



WEEVIL-CIDE®

Aluminum Phosphide Fumigant

SUPERIOR PEST CONTROL FOR GRAINS AND OTHER COMMODITIES.



- Contains aluminum phosphide
- Generates phosphine gas when exposed to moisture in the air
- Residue after fumigation and aeration is non-toxic
- Can treat commodities while being stored or in transit under certain conditions

THE QUALITY AND VALUE OF GRAIN AND OTHER COMMODITIES ARE DEPENDENT ON SUFFICIENT PEST CONTROL DURING STORAGE. UPI SUPPLIES THE PRODUCT WEEVIL-CIDE® FUMIGANT TO CONTROL GRAIN STORAGE PESTS.



Weevil-Cide® fumigant is a pesticide that controls insects, burrowing pests and rodents in stored commodities when used at labeled rates. It is designed to be applied via fumigation. The quality and value of grains and other perishable commodities are dependent on sufficient pest control during storage. Weevil-Cide protects this value.

Weevil-Cide's active ingredient is aluminum phosphide. When exposed to air, the active ingredient combines with moisture in the air to generate phosphine gas.



The phosphine gas is an efficient method for the control of insects and burrowing pests in stored grains. Phosphine fumigation has been recognized worldwide as the most effective method of control for grain pests, saving thousands of tons of grain used for human consumption.

Weevil-Cide can protect valuable commodities including:

- **Grains** (corn, soybeans, wheat, oats and rice)
- **Nuts** (almonds, cashews, peanuts, pistachios and pecans)
- **Seeds** (sunflower, vegetable, grass and cotton)
- **Animal feeds and feed ingredients**
- **Processed foods** (sugar, flour, yeast, coffee and packaged foods)
- **Non-food commodities** (leather, tobacco, clothing and fibers)

Weevil-Cide is the number one phosphine gas fumigant used worldwide.

The phosphine gas generated from Weevil-Cide is highly toxic to insects and burrowing pests. **It must be properly applied by or under the supervision of a Certified Applicator.**

Weevil-Cide is a registered Restricted Use Pesticide and subject to the rules and regulations of the U.S. Environmental Protection Agency. Before any handling or use of this product, it is required to read, understand and follow all directions noted on the label and in the applicator manual.

WEEVIL-CIDE FEATURES/BENEFITS:

Versatile: Weevil-Cide can be used in practically all grains and many commodities.

Effective control: Weevil-Cide is highly effective against insects, mites and rodents.

Uniform distribution: When used per labeled instructions, phosphine generated from Weevil-Cide disperses uniformly in all directions within the treated area.

Manageable risk: Weevil-Cide contains an inert material, ammonium carbonate, which releases ammonia the applicator can smell.

Controlled reaction: Stabilizing ingredients in Weevil-Cide moderate the generation of phosphine gas.

Non-toxic residue: Weevil-Cide does not affect the germination capacity of seeds, and does not leave toxic residue after fumigation and aeration.

No application equipment required: Weevil-Cide tablets, pellets and permeable gas bags can be handled manually or with an automatic dispenser, directly from the packaging. **Always use protective clothing and safety equipment.**

Easy to store and transport: As a compact, dry solid, Weevil-Cide tablets, pellets and permeable gas bags can be transported and stored easily and safely within their original protective packaging.

Stability: Weevil-Cide tablets, pellets and gas bags remain intact when stored in the original packaging.

The following resources are available in the Weevil-Cide section of the UPI website www.upi-usa.com/fumigants/:

- Product use label
- Safety Data Sheet (SDS)
- Applicator manual (English and Spanish versions)
- Warning sign (for use during fumigation)
- Fumigation Management Plan template
- Burrowing Pests guide document



COMMODITIES THAT CAN BE TREATED

Raw agricultural commodities, animal feeds and feed ingredients which may be fumigated with Weevil-Cide:

Almonds	Flower seed	Safflower seed
Animal feed & ingredients	Grass seed	Seed & pod vegetables
Barley	Millet	Sesame seed
Cashews	Oats	Sorghum
Cocoa beans	Peanuts	Soybeans
Coffee beans	Pecans	Sunflower seeds
Corn	Pistachios	Triticale
Cottonseed	Popcorn	Vegetable seeds
Dates	Rice	Walnuts
Filberts	Rye	Wheat

PROCESSED FOODS THAT CAN BE TREATED

The listed processed foods may be fumigated with Weevil-Cide. Under no condition shall any processed food or bagged commodity come in contact with Weevil-Cide Tablets, Pellets or Gas Bags or residual dust except that Weevil-Cide may be added directly to processed brewer's rice, malt, and corn grits for use in the manufacture of beer.

