Suresh Prabhakaran, Ph.D.
Global Sulfuryl Fluoride Technical Expert
Prabhakaran is a nationally and internationally recognized expert in the field of stored product entomology. He has significant expertise (laboratory and field research) in development of fumigation techniques, stored product insects population dynamics, food quality assessments, insecticide resistance and resistance modeling. He is serving as the global sulfuryl fluoride technical expert for ProFume® and Vikane® gas fumigants, responsible for managing global research projects that are related to sulfuryl fluoride.

Q: Since methyl bromide is being phased out globally, is ProFume® gas fumigant registered in countries outside of the United States? If so, how has it been performing internationally?
A: Yes, ProFume is currently registered outside of the United States for use in Canada, Switzerland, Ireland, Italy, the United Kingdom, Germany, France, Spain, Belgium and Trinidad. Registration in Australia is anticipated soon, and registration activities for Asia, Latin America and the Middle East are under way. Globally, more than 350 commercial fumigations have been completed with a high level of customer satisfaction.

Q: Which pests does ProFume® gas fumigant target? Does it kill all life stages, including eggs?
A: ProFume targets stored product pests (insects and rodents), as well as those insects that may be transported from the field on food commodities (e.g., navel orangeworm, codling moth and chestnut weevil). ProFume is a broad-spectrum fumigant that controls all insect pest life stages, including eggs. In addition, as part of Precision Fumigation™ tools and techniques, the Fumiguide™ program calculates for each structure and fumigation how much ProFume you need to achieve the desired rate of control based on target pests, pest population, temperature and more.

Q: Is ProFume® gas fumigant a sustainable choice for stored product pest control?
A: Yes. Sulfuryl fluoride, the active ingredient in ProFume, is not an ozone-depleting chemical. ProFume contains no chlorine or bromine and, thus, cannot react to deplete stratospheric ozone by the known mechanisms. It is fully oxidized and, thus, will not interact or contribute to local ozone formation (such as smog). When a commodity or facility is aerated, ProFume rapidly dissipates to nondetectable levels in and around the structure.

On The Web
The ProFume® gas fumigant Web site, www.ProFume.com, has recently been updated with a new look and interface. Visit www.ProFume.com today to read about what people are saying about the product, view answers to frequently asked questions and access literature pieces.

IWCSPP Presentations Recognize Profume® Gas Fumigant as an Alternative for Methyl Bromide
Several presenters discussed sulfuryl fluoride, the active ingredient in ProFume® gas fumigant, as a viable alternative to methyl bromide at the ninth International Working Conference on Stored Pest Protection (IWCSPP) held recently in Sao Paulo, Brazil. Organized by the International Permanent Committee, the IWCSPP brings together research scientists, consultants, Extension specialists, and industrialists involved in the safe storage of grain, legumes, nuts, beverage crops, animal foodstuffs and other durable food commodities.

Due to its ozone-depleting characteristics, methyl bromide, a fumigant used in stored product pest control, is being phased out globally under the Montreal Protocol. In response to this global phaseout, alternatives are being researched and evaluated, including ProFume, a fumigant developed for stored product pest control by Dow AgroSciences. ProFume fumigation results were presented at the IWCSPP, all of which were favorable. For example, Dr. Linda Mason from the Department of Entomology at Purdue University presented “A Preliminary Report of Sulfuryl Fluoride and Methyl Bromide Fumigation of Flour Mills.” Mason summarized research that is under way comparing the effectiveness of sulfuryl fluoride (ProFume) and methyl bromide in real-world conditions — two fumigations with each product in four flour mills. “Current results indicate 100 percent mortality of larval and adult stages of both species (Indian meal moths and red flour beetles) for both fumigants, and sanitation issues within facilities were critical to pest rebud,” Mason reported.

