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READ THE ENTIRE LABEL BEFORE USING THIS PRODUCT.

USE ONLY IN ACCORDANCE WITH INSTRUCTIONS.

KEEP OUT OF REACH OF CHILDREN

AZONE 60 SL



INGREDIENTS

Methamidophos60%
Other ingredients40%

AZONE 60 SL is a **cost effective and simple method to control chewing and sucking insects** and contains as its active ingredient Methamidophos 60 SL.

AZONE 60 SL is effective against chewing and sucking insects and is used to control aphids, flea beetles, worms, whiteflies, thrips, cabbage loopers, Colorado potato beetles, potato tubeworms, armyworms, mites, leafhoppers, and many others. Commercially available formulations include soluble concentrate, emulsifiable concentrate, wettable powder, granules, ultra-low volume spray and water miscible spray concentrate. Generally, AZONE 60 SL is not considered phytotoxic if used as directed, but defoliation has occurred when applied as foliar spray to deciduous fruit. It is compatible with many other pesticides, but do not use with alkaline materials. AZONE 60 SL is slightly corrosive to mild steel and copper alloys. This compound is highly toxic to mammals, birds,

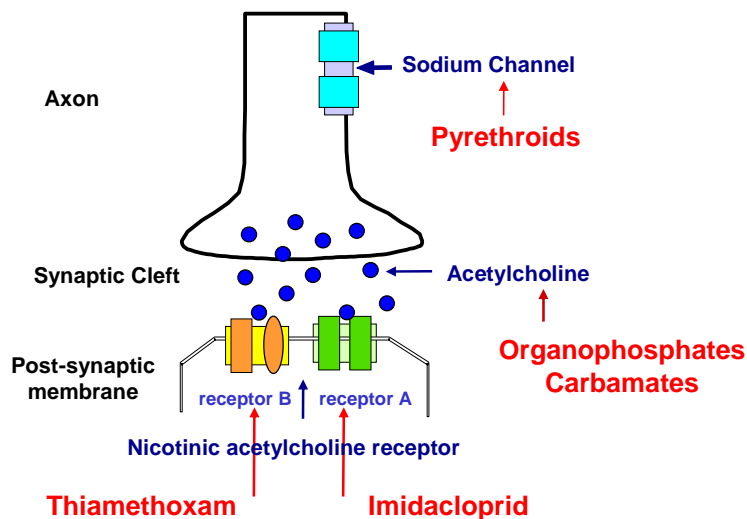
and bees. Do not graze treated areas, and be sure to wear protective clothing including respirator, chemical goggles, rubber gloves, and impervious protective clothing.

AZONE 60 SL can be used on Cabbage, broccoli, Brussel sprouts, cauliflower, grapes, celery, sugar beets, cotton, tobacco, and potatoes. It is also used for many vegetables, hops, corn, peaches, and other crops.

Trade Names Of Other Firms: Trade names for products containing Methamidophos include Monitor, Nitofol, Tamaron, Swipe, Nuratron, Vetaron, Filitox, Patrole, Tamanox, SRA 5172, and Tam.

What is Methamidophos 60 SL and how does it work?

AZONE 60 SL is a highly active, systemic, residual organophosphate insecticide/ acaricide / avicide with contact and stomach action. Its mode of action in insects and mammals is by decreasing the activity of an enzyme important for nervous system function called acetylcholinesterase. This enzyme is essential in the normal transmission of nerve impulses. AZONE 60 SL is a potent acetylcholinesterase inhibitor.



Key Benefits of AZONE 60 SL:

1. Quick knockdown effect.
2. Trusted performance. Reliable.
3. Used worldwide over many years by major partners.

PRECAUTIONS

Product is poisonous if swallowed or absorbed by

skin contact. Will irritate eyes and skin. Repeated minor exposure may have a cumulative poisoning effect. Facial skin contact may cause temporary facial numbness. Avoid all contact by mouth, skin, and eyes. Avoid inhaling vapour or spray mist. When opening the container and preparing spray, wear cotton overall buttoned to the neck and wrist and a washable hat, elbow-length PVC gloves, face shield or goggles. If clothing becomes contaminated with product or wet spray, remove clothing immediately. If product or spray contacts skin and eyes, immediately wash affected area with soap and water. After use and before eating, drinking or smoking, wash hands, arms and face thoroughly with soap and water. After each day's use, wash gloves, face shield or goggles and contaminated clothing.

SYMPTOMS OF POISONING

Early symptoms of poisoning may include excessive sweating, headache, weakness, giddiness, nausea, vomiting, hypersalivation, stomach pains, blurred vision and slurred speech.

MEDICAL TREATMENT

Treatment is symptomatic.

FIRST AID

If symptoms occur, the person should remove contaminated clothes, wash affected skin with soap and water, and flush with large quantities of water. If in the event of collapse artificial resuscitation is used, vomit may contain toxic amounts of the substance. In case of ingestion, the stomach should be emptied as soon as possible by careful gastric lavage. Do not induce vomiting if the formulation contained hydrocarbon solvents.

