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OFFICE OF  
PESTICIDES AND TOXIC  
SUBSTANCES

July 10, 1992

MEMORANDUM

SUBJECT: Phosphine, aluminum phosphide, and magnesium phosphide  
Need for neurotoxicity testing

TO: Kerry Dearfield, Ph.D.  
Acting Chief  
Peer Review Section

FROM: William F. Sette, Ph.D. *William F Sette*  
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The purpose of this memorandum is to respond to your memo of 6/15/92 asking me to consider the need for neurotoxicity testing of Phosphine, and aluminum and magnesium phosphide, which release Phosphine and are used as fumigants.

There is a reasonable basis to indicate that Phosphine has effects on the nervous system, both from reports of effects in humans, including tremors, convulsions, paresthesias, and changes in mental status (Patty, Gleason, Misra, Wilson et al., and Rodenberg); and to suggest, by analogy to structurally related chemicals, it may have effects on the neurons in motor systems; i.e., some phenylphosphines, phosphites, alkyl and aryl phosphates are known to cause lesions in motor systems.

I recommend then, that under the terms of clearance for asking for acute neurotoxicity studies according to the new test guidelines, and under existing authority for subchronic neurotoxicity studies, we include in the Data Call In a requirement for an acute and 90 day Neurotoxicity Screening Battery according to the 1991 guidelines.

U.S. EPA 1991. Pesticide Assessment Guidelines. Subdivision F. Hazard Evaluation: Human and Domestic Animals. Addendum 10. Neurotoxicity. Series 81, 82, and 83. EPA 540/09-91-123. National Technical Information Services, PB 91-154617, Springfield VA 22161.

