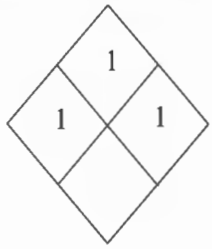
MATERIAL SAFETY DATA SHEET



1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME(S): ORTHENE® PCO PELLETS; ORTHENE® 97 ST; ORTHENE® TURF, TREE & ORNAMENTAL 97 SPRAY; ORTHENE® 97
GENERAL USE: Organophosphate pesticide
PRODUCT DESCRIPTION: White Pellet with a cabbage-like odor
EPA Registration Number: 5481-8973; 5481-8978
MSDS No.: 372_2
Current Revision Date: 20 March, 2009

MANUFACTURER:
AMVAC CHEMICAL CORPORATION
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Ph: 323-264-3910
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EMERGENCY TELEPHONE NUMBERS:
MANUFACTURER: 323-264-3910
TRANSPORTATION (24 HOURS)
CHEMTREC: 800-424-9300
OTHER (24 HOURS)
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2. COMPOSITION/INFORMATION ON INGREDIENTS

OSHA HAZARDOUS COMPONENTS (29 CFR1910.1200)

Chemical Name	CAS #	Wt%	Hazard(s)	PEL/TLV
Acephate (O,S-Dimethyl –acetylphosphoramidothioate)	30560-19-1	94.5 - 99.1	None	None
Inert Ingredients		0.9 - 5.5		None

* Exposure Limits 8 hrs. TWA for both OSHA and ACGIH

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3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:

CAUTION: ACEPHATE is a Cholinesterase Inhibitor. Harmful if swallowed or absorbed through the skin. Avoid inhaling dust. Avoid contact with eyes, skin and clothing. Do not contaminate feed or foodstuffs. Product has a persistent odor that is difficult to remove.

KEEP OUT OF REACH OF CHILDREN.

POTENTIAL HEALTH EFFECTS

ROUTE(S) OF ENTRY: Ingestion, inhalation, eye contact, and skin contact.

SIGNS OF ACUTE OVEREXPOSURE: This product contains a cholinesterase inhibitor. Acute cholinesterase depression may be evidenced by headache, nausea, vomiting, diarrhea, abdominal cramps, excessive sweating, salivation and tearing, constricted pupils, blurred vision, tightness in chest, weakness, muscle twitching and confusion; in extreme cases, unconsciousness, convulsions, severe respiratory depression and death may occur. In addition, acute eye and skin contact symptoms may include redness and possibly some minor swelling.

SIGNS OF CHRONIC OVEREXPOSURE: Repeated exposures to small doses of Acephate and other organophosphates may lower the cholinesterase to levels where the above symptoms of acute overexposure are observed.

CARCINOGENICITY: High doses of Acephate Technical have produced cancer in mice but there is no evidence that Acephate Technical causes cancer in humans. EPA has classified acephate as a Group C (possible) human carcinogen, but the National Toxicology Program (NTP), the International Agency for Research on Cancer (IARC) and the Occupational Safety and Health Administration (OSHA) do not give Acephate a cancer listing.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Preexisting conditions which lower cholinesterase levels increase vulnerability to cholinesterase depression. These include: (for plasma) genetic cholinesterase deficiency; advanced liver disease; chronic alcoholism; malnutrition; dermatomyositis; existing toxicity from exposure to carbon disulfide; benzalkonium salts, organic mercury compounds, ciguatoxins or solanines; and (for RBC) hemolytic anemias. .

CARE SHOULD BE EXERCISED IN HANDLING ACEPHATE AND ITS FORMULATIONS.

4. FIRST AID MEASURES

ACEPHATE IS A CHOLINESTERASE INHIBITOR. A PHYSICIAN SHOULD BE CONTACTED IN ALL CASES OF EXPOSURE TO ACEPHATE AND ITS FORMULATIONS.

EYES: Immediately flush the eyes with copious amounts of clear, cool running water for a minimum of 15 minutes. Hold the eyelids apart during the flushing to ensure rinsing of the entire surface of the eyes and lids with water. Contact a physician immediately. If there will be a delay in getting medical attention, rinse the eyes for at least another 15 minutes.

