Practical Observations on the Benefits of ProFume®

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As the phaseout of methyl bromide continues, sectors of the food industry can rely on Dow AgroScience's ProFume® Gas Fumigant to replace many established uses of methyl bromide. Dow has committed considerable resources to provide the necessary efficacy data, establish proper and safe application procedures, formulate a "user friendly" software program for ProFume applications, and created a thorough stewardship program for professional fumigators. This commitment was necessary for the successful introduction of ProFume Gas Fumigant as a methyl bromide alternative.

In my twenty-five years of experience in supplying the food industry, I have never worked with a group of manufacturer's representatives who are as passionate about a product as Dow AgroSciences. They have performed extensive market research, communicated with industry people, worked with many fumigation experts, performed experimental fumigations, and utilized this information to formulate a successful product package to introduce to the marketplace. Over the last six years, I have worked with Dow AgroSciences as their licensed applicator in the state of California. During that time period, we have performed over twenty test fumigations in rice mills, fumigation chambers, tarpaulin stacks and many warehouses. I have observed many characteristics about ProFume that will benefit the food industry for many years.

Dow AgroSciences faced many challenges in formulating a plan to introduce ProFume. In order for it to succeed, it must be comparable in all aspects to methyl bromide. It must: (1) Be easily and safely applied, (2) It can't be too labor intensive, (3) It must be cost competitive, and (4) It must yield excellent insect control. Perhaps the biggest challenge was to overcome the misconception that methyl bromide has been providing excellent insect control with current use patterns, where in reality, the fumigation procedures were less than adequate (in many cases). Many fumigation companies have become complacent with application and sealing procedures and never really reached the targeted C-T Product. These fumigations were mediocre at best. Perhaps this is why so many of the flour and rice mills throughout the United States were fumigated as often as six times per year. In my opinion, the most beneficial aspect of the introduction of ProFume is that it is "raising the bar" for the fumigation industry.

The application procedures for ProFume Gas Fumigant are much more structured and targeted with safety in mind. All applications must be performed from the exterior of the structure, therefore eliminating the "shoot and run" technique which is commonly used with methyl bromide applications (opening of methyl bromide cylinders inside structures while wearing respiratory protection).

Once the fumigant is applied, I have observed that it rapidly distributes throughout the structure, and reaches equilibrium much faster, and is less likely to "pocket" in areas with

little air movement, or in low points within the building, such as in elevator pits. By monitoring gas within the structure, we can easily determine when equilibrium has been achieved, and how well gas may be retained or lost due to various circumstances. The Fumiscope® is an extremely useful tool for monitoring fumigant concentrations of either methyl bromide or sulfuryl fluoride, and is strongly recommended by Dow AgroSciences when applying ProFume.

The Fumiguide™ Program for ProFume Gas Fumigant software, which was developed by Dow AgroSciences, is very helpful in documenting the entire fumigation process. When monitoring concentrations of ProFume, and subsequently entering the data into the Fumiguide software, it will calculate the exact C-T Product, compare it to the targeted C-T Product, and provide the applicator with recommendations on how to proceed with the fumigation. This entire application, monitoring and "add-gas" process allows the fumigator to apply the precise amount of ProFume needed, and will confirm the achieved target C-T Product for the fumigation. It is my belief, that most methyl bromide fumigations have rarely been performed in this fashion, especially since labels haven't allowed for the option to re-introduce methyl bromide in structures until around 1997. Most labels still don't allow for this type of application.

After attaining the required C-T Product for the targeted pest, the aeration process is very quick. Because of the physical properties of ProFume, the rate of aeration is considerably faster than methyl bromide. Most food processing plants have a very small window of time for the entire fumigation process, so a quick aeration time is very critical.

I have also received many positive comments about the efficacy of ProFume fumigations. Although they are non-scientific in nature, they still represent a means for evaluation. We have received statements such as: "We seem to get better control than with methyl bromide", or "The insect population doesn't build up as fast when we use ProFume". We know that ProFume is very effective in controlling insect populations, but I feel the ***entire process*** using ProFume is contributing to superior control. Dow AgroSciences has inadvertently improved the fumigation industry by requiring: (1) Thorough attention to sealing procedures, (2) Consideration of extensive monitoring, without which the efficiency of the fumigation is unknown, such as area-specific HLT or C-T Product accumulation, (3) Consideration of the Precision Fumigation™ concept of combining enhanced sealing and extensive monitoring with precise calculations for re-introducing exact amounts of additional fumigant when necessary in order to reach the targeted C-T Product for specific insects, and (4) The Fumiguide software program for species and temperature-specific dosage calculations and the subsequent consideration of a means for a thorough documentation of the entire fumigation process provided by optional features of the Fumiguide.

I look forward to seeing ProFume used extensively in the future, for it will improve the quality of fumigations, and will "raise the bar" for the industry.