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Fumigants & Pheromones

Issue 98
Spring 2011
Routing:

EPA Award Winner
Best of the Best

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EPA Proposes Changes

Washington, D.C. – The Environmental Protection Agency recently announced it has re-evaluated the current science on fluoride and is proposing steps to begin a phase-down withdrawal of the pesticide sulfuryl fluoride on food. This fumigant breaks down into fluoride and is commonly used in food storage and processing facilities. EPA is proposing to phase out uses on food over a three-year period.

Sulfuryl fluoride (ProFume® gas fumigant) is currently registered for the control of insect pests in stored grains, dried fruits, tree nuts, coffee and cocoa beans, and for use in food-handling and processing facilities. Although sulfuryl fluoride residues in food contribute to a very small portion of total exposure to fluoride, when combined with other fluoride exposure pathways, including water and toothpaste, EPA has concluded that the tolerance (legal residue limits on food) no longer meets the safety standards under the Federal Food, Drug, and Cosmetic Act.

Pesticides are safe in the hands of professionals.

Why is this important?

Sulfuryl fluoride is an important replacement for several post-harvest uses of the stratospheric ozone-depleting pesticide methyl bromide. Methyl bromide has been phased-out worldwide under the Montreal Protocol. Many industries previously relied on methyl bromide to control insect pests in stored and processed food commodities and in food-processing and handling facilities now rely on SF.

EPA will work with users of sulfuryl fluoride to identify potential alternatives. EPA will be accepting comments on the proposed decision, assessment and benefits assessments for ninety days (due by March 25, 2011).

For more information, visit http://www.epa.gov/pesticides/sulfuryl-fluoride.

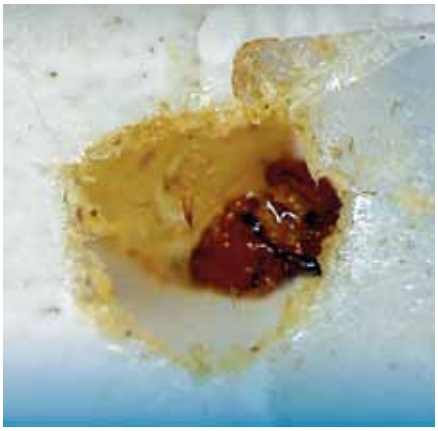
Mission Statement

In all, our aim is to strive for quality service, provide the absolute best products available worldwide, to be a respected world-class organization, and maintain profitability with innovation, alternatives, and education.

Insect Resistant Packaging: The Last Line of Defense Part 1

By Alain VanRyckeghem, BCE
Technical Director

The cereal that I poured into my breakfast bowl this morning underwent a long and perilous journey. From the day it was harvested and stored in a grain bin, it was under attack from primary pests such as the



Indianmeal moth larva chewing a food package.

granary or rice weevils. The grains were possibly fumigated to keep unwanted grain insects from infesting this valuable commodity. Weeks to months later, the grains were processed into perhaps rolled oats, corn flakes or flour. These processed products were then stored in interior bins made of steel for a period of time until it was ready to be combined with a variety of ingredients, including sugar, nuts, fruits and other enrichments. During all this time stored product pests (SPP) may have been discretely hidden somewhere in the facility ready and waiting for spillage or easy access to the foods. They include the Indianmeal moth, grain beetles, flour beetles, and warehouse beetles.

The final product was at last placed in a package designed to display the food item enclosed within. The package was also made in such a way as to help preserve the freshness and flavor of the contents, to withstand transportation, and long term storage (possibly 6 months) before being put out onto the retail shelves. The warehouse and retail store are additional locations where the invading hoards wait to claim their next meals.

I am sure that box of cereal I purchased remained on the shelf for a few days to a couple of weeks before I was lured by its seductive appearance and promise of fulfilling foods. I have had this box open and in my cupboards now for about a week. All was well until, this morning as I emptied the last remaining bits of cereal into the bowl and began filling the empty spaces with milk. 'Stuff' floated to the top…and it was not good stuff; it was beetle bits and to my trained entomological eye, the most common stored food pest in the world…Indianmeal moth.

