

Title The technical foundation for precision stored-product-pest fumigation with ProFume™ gas fumigant.
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Abstract

Dow AgroSciences is developing ProFume gas fumigant (99.8% sulfuryl fluoride) to control stored-product pests in milling, food-processing, and food-storage facilities. Sulfuryl fluoride has positive fumigant qualities, including: efficacy in controlling insect pests, a low boiling point, excellent penetration qualities, low reactivity potential, limited sorption, and rapid aeration. Effective dosages for all life stages can be obtained by varying concentration and exposure time. Lower dosages are necessary at higher temperatures due to the insects' increased metabolism. With some limitations, tolerances and maximum residue limits for sulfuryl fluoride and fluoride (the two terminal food residues of interest) will be established to support the fumigation of a wide variety of grains and tree nuts, along with processed foods. Taste and quality trial results indicate that dried fruit and tree nuts were not adversely affected by ProFume. Wheat kernel quality trials showed that ProFume exposure did not affect the nutritional characteristics and rheological properties of the milled fractions of hard red winter, soft red winter, and durum wheat kernels. Dow AgroSciences has developed the ProFume Fumiguide, a PC-based software program to calculate dosages specific to the pest and environmental conditions of each fumigation. Dow AgroSciences will administer a comprehensive ProFume fumigation training and stewardship programme emphasizing worker, bystander, and environmental safety. Country registrations are expected in the United States in 2002 and in the European Union in 2004.