

- ADANTAGES**
- * Carefully formulated to enable initial release at very controlled rates to afford maximum safety interval of 1-4 hours to operators dispensing the tablets.
 - * Celphos is not photosensitive
 - * Celphos (Aluminum phosphide) does not decompose in temperatures as high as 1000°C under dry conditions.

Available packs: 1kg tins containing 333 tablets

Safety precaution: Phosphine gas is very toxic hence Celphos to be handled only by **licensed pest control operators (PCO)**. Harmful in case of skin contact, ingestion and inhalation, wear protective gear when handling this product.

FIRST AID INSTRUCTIONS If inhaled, remove the patient to fresh air in case the symptoms are mild. If symptoms are severe, call a physician but meanwhile give artificial respiration. If swallowed, induce vomiting by giving a table spoon of salt in a glass of warm water treatment until vomit fluid is clear. Milk of magnesia or beaten whites of 2-3 eggs may be given.



Placing Tablets



Fumigation in large enclosed silos, wearing breathing masks for safety



Fumigation of small silo generally used by farmers to store grains



Manufactured by:-
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CELPHOS

The total fumigant

economic • effective • easy-to-use



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A quality tablet for fumigation against storage pests, burrow pests and for space fumigation of packed foods and feeds, non-food Items stacked under gas-tight covers or enclosures and of empty enclosures eg. flour mills, warehouses, shipping containers etc.

Active ingredient:	Aluminum phosphide (57% w/w)
Formulation:	Tablet, weighing 3 gms
Registration No:	PCPB (CR) 0379
Mode of action:	On exposure to moisture in the air, Celphos tablets slowly release phosphine gas which when inhaled result into instant death of the pests (Inhalation poison)
Spectrum of control:	Celphos controls a wide range of storage pests (coleoptera, Lepidoptera, Dictyoptera and psocoptera)

Pests controlled Storage Pests (Storage insects)

COLEOPTERA

Acanthoscalides (Bruchus) (obtectus (Say).
Dried bean or American seed beetle.
Ahasverus advena (Waltl) Foreign grain beetle.
Alphitobius diaperinus (panzer) Lesser mealworm beetle.
Araecarus fasciculatus (De Geer) Coffee bean weevil.
Attagenus piceus (Olivier) Black carpet beetle.
Blaps mucronats (Lat.) Cellar of Churchyard beetle.
Bruchus spp. Pulse beetles
Carpophilus dimidiatus (F.) Corn sap beetle.
Carpophi/us hamipterus (L.) Dried-fruit beetle.
Carpophilus oryzae (Cyllenhal) Broad-nosed grain beetle.
Caryedon serratus (Olivier) Groundnut borer.
Cryptolestes (Laemoph/oeus) ferrugineus (Stephans) Rust-red of Rusty grain beetle.
Cryptolestes pusillus (Schonherr) flat grain beetle.
Cryptolestes turcicus (Grouv.) Flour-mill beetle.
Cynaues angustus (Le Conte) Larger black flour beetle.
Dermaptes spp. Hide beetles.
Gnathoceras cornutus (F.) Broad-horned flour beetle.
Lasioderma serricorne (F.) Cigarette beetle.
Latheticus oryzae (water house) Long-headed flour beetle.
Necrobia rufipes (Deg.) Copra or Red-legged ham beetle.
Niptus h%/encus (Fald.) Golden spider beetle.
Oryzaephi/us mercator (Fauvel) Merchant grain beetle.
Oryzaephi/us surinamensis (L.) Saw-toothed grain beetle.
Palorus ratzeberoi (Wissmann) Small-eyed flour beetle.
Plourus subdepressus (Wollaston) Depressed flour beetle.
Pectinophora gossypiella (Saunders) Pink bollworm.
Prostephanus truncatus (Horn) Larger grain borer
Ptinus claviceps (Panzer) Brown spider beetle.
Ptinus tectus (Boield.). Australian spider beetle
Ptinus villiger (Reitter) Hairy spider beetle.
ptinus fur (L.) White-marked spider beetle.
Rhizopertha dominica (F.) Lesser grain borer.
ISitophi/us granarius (L.) Grain of Granary Weevil.
Sitophilus (Calandra) oryzae (L.)
Rice weevil or Lesser rice weevil.
Sitophilus (Calendra) zeamais (Motsch).
Maize weevil or Greater rice weevil.
Stegobium paniceum (L.) Biscuit of Drugstore beetle.
Tenebrio molitor (L.) Yellow mealworm beetle.
Tenebrio obscurus (F.) Dark mealworm beetle.
Tenebroides mauritanicus (L.) Cadelle beetle.
Tribolium audax (Halestead) Black flour beetle.
Tribolium castaneum (Herbst) Rust-red-flour beetle.
Tribolium confusum (J. du Val) Confused flour beetle.
Trigonogenius globulus (Solier) 'Globular spider beetle'
Trogoderma granarium (Everts) Khapra beetle.