In addition, Dr. Dirk Maier, professor and Extension engineer, Department of Agricultural and Biological Engineering, Purdue University, presented two reports associated with sulfuryl fluoride: “Real-time Monitoring of a Flour Mill Fumigation with Sulfuryl Fluoride” and “Modeling the Structural Fumigation of Flour Mills and Food Processing Facilities.” A primary goal of the
ProFume® gas fumigant is a reliable choice for elimination of stored product pests, without harming your commodities, facilities and equipment. Controlled research trials conducted by Dow AgroSciences in cooperation with university experts have tested major commodities under a variety of circumstances, including rates above those on the product label to ensure that commodities will not be affected. These trials demonstrated that ProFume will have no physical chemical or taste effects on the quality of the product, including no off-flavors or odors. Additionally, ProFume has been proven to have no negative effect on facilities or equipment. It is noncorrosive, so it’s an intelligent solution for use in sensitive areas that have equipment and electronic devices. Laboratory testing was conducted to verify that sulfuryl fluoride, the active ingredient in ProFume gas fumigant, has no negative effects on metals and computer equipment — items often found in modern mill facilities (Brigham, 1998). The enclosed literature piece “Target Pests While Protecting Commodities, Facilities and Equipment” further explains the characteristics of ProFume and compares them with other methods of stored product pest control, when examining effects on commodities, facilities and equipment.

Did You Know?

ProFume® gas fumigant is a reliable choice for elimination of stored product pests, without harming your commodities, facilities and equipment.

Dr. Bhadriraju Subramanyam, professor in the Department of Grain Science and Industry at Kansas State University, has conducted numerous research studies with ProFume® gas fumigant. His recent article in the April 2006 edition of Milling Journal explored research results for ProFume in California rice mills. The research included trap data results from four fumigations with ProFume in three separate rice mills, ultimately showing a 70 percent to 93 percent reduction of insect captures immediately after fumigation. In addition, the article provided performance perception results from surveys conducted with both the millers and the fumigators. Millers were surveyed to determine their perception of fumigation “effectiveness.” Millers based their effectiveness rating on bioassays, trapping data (Mills 1 and 2) and visual observation (Mill 3). All gave ProFume a rating of 5 (excellent) on a scale of 1 to 5 based on “no infestation after 30 days or longer.” In addition, all of the millers said they would use ProFume in the future. The fumigator who conducted the rice mill fumigations reported that the “cost of ProFume fumigation was similar to that of methyl bromide” and the use of Precision Fumigation tools and techniques made him “a better fumigator and provided the flexibility to conduct effective fumigations under a variety of circumstances.” Precision Fumigation is offered exclusively with the ProFume® gas fumigant program and allows fumigators the ability to customize a fumigation based on the four interrelated factors: pest, exposure time, temperature and half-loss time (HLT).


Rice Mill Fumigation Research Results Presented

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Introducing Jason Nelson, Marketing Specialist

Jason Nelson has been named marketing specialist for ProFume® gas fumigant. He replaces Drew Ratterman, who has moved into another position for Dow AgroSciences. Jason began his career with Dow AgroSciences in 1997 as a sales representative for the crops business in the Midwest. Jason left the field in August 2003 when he took the role of e-business implementation specialist for the Global e-Business Group. In 2005, he was named launch specialist for new products covering the Range & Pasture and Industrial Vegetation Management businesses. Jason received a Bachelor of Science degree in agronomic business with a minor in agronomy from Iowa State University in 1997.
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Commodities, Facilities and Equipment further explains the characteristics of ProFume and compares them with other methods of stored product pest control, when examining effects on commodities, facilities and equipment.

Research was to develop flow models for predictions of fumigant distribution and leakage during the fumigation process in a reference flour mill. The study found that fumigation sealing methods used for fumigation with ProFume gas fumigant did not cause an observable pressure buildup during fumigation introduction and were effective in preventing heat loss during the fumigation period. “The results will provide insight into understanding the dynamics of the structural fumigation process and help fumigators correctly determine the amount of fumigant to be used, which in turn will yield increased efficiency and more successful fumigation jobs,” Maier said.

Lastly, Dr. Chris H. Bell from Central Science Laboratory in the United Kingdom presented “Factors Affecting the Efficiency of Sulfuryl Fluoride as a Fumigant,” which reported in the United Kingdom presented “Factors Affecting the Efficiency of Sulfuryl Fluoride as a Fumigant,” which reported on “no infestation after 30 days or longer.” In addition, all of the millers said they would use ProFume in the future.

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“… Millers (who fumigated with ProFume® gas fumigant) gave ProFume a performance rating of 5 (excellent) on a scale of 1 to 5 based on ‘infestation after 30 days or longer,’ and all of the millers indicated that they would continue to use ProFume in the future.”

— Dr. Bhadriraju Subramanyam, Milling Journal, April 2006.

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Q&A

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