There was a lot of time, material, and money spent throughout this journey to get that wholesome food product into my hands, the consumer; but they did not succeed. Who is responsible for this? How did they get in there? Well, I happen to have a lot of experience in this area. Let us investigate this "consumer complaint."

We should start with the insects first. There are a number of common pests that will attack food products. We could call these the "Evil Eight" of food packaging. They include the following species:

PEST	LATIN NAME	PENETRATOR	INVADER
Indianmeal moth	*Plodia interpunctella*	Mature Larva	Larva
Red flour beetle	*Tribolium castaneum*		Adult, Larva
Confused flour beetle	*Tribolium confusum*		Adult, Larva
Saw-toothed grain beetle	*Oryzaephilus surinamensis*		Adult, Larva
Merchant grain beetle	*Oryzaephailus mercator*		Adult, Larva
Cigarette beetle	*Lasioderma serricorne*	Adult	
Drugstore beetle	*Stegobium paniceum*	Adult	
Warehouse beetle	*Trogoderma variabile*	Larva	

Table 1. Common stored product pests that penetrate and invade food packaging.

Penetrators are insects that have a stage that actively attempt to destroy or damage packaging materials to gain entry. Invaders on the other hand attempt entry by navigating through existing openings and channels or those created by penetrators or other factors such as damage from handling. Packages designed to prevent penetration by insects must be robust with thick layers or made of resilient materials. To thwart the invaders from gaining access, packages must be made free from sealing defects or design flaws as well as surviving harsh handling.

Part II to be continued...

Dave's Soapbox

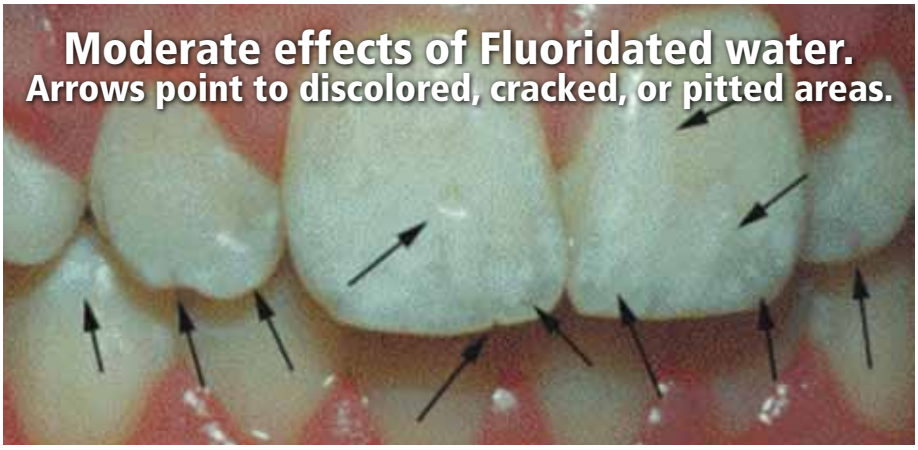
Someone once told me, "You don't mess with children or pets."

Back in November the EPA was forced to propose a phase out of the tolerances caused by sulfuryl fluoride ProFume® fumigant when the National Academy of Science listed Florosis as a health effect rather than a cosmetic effect. Apparently, children were showing streaking on their teeth caused by too much fluorine.

The Fluorine Action Network (FAN), has been actively trying to limit or eliminate fluorine in drinking water, toothpaste, and food. When the National Academy of Sciences listed fluorine as a health effect, the Fluorine Action Network then threatened EPA with a law suit to force changes to occur.

The tiny clause that changes everything: In the Food Safety Act under the comprehensive Food, Drug and Cosmetic Act is a clause that prohibits EPA to allow the addition of substances that have been deemed to cause health effects on humans. This statement then forced EPA to propose phase out tolerances of fluorine and fumigants that contain fluorine.

How long will this take? The 90 day comment period and the review of these voluminous comments could take one year. This puts a decision from the Agency, most likely, in early 2012. If the phase out of tolerances starts in 2012, there will be likely delays that move the phase out dates until 2015 or 2016. The remonstration actions taken by the manufacturers, Washington, D.C. consultants, and the stakeholders on this issue could even eliminate the issue in due time.



