

Aluminum Phosphide

TRADE OR OTHER NAMES

Current trade or other names include Fastphos, Fumitoxin, Gastoxin, Max-Kill, Phosfume, Phostoxin and Weevilcide. Al-phos, Celphide, Celphine, Celphos, Detia-Gas-Ex, and Quick Tox may have been used in previous formulations.

PHYSICAL PROPERTIES AND GUIDELINES

Aluminum phosphide is a greenish gray solid at room temperature. Hydrogen phosphide (phosphine) gas, produced by reaction with aluminum phosphide in contact with water (even at ambient humidity), has an odor similar to garlic or decaying fish.

INTRODUCTION

Aluminum phosphide is an inorganic phosphide used to control insects and rodents in a variety of settings. It is mainly used as an indoor fumigant at crop transport, storage or processing facilities (or in shipholds, railcars, etc.) for both food and non-food crops. It may also be used as an outdoor fumigant for burrowing rodent and mole control, or in baits for rodent control in crops.

Aluminum Phosphide is available in pellet and tablet form, and is also available in porous blister packs, sachets or as dusts. As in the case of Phostoxin, it may be formulated as 55% active ingredient along with ammonium carbamate and inert ingredients.

TOXICOLOGICAL EFFECTS

ACUTE TOXICITY

Phostoxin and aluminum phosphide are not absorbed dermally; main routes of exposure are through ingestion and inhalation. They are highly toxic via both these routes. Aluminum phosphide ingested orally reacts with water and stomach acids to produce phosphine gas, which may account in a large part for observed toxicity. Phosphine generated in the gastrointestinal tract is readily absorbed into the bloodstream, and it is readily absorbed through the lung epithelium.

Symptoms of mild to moderate acute aluminum phosphide toxicity include nausea, abdominal pain, tightness in chest, excitement, restlessness, agitation and chills. Symptoms of more severe toxicity include, diarrhea, cyanosis, difficulty breathing, pulmonary edema, respiratory failure, tachycardia (rapid pulse) and hypotension (low blood pressure), dizziness and/or death. Convulsions have been reported in lab animals exposed to high concentrations of phosphine. Severe exposure may also result in proteinuria or glucosuria (low molecular weight proteins or glucose in the urine) indicating kidney damage.

Organ Toxicity

Acute toxicity resulting from aluminum phosphide exposure is apparent most immediately in the heart and lungs; it may also affect the central nervous system, liver and kidneys