)
High or death	10 (2)
Moderate	84 (18)
Low	372 (80)

[1]High: Life-threatening effects usually involve hospitalization and may result in permanent impairment or disability.
Moderate: Non-life-threatening effects that are usually systemic and require medical treatment.
Low: Effects that usually resolve without treatment

Table 2. Most common factors contributing to reported TRF exposure incidents (2001 – 06).

Factor contributing[1]	Number of incidents (%)
Unable to vacate prior to discharge	107 (23)
Early reentry	63 (14)
Failure to vacate	56 (12)
Unintentional discharge	53 (11)
Too many TRFs for space	48 (10)
Failure to notify others	47 (10)

[1]Each case might have more than one factor contributing to exposure

Table 3. Ten most common active ingredients in TRF exposure incidents (2001 – 06).

Active ingredient[1]	Chemical class	Number of incidents
Pyrethrins	Pyrethrin	182
Cypermethrin	Pyrethroid	122
Permethrin	Pyrethroid	95
Tetramethrin	Pyrethroid	75
Methoprene/S-methoprene	Juvenile hormone analogue	50
Fenvalerate	Pyrethroid	30
Tralomethrin	Pyrethroid	24
D-trans-allethrin	Pyrethroid	19
Phenothrin	Pyrethroid	18
Chlorpyrifos	Organophosphate	15

[1]Many TRF products contain more than one active ingredient.