INHALATION: Remove victim to fresh air. If breathing has ceased, clear the victim's airway and start artificial respiration, preferably mouth-to-mouth . If breathing is difficult, give oxygen. Contact a physician immediately.

INGESTION: Do not induce vomiting unless told to do so by the poison control center or doctor.. Never give anything by mouth to an unconscious person. Contact a physician or poison control center immediately.

SKIN: Remove contaminated clothing. Wash thoroughly with soap and clean water. If a rash or any of the symptoms of acute exposure appear, contact a physician immediately.

NOTE TO PHYSICIANS: This is an Organophosphate (OP) Insecticide. Do not wait for laboratory confirmation to treat patients with strong clinical evidence of poisoning. In the USA and other countries, contact your local or national poison control center for more information. Establish airway and oxygenation. IV Atropine sulfate is the antidote of choice. Moderately severe poisoning: use 0.4-2.0 mg in adults or 0.05 mg/kg in children. Repeat every 15 minutes until atropinization is achieved. Severe poisoning may require larger doses. Cholinergic toxicity may recur as atropinization wears off; monitor patient closely. Draw blood for RBC and plasma cholinesterase. In addition, Pralidoxime (2-PAM) is indicated during the first 36 hours in severe poisonings. Slow IV administration (no less than 2 minutes) of 1 gram in adults or 20-50 mg/kg in children may be repeated in 1 to 2 hours if muscle weakness, twitching, and/or respiratory depression persist. Avoid morphine, aminophylline, phenothiazines, reserpine, furosemide and ethacrynic acid.
Bathe and shampoo contaminated skin and hair. If ingested, empty stomach; activated charcoal is useful to further limit absorption. If victim is alert, Syrup of Ipecac (2 tablespoons in adults, 1 tablespoon in small children) followed by water (2 glasses for adults, 1 glass for children) is indicated. If symptoms such as loss of gag reflex, convulsions, or unconsciousness occur before emesis, gastric lavage should be considered following intubation with a cuffed endotracheal tube.

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5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES:

Flash Point (TCC): Not applicable
Autoignition Temperature: Not applicable
Flammability: This is a solid product that will support fire if it is preheated (NFPA rating = 1)

5. FIRE FIGHTING MEASURES, cont'd

EXPLOSIVITY:

Mechanical Impact:	Not explosive
Static Discharge:	Will not occur

HAZARDOUS COMBUSTION PRODUCTS: This product may emit hazardous fumes of phosphorus oxides, carbon oxides, nitrogen oxides and unidentified organic compounds when it is heated excessively or burned. WEAR SELF-CONTAINED BREATHING APPARATUS.

EXTINGUISHING MEDIA: Water spray, dry chemical, foam, or carbon dioxide.

FIRE FIGHTING INSTRUCTIONS: Do not breathe fumes. Wear full protective gear, including protective gloves, eye protection and self-contained breathing apparatus. Wash clothing before reuse.

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6. ACCIDENTAL RELEASE MEASURES

GENERAL: Keep out of water sources. Use appropriate personal protective equipment (See Section 8) to prevent exposure to this product.

SMALL and LARGE SPILL: Sweep up or vacuum the product into a secure container for reuse or disposal. Wash area with soap and water. Pick up wash liquid with additional absorbent and place in a chemical waste container.

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7. HANDLING AND STORAGE

HANDLING: Keep this product cool and dry. Keep container closed. Store away from feed, food, and drink. Keep away from children and pets. Wash thoroughly after handling this product.

STORAGE: Store product in its original container in a cool, dry, locked place out of the reach of children. Protect from exposure to moisture. Water and water vapor can lead to caking of the product.

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8. EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS: Ventilation should be sufficient to keep the airborne concentrations of this product at a minimum.

RESPIRATORY PROTECTION: A properly FIT-TESTED NIOSH/MSHA-approved respirator fitted with organic vapor cartridges and dust filters is recommended when working with this product if the ventilation is insufficient to keep airborne concentrations of this material at a minimum..