Trogoderma spp. Grain-feeding dermestids
Typhaea stercorea (L.) Hairy fungus beetle.
LEPIDOPTERA
Corcyra cephalonica (Staint), Rice moth.
Endrosis sarcitrella (L.) White-shouldered house moth.
Ephestia calidella (Guen.) Carobmoth or Dried-fruit moth.
Ephestia (Cadra) cautella (walker) Tropical warehouse or Almond moth.
Ephestia elutella (Hubner) Warehouse or cocoa or Tobacco moth.
Ephestia figulilella (Gerg.) Raisin moth.
Ephestia (Anagasta) Kuehniella (Zeller)
Mediterranean flour moth or Mill moth.
Hofmannophila pseudospretella (Staint) Brown house moth or Fake clothes moth.
Nemapogon (Tinsa) granella (L.) European grain moth or Corn moth.
Plodia interpunctella (Hubner) Indian-meal moth.
Pyrallis farinalis (L.) Meal moth.
Sitotroga cerealella (Olivier) Angoumois grain moth.
Tinea Pellionella (L.) Case-bearing clothes moth.
Tinea Pellescentella (Staint). Large pale clothes moth.

DICTYOPTERA: Cockroaches
Blattella germanica (L.) German Cockroach or adult steam fly.
Blatta orientalis (L.) Oriental cockroach or 'blackbeetle'

PSOCOPTERA: Booklice
Liposcelis spp. Psocids
Liposcelis divinatorius (ph. L. S. Mueller) Book-Lice

Storage mites
Acarus siro (L.) Grain or flour mite and similar related species.

Rodents and other Burrow Pests
Rodents (rats, mice, bandicoots, gerbils, etc.) moles, voles, hamsters, crabs, snakes, rabbits, etc., and tree-boring pests, which attack fruit and plantation trees, viz., Grapes and mango stem borers, coconut red-palm weevil, banana pseudostem weevil etc., and mound-building termites.



COMMODITIES / ENCLOSURES THAT CAN BE TREATED

In principle, CELPHOS can be used for fumigation of any dry commodity in gas-tight enclosures or under gas-tight covers. The following commodities / enclosures are being successfully treated with aluminium phosphide/phosphine without significant residues or taint, in various countries all over the world.

I BULKED OR BAGGED GRAINS AND RAW AGRICULTURAL COMMODITIES

i.e., whole cereals, millets and legumes (e.g., wheat, rice, barley, shelled maize, rye, oats, sorghum, Haricot beans, peas); groundnuts (shelled/unshelled); oilseeds (e.g., cottonseed); seeds (e.g., seeds of sunflower, cereals, legumes, vegetables, cocoa beans; coffee beans, cassava, whole rhizomes, (e.g., ginger, turmeric); tapioca chips; bales of cotton, jute sisal, etc., tamarind pods, and similar commodities which will undergo further processing before human consumption.

