

VOCs Related to Fumigants

Fumigation is a method of pest control that completely fills an area with a gas mixture containing a pesticide—or fumigant—to suffocate or poison the pests within. There are three basic types of fumigants used: indoor foggers, outdoor foggers, and soil fumigants.

Indoor foggers will obviously have the highest impact on indoor air quality. Even though the pesticide is semi-volatile or involatile, greater than 90% of the composition of most indoor foggers are very volatile light hydrocarbons. The brand name indoor foggers tabulated in the Household Product Database sponsored by the National Institute of Health (<http://householdproducts.nlm.nih.gov/>) list propane (CAS 74-98-6), isobutane (CAS 75-28-6), and butane (CAS 106-97-8) as the primary components. Extreme care must be taken with regard to children and pet exposure to the fogging ingredients, especially the involatile ingredient, which will adhere to indoor surfaces. Other fogging ingredients include acetone (CAS 67-64-1), ethanol (CAS 64-17-5), and fragrance VOCs such as terpenes. Most outdoor foggers use the same type of blended propellant mix as indoor foggers. The impact on indoor air can be kept to a minimum if caution is taken to close windows and fresh air intakes during the fogging process.

For farming, fumigants are used to control the nematode population in soils, thereby disrupting the life cycle of pests. Unfortunately, while most pesticides are involatile, soil fumigants used in recent years are volatile compounds such as chloropicrin (a nerve agent, CAS 76-06-2) and methyl bromide (CAS 74-83-9). Because farming areas are so large, application of these soil fumigants have resulted in entire communities being affected by the volatile drift of the fumigating agent, resulting in indoor and outdoor air contamination (for example, see <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5332a4.htm>). Less volatile alternatives are now being used for soil fumigation as chloropicrin and methyl bromide use is being phased out.

About Prism Analytical Technologies, Inc.

Prism Analytical Technologies, Inc. is a leading consultative air testing laboratory in the United States that is devoted to the chemical identification and analysis of contaminants in the air. We are a recognized leader in the development and deployment of ambient air testing methodologies for Fortune 100 and 500 companies, industrial hygienists, and environmental consultants. Prism's science-based technologies and wide range of air testing support help clients solve indoor air quality, process control, industrial, and environmental challenges.