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ASPECTS OF THE SAFE AND EFFICIENT USE OF FUMIGANTS FOR PEST CONTROL: EXAMPLE PHOSPHINE AND SULFURYL FLUORIDE

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Modern fumigation for pest control comprises various adjustments of the envisaged object for disinfestations, like for instance suitability, gas tightness and improvements of the structure. The location has to be inspected in advance to obtain information from the client on the location, the neighbourhood, the expected weather conditions, the kind of and structure and product to be infested, the information on the occurring pests (and stages) to be controlled, the envisaged treatment time, on the authorities that have to be informed in advance, the logistics to bring in and apply the fumigant, the time schedule for taking measurements, the locations of measuring points for observation and guiding of the fumigation. During the fumigation, access of unauthorised persons has to be effectively inhibited. A very important and crucial point is the identification of the appropriate dosage to achieve complete control of all present pests. There are many publications and recommendations around for the fumigants, especially the fumiguide that contains a computer program to guide the fumigator in selecting the right dosage. The best program and recommendation can not work if the basic data are wrong. This concerns the real temperature and relative humidity within the object. The fact that often enough the gas has to penetrate into cracks and crevices before meeting the target pest and enter into it to meet the target organ to perform its goal is often neglected because it may take additional exposure time compared with laboratory data in the literature taken from experiments in fumigation chambers. An argument of paramount importance is the determination of the target mortality. Insects tend to multiply fast in big numbers, progeny of 500 within a few weeks is no exception. Therefore, at least 99.9% of all living stages if not more must be killed to be free from the threat of short rebound time. The details of these thoughts will be discussed with practical and theoretical examples.

Key words: Fumigation, pest control, phosphine, sulfuryl fluoride, fumiguide