Too much fluorine can cause health effects in children under the age of 7 years old.

As the milling, food industry, and other food related customers hear about this issue, they may make corporate decisions to limit their risks with chemical and pest food safety. Food contaminated by insects, rodents, and related pests pose a clear threat to public health. Fumigation is the most cost-effective, reliable, and rapid means of eliminating these pests from food and the facilities where food is processed or stored.

The long and short of it: Like Europe, North America will take a long hard look at fumigants containing SF. The process we endured with methyl bromide over the last two decades will be similar but different with SF. The action to reduce the impact of fluorine residues was proposed by a body of scientists that are not linked to a federal partisan group. This is hard to refute. Someone once told me: *"You don't mess with children or pets."* Fumigators will still be able to use SF to fumigate flour mills, food factories, grain bins, cocoa bean warehouses, dried fruit warehouses, and food processing facilities in the future…*if they are empty and our customers allow it.*

EPA's proposed action on SF fails entirely to address the real issue

EPA's proposal makes the key point that SF is a tiny fraction of aggregate fluoride exposure, and EPA's proposal does not address the issue of over-exposure—it does not solve the real issue, which is over-exposure to natural fluoride in water.

- Removing SF will not solve the problem of over-exposure. EPA's proposal states:

  "…the threat that fluoride poses to teeth and bones is due to aggregate exposure to fluoride not the fluoride in food resulting from use of sulfuryl fluoride when viewed in isolation. Use of sulfuryl fluoride is responsible for a tiny fraction of aggregate fluoride exposure.

- EPA's action needs to be directed to the source of the problem.

D. K. Mueller

If you would like to make public comments on sulfuryl fluoride, go to www.epa.gov/pesticides/sulfuryl-fluoride before March 25.

New Larger and Lesser Grain Borer Pheromones Available

By Pete Swords
Pheromone Chemist

At Insects Limited, development for both pheromones of the **Lesser** and **Larger grain borer** have been completed and analyzed. Each chemical synthesis has the ability to produce unwanted isomer compounds that can be repellent to the insect. Improvement in purity and correct stereochemistry of the actual attracting isomer compound will increase efficiency in trap captures for both insects. For more information please visit www.insectslimited.com.

The Larger grain borer *(Prostephanus truncates)* and Lesser grain borer *(Rhyzopertha dominica)* are close relatives of pest insects responsible for serious damage of grain in locations across the world. The Larger grain borer is usually restricted to corn (maize) and can be found in southern U.S. states such as Texas as well as Mexico, Central America, and regions of Africa. The Lesser grain borer has been known to attack wheat, rye, corn, rice and millet and can be found throughout most of the U.S., parts of Canada and other countries with warmer climates. Infestation begins when adult beetles bore irregularly shaped holes into whole kernels where eggs are laid and larval stage begins. Penetration and the tunneling action of larger and lesser grain borer adults generate large quantities of dust and thin brown shells. This destructive action can reduce piles of grain to powder within months if unmonitored and untreated.

Figure 1: Larger grain borer

Figure 2: Lesser grain borer

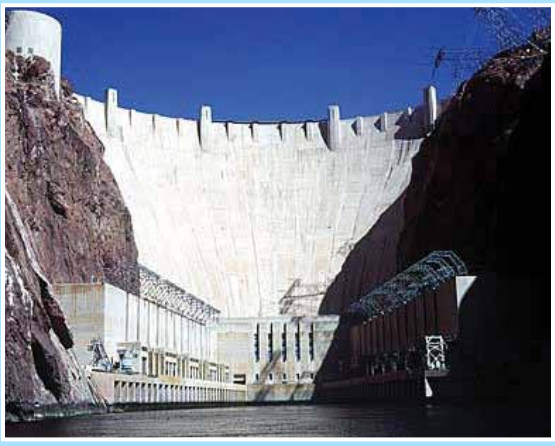
Photos by Texas A & M University

Implementing an Effective Safety and Health Program

By Ryan Yutzy
Safety Coordinator

Safety and health programs have not always been something that employers considered necessary or important. During the construction of the Hoover Dam in the 1930s workplace accidents were justified as being part of the risk that went along with the job. With 112 fatalities and numerous injuries, the Hoover Dam project went down as one of the highest fatality construction projects of the last century.