Persons who have been poisoned (accidentally or otherwise) must be transported immediately to a hospital and put under the surveillance of properly trained medical staff.

Antidotes are atropine sulphate and pralidoxime chloride.

DIRECTIONS OF USE

Crop	Pests	G ai/ha
Cotton	Armyworms (<i>Spodoptera</i> ssp.), Cotton leafworm (<i>Alabama argillacea</i>), Cotton stainers (<i>Dysdercus</i> ssp.), Spider mites (<i>Tetranychidae</i>), Aphids, Leaf hoppers, Thrips Bollworms (<i>Heliothis</i> ssp.), Cabbage looper (<i>Trichoplusia ni</i>)	500 – 1200
Maize	<i>Heliothis</i> ssp., <i>Laphygma</i> ssp., <i>Spodoptera</i> ssp.	600 – 900
Potato	Leaf miners (<i>Liriomyza</i> ssp.), Leaf hopper (<i>Empoasca fabae</i>), Potato flea beetle (<i>Epitrix cucumeris</i>), Aphids, <i>Epilachna</i> ssp., <i>Laphygma</i> ssp., Potato tuberworm, <i>Psallus</i> ssp., <i>Spodoptera</i> ssp., White fly	600 – 900
Rice	Aphids (<i>Aphididae</i>), Leaf hoppers (<i>Circulifer</i> ssp.), Stink bugs (<i>Pentatomidae</i>)	600 – 900
Tobacco	Cabbage looper (<i>Trichoplusia ni</i>), Leaf hoppers (<i>Jassidae</i>), Tobacco flea beetle (<i>Epitrix hirtipennis</i>), Aphids, Thrips, Tobacco hornworm Bollworms (<i>Heliothis</i> ssp.), Potato tuberworm (<i>Phthorimaea operculella</i>)	600 – 1200
Vegetables	Colorado potato beetle (<i>Leptinotarsa opercullella</i>), Diamond back moth (<i>Plutella maculipennis</i>), Leaf miners (<i>Agromyzidae</i>),	600- 900

Spider mites (*Tetranychidae*),
White flies (*Aleurodidae*),
Aphids, *Heliothis* ssp., *Lygus* ssp., *Plusia* ssp.,
Psallus ssp., Thrips

DISPOSAL METHODS

Do not dispose of undiluted chemicals on site. If recycling, replace cap and return clean containers to recycler or designated collection point. If not recycling, break, crush, or puncture and bury empty containers in a local authority landfill. If no landfill is available, bury the containers below 500 mm in a disposal pit specifically marked and set up for this purpose clear of waterways, desirable vegetation and tree roots. Empty containers and product should not be burnt.

STORAGE CONDITION

Store in the closed, original container in a cool, well-ventilated area. Do not store for prolonged periods in direct sunlight. Store in a locked room or place away from children, animals, food, feedstuffs, seed and fertilizers. Triple or preferably pressure rinse containers before disposal. Add rinsing to spray tank.

For More Details including effects on environment email contact@ivorychem.com with Subject "AZONE 60 SL DETAILS"

More Details:

TOXICOLOGICAL EFFECTS

- **Acute Toxicity:** Methamidophos is highly toxic via oral, dermal and inhalation routes of exposure. The oral doses of methamidophos that resulted in the mortality of half of the test organisms (LD50 values) are 21 and 16 mg/kg body weight for male and female rats respectively, 30-50 mg/kg body weight in guinea pigs and 10-30 mg/kg body weight in rabbits. Dermal LD50 values include 50 mg/kg body weight in rats and 118 mg/kg body weight in rabbits (160). Inhalation LD50 values include 9 mg/kg in rats, and 19 mg/kg in mice (161).
- **Signs and Symptoms of Acute Poisoning:** Early symptoms of acute organo-phosphate poisoning are dependent on route of exposure, and usually develop during or shortly after exposure (within 12 hours) (162). If inhaled, tightness in the chest, wheezing, headache, blurred vision, pinpoint pupils, tearing and runny nose

are common early symptoms. If ingested, nausea, vomiting, diarrhea, and cramps are the most common early signs of poisoning. Sweating and twitching in the area of absorption are seen with skin exposure. Weakness, shakiness, blurred vision, tightness in the chest, sweating, confusion, changes in heart rate, convulsions, coma, and cessation of breathing may occur with significant inhalation, ingestion or dermal exposure (162). An intermediate syndrome has been described in cases of poisonings in Sri Lanka, where patients experienced paralysis of limb, neck, and respiratory muscles 24-96 hours after exposure. Delayed neurological problems (delayed peripheral neuropathy) have been described 2-4 weeks after large exposures to organophosphates, and include a loss of feeling and pins and needles type of pains in the feet, legs, and hands (163, 164). Atropine is an antidote for organophosphate poisoning (162). People with high blood pressure, gastrointestinal disorders, heart, liver, lung, or nervous system problems may be more sensitive to methamidophos.

