



At a Glance

Why We Did This Review

The U.S. Environmental Protection Agency's (EPA's) Office of Inspector General (OIG) conducted this review to determine the extent and nature of adverse impacts caused by structural fumigation. We also sought to determine whether regulatory, program execution (e.g., training, funding, inspections, enforcement, etc.), or other factors are associated with adverse impacts.

The focus of our review was sulfuryl fluoride, the primary pesticide used in residential fumigation, and one that is highly toxic to humans. Residential fumigation involves filling a home with sulfuryl fluoride and placing a tarp or tent over the home to trap gas inside. This review focused on EPA Regions 2, 4 and 9, as they oversee states that conduct the most residential fumigations.

This report addresses the following EPA goals or cross-agency strategies:

- *Ensuring the safety of chemicals and preventing pollution.*
- *Protecting human health and the environment by enforcing laws and assuring compliance.*

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Additional Measures Can Be Taken to Prevent Deaths and Serious Injuries From Residential Fumigations

What We Found

Since 2002, at least 11 deaths and two serious injuries occurred during residential fumigations in the two U.S. states with the most fumigation treatments—California and Florida. Compliance with current pesticide use requirements does not always prevent adverse impacts.

The EPA can better prevent deaths and serious injuries caused during residential fumigations by amending sulfuryl fluoride labels and monitoring compliance.

We identified multiple factors that contributed to these adverse impacts, including: (1) no requirement to secure tenting around structures undergoing fumigation, (2) ineffective devices used to detect pesticide levels inside of structures, and (3) failure to attend mandatory training for residential pesticide applicators who conduct fumigations.

In addition, we identified other program control risks that, if addressed, could reduce the risk of future deaths and serious injuries:

- The EPA could designate residential fumigation as a priority area for enforcement, with special emphasis placed on locations such as Puerto Rico, which has a high demand for residential fumigations but lacks information to effectively oversee such fumigations. Data on sales and use of sulfuryl fluoride in Puerto Rico are not reported and are unknown.
- The EPA could require site-specific residential fumigation management plans. Such plans can prevent accidents, identify appropriate emergency procedures, and demonstrate compliance with requirements.
- The EPA could complete work to develop a comprehensive national pesticide incident database to monitor residential fumigation risks. The EPA has an ongoing pesticide incident database initiative to collect data, but there is no scheduled completion date.

Recommendations and Planned Agency Corrective Actions

We recommend that the EPA implement a process to evaluate label changes for all three brands of sulfuryl fluoride to require secured tenting and fumigation management plans, clearly define the criteria for meeting the applicator stewardship training requirement, conduct an assessment of clearance devices to validate their effectiveness, and establish milestone dates for the pesticide incident database initiative. We also recommend that EPA Region 2 incorporate into the cooperative agreement with the Puerto Rico Department of Agriculture, an investigation and evaluation of sulfuryl fluoride usage to determine whether misuse has occurred, and then the EPA should provide assistance to Puerto Rico as needed. The agency provided acceptable corrective actions and milestone dates for six of the seven recommendations. Six recommendations are resolved. One recommendation is unresolved with resolution efforts in progress.