Today, employers are expected to provide a safe and healthful workplace free of recognized hazards. Implementing a safety and health program is one component in complying with this requirement. A safety and health program is a set of procedures, methods, processes, and practices to manage workplace safety and health to prevent and reduce injuries, illnesses,



Hoover Dam

New Trapping System Available for Drugstore Beetle

By Patrick Kelley, ACE

New Drugstore Beetle trapping system is now available from Insects Limited.

The Drugstore beetle, *Stegobium paniceum,* has long been one of the major pests of dried food goods, pet foods and museum artifacts. With the exception of insect light traps (ILT's), there has not been a viable trapping system for this damaging insect in the past. The Fuji Company has recently released the Fujitrap® HIRESIS® system for drugstore beetle. The HIRESIS system uses a mimic pheromone of the actual stegobinone insect pheromone of the beetle. The new lure is used in conjunction with a simple trap that is designed to either hang or lay flat. The mimic stegobinone pheromone replicates a portion of the female insect pheromone to attract the drugstore beetle males. The lure is more stable and less likely to break down in the field than the actual pheromone.

This new trapping system gives a valuable tool to those trying to locate the source of drugstore beetle infestations.

A kit of 10 traps with lures has an Insects Limited part number of IL-600-10.

and fatalities among employees. These programs increase efficiency, productivity, product quality, and morale while reducing lost workdays, workers compensation costs, and severity of injuries/illnesses. Having a written safety and health program in place can even lead to a 15 to 20 percent reduction in fines following an OSHA inspection.

There are many components that make up an effective safety and health program. Whether it is holding a ladder for a co-worker or filling out a job safety analysis form for a particular job, (every employer has a responsibility to uphold and define these responsibilities.) Orientation sessions, trainings, and drills can give employees the knowledge to recognize these responsibilities. Employee involvement is beneficial because the employees themselves are the ones that come into close contact with hazards. Involved employees are also likely to be more productive employees because they know that concern is being taken to preserve their health and safety.

Hazard prevention and control is one of the most important elements of a safety and health program. Mistakenly, most people think that the best practice for dealing with a hazard is to implement personal protective equipment (PPE). However, first an attempt should be made to correct the problem through careful reengineering. This can be done by designing the equipment with the hazard removed or replacing the equipment with something that is less dangerous.

If reengineering is not an option, then an enclosure or barrier should be constructed to prevent exposure to the hazard. A combination of PPE and safe work practices should then be considered to protect against the hazard if reengineering or enclosing cannot be successfully completed.

New Food Safety Law

There is a "new sheriff in town" for the food processing industries in the United States. He has a new shiny badge and big and more powerful weapons to enforce food-safety violations.

Each year, according to the most recent Centers for Disease and Prevention estimates, 48 million people—or one in six Americans—are sickened by food-borne illnesses, Of those, 180,000 are hospitalized and 3,000 die.

The Food Safety Modernization Act of 2010 overhauls the Food and Drug Administration, which is responsible for everything in the U.S. food supply except for meat, poultry and processed eggs. Food-safety advocates and the food industry have been working on the overhaul for more than a decade.

Some of the important changes it puts into place:

Before: Under the FDA's original statute from 1938, the focus was on responding to adulterated food once it was discovered.

Now: Under the new rules, the FDA's focus shifts to stopping outbreaks before they start, by requiring processors to implement written food-safety plans.

Before: The FDA couldn't force a company to recall tainted food; it could only seek a voluntary recall.

Now: When needed, the FDA can order the recall of tainted food.

Before: The FDA was able to inspect fewer than 20% of the domestic food facilities and 1% of the foreign food imports. More than half of food facilities have gone five years or more without a federal inspection.

Now: The FDA will hire 2,500 more field safety inspectors and food safety experts by 2014 and substantially increase inspections. The riskiest food facilities will be inspected every three years.

Before: When FDA conducted an inspection, it could only require a spot check of what was happening that day.

Now: The FDA will have access to the food-safety plan, records, and test results that are linked to the safety plan.

