

F.A.S.T. (FUMIGANT ABATEMENT AND DESTRUCTION) SYSTEM

P. SWORDS, D. MUELLER AND A. VANRYCKEGHEM
Insects Limited, Inc. and Fumigation Service & Supply
16950 Westfield Park Road
Westfield, IN 46074 USA

SUMMARY

The F.A.S.T. System scrubber accompanies a fumigation chamber/area by functioning to capture and destroy fumigant gases such as methyl bromide, sulfuryl fluoride, methyl iodide and any other alkyl halides. The F.A.S.T. system contains a depository holding scrubbing material that causes a substantially complete chemical breakdown of the fumigant introduced. The solution is non-carbon based and is mostly aqueous containing chemical degradation properties. Any alkyl halide such as methyl bromide or sulfuryl fluoride agitated through the depository can be broken down through the scrubbing solution by a SN2 chemical reaction. By-products of the reaction are retained in the scrubber depository leaving only ambient air to be released into the atmosphere.

The scrubber functions to capture and destroy any harmful fumigant gas by a nucleophilic-substitution reaction. The F.A.S.T. system removes fumigant from a variety of fumigation situations including agricultural and non-agricultural commodities and/or stored products, structures and articles of value. The system includes a fumigation chamber enclosing in a substantially gastight manner an area containing an object to be fumigated therein. A fumigant gas having environmentally hazardous and/or toxic-to-humans properties is provided for introduction into the chamber. A fumigant gas scrubber containing fumigant destruction properties is also provided. A delivery system is employed for delivering the fumigant gas into the fumigation chamber and for delivering spent fumigant gas under pressure to the fumigant gas scrubber after the object

has been fumigated. The scrubber functions to capture and destroy any harmful fumigant gas, such as for example methyl bromide or sulfuryl fluoride, which might otherwise be released to the atmosphere after fumigations. The system can be used with pallets, shipping containers, fumigation chambers, trailers and is able to fumigate small buildings and bins from a truck-based mobile system. Methyl bromide (MeBr) or sulfuryl fluoride (SF) is drawn out of the area fumigated by a regenerative air blower that forces contact with the scrubbing liquid through a multi-prong filter head. The spent fumigant gas is agitated through the solution causing a chemical breakdown of the fumigant gas into liquid and other non-hazardous by-products.



Figure 1 FAST System 250 gallon (950 Liter) scrubbing unit.