Processed foods which may be fumigated with Weevil-Cide:

Cereal flours and bakery mixes	Dried milk and egg yolk solids	Processed oats and oatmeal
Cereal foods	Dried or dehydrated fruits	Processed tea
Cheese and cheese byproducts	Dried vegetables	Rice
Chocolate and chocolate products	Malt	Soybean flour
Corn grits	Processed candy and sugar	Wild rice
Cured, dried and processed meat products	Processed cereals	Yeast (including primary yeast)
Dates and figs	Processed coffee	Other processed foods
Dried eggs and egg yolk solids	Processed herbs and spices	
Dried fish	Processed nuts	

Nonfood commodities which can be treated with Weevil-Cide:

Cloth and clothing	Paper and paper products	Tobacco
Dried plants and flowers	Seeds	Wood and bamboo products
Feathers	Straw and hay	Other nonfood commodities
Leather products	Tires (for mosquito control)	

PERMITTED FUMIGATION AREAS AND TYPES

1. Vertical storages (such as silos, concrete bins, steel bins, tanks, etc.)
2. Farm bins (butler type)
3. Bulk stored commodities in flat storage, bunkers and commodities stored on the ground, loosely piled under gas tight covering
4. Packaged commodities (bagged grain, processed foods, etc.) in sealable enclosures
5. Nuts, dates or dried fruit in storage boxes
6. Nuts, dates or dried fruit in bulk
7. Railcars, containers, trucks, vans and other transport vehicles
8. Space fumigation such as cereal mills, feed mills, food processing plants & warehouses
9. Stored Tobacco
10. Non-food products
11. Stored beehives, supers and other beekeeping equipment for wax moth control and Africanized honeybees with tracheal mites and foulbrood
12. Barges
13. Shipholds
14. Commodity in small containers
15. Rodent burrows

PESTS CONTROLLED

INSECTS CONTROLLED

Weevil-Cide has been found effective against the following insects and their pre-adult stages – that is eggs, larvae and pupae. These include:

Almond moth
Angoumois grain moth
Bean weevil
Bees
Cadelle
Cereal leaf beetle
Cigarette beetle
Confused flour beetle
Dermestid beetles
Dried fruit beetle
Dried fruit moth
European grain moth

Flat grain beetle
Fruit flies
Granary weevil
Greater wax moth
Hairy fungus beetle
Hessian fly
Indian meal moth
Khapra beetle
Lesser grain borer
Maize weevil
Mediterranean flour moth
Pea weevil

Pink bollworm
Raisin moth
Red flour beetle
Rice weevil
Rusty grain beetle
Saw-toothed grain beetle
Spider beetles
Tobacco moth
Yellow meal worm
Africanized bees & honeybees -
infested with tracheal mites

VERTEBRATE PESTS CONTROLLED

Chipmunks
Ground squirrels
Mice
Moles
Norway rats
Pocket gophers
Prairie dogs (except Utah prairie dogs, *Cynomys Parvidens*)
Roof rats
Voles
Woodchucks
Yellowbelly marmots (rockchucks)



DOSAGE RATES

Phosphine is a mobile gas and will penetrate to all parts of the storage structure. Therefore, dosage must be based upon the total volume of the space being treated and not on the amount of commodity it contains. The same amount of Weevil-Cide is required to treat a 30,000-bushel silo whether it is empty or full of grain unless, of course, a tarpaulin seals off the surface of the commodity.

MAXIMUM ALLOWABLE DOSAGE FOR FUMIGATION WITH Weevil-Cide:

Product	No. per 1000 cu.ft.*	No. per 1000 bu.*
Pellets	725	900
Tablets	145	180
Gas Bags	13	16

*NOTE: The Maximum Dosage allowed for dates and nuts is 4 bags per 1000 cu. Ft.

The maximum dosage for dried fruits is 200 pellets, 40 tablets, 4 gas bags/1,000 cu. ft. (250 pellets, 50 tablets, 6 gas bags/1,000 bu).