- **Chronic Toxicity:** A 56-day rat feeding study resulted in a No Observable Effects Level (NOEL) of 0.03 mg/kg/day. The reference dose (RfD) is based on this study. In another study, dogs were fed up to 32 parts per million (ppm) (or 32 mg/1000 g of food per day) methamidophos for 1 year without observed adverse effects on body weights, organ weights, food consumption, blood chemistry, and urine chemistry. Measurable cholinesterase inhibition was found at all treatment levels (158).
- **Reproductive Effects:** A two generation feeding study in rats showed a decrease in the percentage of females delivering offspring at all dose levels (0.15, 0.5, and 1.65 mg/kg/day). A systemic NOEL was 0.5 mg/kg/day based on reduced body weights during pre-mating period (166). In humans, reduced sperm count and sperm viability were seen in men who were exposed to the product Tamaron in China.
- **Teratogenic Effects:** Some fetal liver pathologic changes were observed

when pregnant rabbits were exposed to methamidophos (167). In two teratology studies, no birth defects were observed at the highest levels tested (3 mg/kg/day in rats, and 2.5 mg/kg/day in rabbits). Decreased body weights were observed in offspring and mothers in the rat study at 3 mg/kg/day. In rabbits, a maternal low effect level (LEL) of 0.1 mg/kg/day (lowest dose tested) was observed based on low body weights (165).

- **Mutagenic Effects:** Methamidophos has tested positive for genotoxicity, or ability to induce changes in chromosomes, in some tests and negative in others. It may be weakly mutagenic (165).
- **Carcinogenic Effects:** There is no evidence of carcinogenicity in tests with rats and mice.
- **Organ Toxicity:** The primary target of organophosphate compounds is the nervous system. Some liver damage has been observed in rabbits. Reduced sperm count and reduced sperm viability have been observed in humans.
- **Fate in Humans and Animals:** Methamidophos is rapidly absorbed through the stomach, lungs and skin. It is eliminated primarily in the urine.

ECOLOGICAL EFFECTS

- **Effects on Birds:** Methamidophos is very toxic to birds. Oral LD50 values were 8-11 mg/kg in tests with bobwhite quail (156).
- **Effects on Aquatic Organisms:** Methamidophos is toxic to aquatic organisms. The concentration in water that is lethal to half of the test organisms (LC50) ranges from 25-51 mg/l in 96-hour tests with rainbow trout, 46 mg/l in guppies, 100 mg/l in carp and 100 mg/l in goldfish (156, 13). Freshwater, estuarine and marine crustaceans are extremely sensitive to methamidophos. Concentrations as low as 0.22 ng/l (.0000022 mg/l) were lethal to larval crustaceans in 96-hour toxicity tests (167).
- **Effects on Other Animals (Nontarget species):** Methamidophos is toxic to bees. A field study of the effects of methamidophos on honey bees during alfalfa pollination demonstrated that the chemical can severely reduce the foraging activity of bees for a prolonged period of time after application (168).

ENVIRONMENTAL FATE

- **Breakdown of Chemical in Soil and Groundwater:** In aerobic soils, the half-life of methamidophos is as follows: 1.9 days in silt, 4.8 days in loam, 6.1 days in sand, and 10-12 days in sandy loam (169).
- **Breakdown of Chemical in Surface Water:** The half-life of the chemical in water is 309 days at pH 5.0, 27 days at pH 7.0, and 3 days at pH 9.0. The chemical will break down in the presence of sunlight, and has a half-life of 90 days in water at pH 5 when there is sunlight (169).
- **Breakdown of Chemical in Vegetation:** Methamidophos is taken up through the roots and leaves. In studies of methamidophos in tomato plants, the half-lives in fruit and leaves were measured as 4.8-5.1 days and 5.5-5.9 days, respectively (157).

PHYSICAL PROPERTIES AND GUIDELINES

Physical Properties:

- **Appearance:** Crystalline solid, with off-white color and pungent odor
- **Chemical Name:** O,S-Dimethylphosphora-midothiolate
- **CAS Number:** 10265-92-6
- **Molecular Weight:** 141.12
- **Water Solubility:** 90g/l @ 20 degrees C
- **Solubility in Other Solvents:** Not Available
- **Melting Point:** 112 degrees F, 44.5 degrees C
- **Vapor Pressure:** 3×10^{-4} mmHg @ 30 degrees C
- **Partition Coefficient:** -1.74
- **Adsorption Coefficient:** Not Available



IVORYCHEM PTE LIMITED

15 Beach Road #02-09

Beach Centre

Singapore 189677

Tel: +65 63377765

Company Registration No: 200405572W

Incorporated in the Republic of Singapore Under the Companies Act (Cap 50)

Fax: +65 63377730
contact@ivorychem.com
www.ivorychem.com

Company Registration No 200405572W