This new food-safety law will affect everyone from the farmer to the food processor to service providers for the food industry.

Sources: *Food and Drug Administration, Center for Science in the Public Interest, USA Today*

Satety Managers that perform fumigations.

PURDUE UNIVERSITY – Here are the FSS members of the Class of 2011 that recently completed a training program; including leadership, business management, safety, marketing, pest management, and fumigation training and licensing: (bottom center) David Mueller; (clockwise) Eric Witlow, Josh Wilhelm, Terry Wolford, Merle Bennett, Jason Karnes, Mel Ulrich, Curt Lilleodden, Pete Mueller, Victoria Meerhoff, Peggy Rutkowski, Levi Ferrell, and Mike Sigler.

Mark your calendar to come to Indianapolis in **May 2012** for the

10th International Fumigants & Pheromones Conference

2012 RACING SCHEDULE:

Practice laps | May 11

Opening Day Qualifying | May 12

Race for the Pole Position | May 12-13

10th International Fumigants & Pheromones Conference | May 16-18

2nd Weekend of Qualifying | May 19-20

Carburetor Day & Pit Stop Contest | May 25th

Indy 500 Race Day | May 27, 2012

"Quotable Quotes"

"It's not bad weather, it's bad clothes."
— Norwegian saying

"The EPA is going to make us so safe, we may all starve."
— John V. Osmun on recent EPA tolerance removal proposal of ProFume® gas fumigant.

MEETING CALENDAR:

** March 2-3, 2011
Tanaco Technical Conference
Esbjerg, Denmark

** March 6-8, 2011
Grain Elevator and Processing Society (GEAPS)
Pokagon State Park, IN

** March 22-25, 2011
Croatian Pest Control & Agricultural Stored Products Protection Seminar
DDD and ZUPP
Pula, Croatia

** March 18-20, 2011
SERCA (Southeast Region Conservation Association)
Atlanta, GA

** March 25, 2011
Popcorn Institute Technical Committee
Chicago, IL

** April 27, 2011
Terminix Food Safety Seminar
Dallas, TX

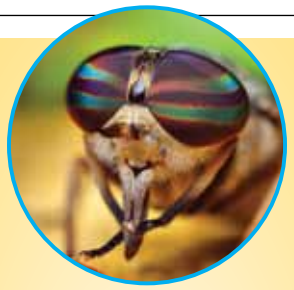
** June 7-10, 2011
Meeting on Cultural Heritage Pest
Universitá Cattolica del Sacro Cuore
Piacenza, Italy

** September 26-28, 2011
Nestle Purina's Annual Food Safety Symposium
Denver, CO

*** May 16-18, 2012
10th International Fumigants & Pheromones Conference on Stored Product Protection
Indianapolis, IN USA

See You There!

*we will attend, ** we will speak, *** we will organize this meeting



Fastest Flying Insects!

Experts have timed the male horsefly *(Homemitra linei wright)* of traveling **90 mph** (145 km/h) when in pursuit of a female.

Insect		Miles/ Hour
1.	Hawkmoth	33.3
2.	Botfly	30.0
3.	West Indian butterfly	30.0
4.	Deer botfly	25.0
5.	West Indian butterfly	24.2
6.	Emperor dragonfly	17.8
7.	Dragonfly	15.6
8.	Hornet	15.6
9.	Honeybee	13.9
10.	Horsefly	13.9

Newsletter

Fumigants & Pheromones is published by Fumigation Service & Supply, Inc. and Insects Limited, Inc. We hope that the information that you receive from this newsletter will help you in your business, and you, in turn, will support our business efforts. If you have an associate who would be interested in receiving this newsletter, please contact the address below. We would welcome any comments or suggestions for topics. Address correspondence to: Peggy Rutkowski, Fumigation Service & Supply, Inc., 16950 Westfield Park Rd., Westfield, IN 46074 USA.

Insects Limited
INCORPORATED

Fumigation Service & Supply, Inc.
16950 Westfield Park Road
Westfield, IN 46074-9374 USA
(1) 317-896-9300
e-mail: insectsltd@aol.com
websites: www.insectslimited.com
www.fumigationzone.com

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