The above dosages are not to be exceeded. It is important to be aware that a shortened exposure period cannot be fully compensated for with an increased dosage of phosphine. Consult the Applicator's Manual for dosage rate guidelines in various fumigated areas and situations. Do not exceed the maximum use rate prescribed.

EXPOSURE TIMES

The following table may be used as a guide in determining the minimum length of the exposure period at the indicated temperatures:

Temperature	Pellets	Tablets	Gas Bags
Below 40°F (5°C)	Do not fumigate	Do not fumigate	Do not fumigate
40° - 53°F (5-12°C)	8 days (192 hours)	10 days (240 hours)	14 days (336 hours)
54° - 59°F (12-15°C)	4 days (96 hours)	5 days (120 hours)	9 days (216 hours)
60° - 68°F (16-20°C)	3 days (72 hours)	4 days (96 hours)	6 days (144 hours)
Above 68°F (20°C)	2 days (48 hours)	3 days (72 hours)	4 days (96 hours)
Above 77°F (25°C)	----	----	3 days (72 hours)

See Applicator's Manual for additional information on exposure.

PHYSICAL PROPERTIES OF WEEVIL-CIDE

Active ingredient content: aluminum phosphate, minimum 56%



Characteristics	Tablets	Pellets
Weight	3g	0.6g
Color	gray-green	gray-green
Size	Diameter	9mm
	Thickness	6mm
Odor	garlic	garlic
Phosphine quantity	1.0g	0.2g

Lower Flammability Limit for phosphine gas: 1.8% by volume of air

Weevil-Cide gas bags contain dry aluminum phosphate. Once removed from the sealed can, the permeability of the bags allows air and moisture to be in contact with the contained aluminum phosphate inside the bags, causing phosphine gas to be generated.

PACKAGING

UPI provides several packaging options to meet your fumigation needs:

TYPE	WT (each)	COUNT	CONTAINER TYPE	CONTAINER NET WT	CONTAINER PER CASE
Pellets*	0.6 grams	2,500 pellets	Aluminum flask	1.5 kg per flask	14 flasks
Pellets	0.6 grams	1,667 pellets	Aluminum flask	1.0 kg per flask	21 flasks
Tablets*	3.0 grams	500 tablets	Aluminum flask	1.5 kg per flask	14 flasks
Permeable Gas Bags	34 grams	6 bags	Tin can	204 grams per can	56 cans
Permeable Gas Bags	34 grams	10 bags	Tin can	340 grams per can	40 cans

*Upgraded packaging is available on these configurations, allowing for DOT compliant shipment of individual flasks.



PHOSPHINE DETECTORS AND MEASURING INSTRUMENTS

To ensure adequate fumigation and to comply with required safety measures prior to re-entry to the treated area, phosphine detectors and monitors are needed. These are available through a variety of suppliers, including Uniphos Envirotronic Inc. See the Uniphos Envirotronic Inc. website (<http://www.uniphosamericas.com>) to learn more.

The most essential detectors during application are:

PERSONAL MONITOR - UNIPHOS 350M

The UNIPHOS 350M detects low levels of phosphine. It is an instrument specially designed to protect workers during fumigation operations.



PORTABLE MONITOR WITH INTERNAL PUMP - UNIPHOS FUMISENSE PRO

A portable phosphine monitor, the UNIPHOS FUMISENSE PRO is an excellent instrument to measure high concentrations of phosphine in any structure being fumigated.



UNIPHOS GAS DETECTOR TUBES AND MANUAL PUMP



UNIPHOS gas detector tubes are the ideal system to spot-check phosphine concentrations in the fumigated area and its surroundings.

Detection range varies from low concentrations (0.1/0.3 ppm) for personal safety to high concentrations (500/2000 ppm) for fumigation quality monitoring.

PHOSPHINE GAS GENERATORS

Systems are available that generate phosphine gas rapidly at effective concentrations. These generators are operated from outside the structure and the gas produced is injected into the interior of the structure. It does require the services of a trained operator. UPL (the parent company of UPI) produces these systems and makes them available throughout the world. They are known as QuickPHlo-R™ systems.

Contact a representative of UPI for more information on the QuickPHlo-R systems.



Contact your local UPI sales representative or distributor, call 1-800-438-6071 or visit www.upi-usa.com for more information.