II PACKED PROCESSED FOODS AND FEEDS

ie., milled products: cereal. legume and other meals, flours and milled fractions(e.g. wheat flour, soyabean flour. potato flour, tapioca starch/flour, bulgar wheat); malt; animal and poultry feeds (granulated or powdery) (e.g., cattlefeed, crushed grain); split pulses (dals); oilseed cakes and meals; rice brain; dried/salted fish and fish meals; lentils, dried vegetables (e.g.,carrots, spinach, onion); herbs (e.g.,camomils, peppermint; medicinal plants dried fruits (e.g., dates, raisins, figs, peaches) meat products (dried / processed); condiments (ground); spices (processed); tea(leaf/dried); coffee powder (roasted); cocoa powder; milk powder; cereal and snack / breakfast foods (e.g., cornflakes, biscuits, crackers); pastry and ready food or instant food mixes, macaroni, noodles; processed nuts peanuts, (e.g. Almonds, brazilnuts, cashew, filberts, peanuts, pecans, pistachio nuts, chestnuts, acorns, walnuts); confectionary (e.g. candy, chocolate products, etc.).

III. NON-FOOD ITEMS

ie., leaf tobacco, copra, animal by-products, like wools and woolen products, leather, guts, furs, hides and skins, hoof and horn, dried egg yolk, blood meals, plywood and timber, textiles, and similar products.

IV. EMPTY ENCLOSURES

i.e., shipping or transport containers, rail cars / wagons, flour mills, warehouses, ship holds, etc., can be fumigated for control of residual pest populations under gas-tight conditions.

APPLICATION RATE/DOSAGE

Dosage (application rate) of CELPHOS as well as exposure time required for pest control will depend on the pests to be controlled, commodity temperature and humidity, and can only be approximated as indicated below.

TYPE OF FUMIGATION AGAINST STORAGE PEST	DOSAGE*	EXPOSURE
1. Bulk grain in silos, large bins and similar vertical storage.	2-4 tablets (3g) per tonne	Long periods typical eg. 8-10 days.
2. Bulk grain and raw commodities in flat storage i.e. in shallow bins, barges ,ship bulkheads or in bags under gas-tight covers or enclosures.	3-5 tablets (3g) per tonne	Minimum 120-168 hrs at 10°C-15°C, 96-120 hrs at 16°C-20°C, 72-96 hrs above 20°C
3. Space fumigation, of packed foods and feeds, non-food items stacked under gas tight covers or enclosures. NOTE: leaf tobacco (in bales, cases, hogsheads)	1-1.5 tablets (3g) per cubic metre. 0.5-1.0 (Maximum) tablets (3g) per cubic metre	Minimum 120-168 hrs at 10°C-15°C, 96-120 hrs at 16°C-20°C, 72-96 hrs above 20°C Minimum 160 hrs at 10°C-15°C, 120hrs at 16°C-20°C, 96 hrs above 20°C. Longer periods eg. 8 days preferable.
4. Space fumigation of empty enclosures eg. flour mills, warehouses, shipping containers etc.	0.5-1.0 tablets (3g) per cubic metre	Minimum 120-160 hrs at 10°C-15°C, 96-120hrs at 16°C-20°C, 72-96 hrs above 20°C.
5. Burrow fumigation	Insert 1 tablet (3g) deep into each hole and close opening with balls of wet paper or wet mud.	24 hrs (leave overnight)

*REMARKS:- Application rate of Celphos as well as exposure time required for pest control will depend on the pests to be controlled, commodity temperature and humidity

Dosage : Each 3 g or 0.6 g tablet contains 1 g or 0.2 g phosphine, respectively. If Sitophilus spp., Trogoderma spp., Ephestia spp. are present, highest dosage in the range recommended above will be required and exposures longer than the minimum given above will be needed. In adverse conditions e.g., considerable leakage, very high infestation, or when finely divided or dusty material is being fumigated, the lower dosage in the range above may be increased by a factor of 2, if necessary. If mites of diapausing larvae of Trogoderma granarium (Khapra beetle) are present, a higher dosage (up to 6 tablets-3 g per cubic metre) should be used.