8. EXPOSURE CONTROLS/PERSONAL PROTECTION, cont'd

SKIN PROTECTION: Applicators and other handlers must wear long-sleeved shirt and long pants; waterproof gloves; and closed toe footwear plus socks. Follow manufacturer's instructions for cleaning/ maintaining personal protection equipment (PPE). If no such instructions are available, use detergent and hot water. Keep and wash PPE separately from other laundry.

EYE PROTECTION: Safety glasses with sideshields should be used whenever hazardous chemicals are being handled.

OTHER PROTECTION: An eyewash station and a safety shower should be located in the work area.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE:	Solid pellet
APPEARANCE:	White pellet
ODOR:	Strong cabbage-like odor
ODOR THRESHOLD:	Not established
BOILING POINT:	Not applicable
FREEZING/MELTING POINT:	Not available
BULK DENSITY:	27 lbs/ft^3
VAPOR PRESSURE (mm/Hg):	1.7×10^{-6} mm Hg @ 24°C (acephate)
PERCENT VOLATILE BY VOL:	Not applicable
SOLUBILITY IN WATER:	Soluble
pH(5% in water):	Not determined
EVAPORATION RATE:	Not applicable

10. STABILITY AND REACTIVITY

CHEMICAL STABILITY (Conditions to avoid): This product is stable under normal storage and use conditions.

INCOMPATIBILITY: Strong oxidizing agents and alkaline compounds.

HAZARDOUS DECOMPOSITION PRODUCTS: This product may emit hazardous fumes of phosphorus oxides, carbon oxides, nitrogen oxides and unidentified organic compounds when it is exposed to strong oxidizing compounds, heated excessively or burned. WEAR SELF-CONTAINED BREATHING APPARATUS when these conditions are present.

HAZARDOUS POLYMERIZATION: This product will not polymerize.

11. TOXICOLOGICAL INFORMATION

INGESTION:	Oral LD_{50} (rat):	688/1127 mg/kg (male/female) (Tox Cat III)
DERMAL:	Skin LD_{50} (rabbit):	> 2000 mg/kg (Tox Cat III)
INHALATION:	Inhalation LC_{50} (rat):	> 61.7 mg/l (4 hr, similar product) (Tox Cat IV)
IRRITATION:	Eye irritation(rabbit):	Slight Irritant (Tox Cat IV)
	Skin irritation: (rabbit)	Slight Irritant (Tox Cat IV)
SENSITIZATION:	Skin sensitization (guinea pig)	Not a sensitizer (Acephate technical)

TERATOGENICITY: Developmental studies in the rat and rabbit with Acephate Technical have established clear no effect levels for maternal and developmental toxicity.

MUTAGENICITY: Acephate Technical has been shown to have a weak potential to cause mutations when tested at high doses in microbes or cultured cells. However, the results of most *in vivo* assays indicate that Acephate Technical does not cause mutations in whole animals. Overall, acephate is not considered to be a mutagenic hazard.

CARCINOGENICITY: There was an increase in liver weight and liver carcinoma and adenoma observed in female mice fed diets containing the highest dose level of Acephate Technical throughout their entire lifetime. Male mice and rats showed no carcinogenic related changes at any dose level tested. EPA has classified Acephate as a Group C (possible human carcinogen).

REPRODUCTIVE TOXICITY: There is no evidence that Acephate Technical causes reproductive toxicity.

TOXICOLOGICALLY SYNERGISTIC PRODUCTS: No data available.

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12. ECOLOGICAL INFORMATION

GENERAL: This pesticide is toxic to fish and aquatic organisms. Cover or incorporate granules. Do not contaminate water when disposing of equipment washwaters. Do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not apply directly adjacent to potable water supplies.

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13. DISPOSAL CONSIDERATIONS

PESTICIDE DISPOSAL: Wastes resulting from the use of this product may be disposed on site (by use according to the label) or at an approved waste disposal facility. Further information can be obtained from the EPA or the equivalent state and local agencies.

CONTAINER DISPOSAL: Completely empty bag into application equipment. Check with EPA, State, and local authorities for the current regulations applicable to your area for disposal of waste containers.

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14. TRANSPORTATION INFORMATION

DOT CLASS:	Not regulated
UN NUMBER:	Not regulated
IMDG CLASS (sea):	Not regulated
MARINE POLLUTANT:	No
PACKING GROUP:	Not regulated
HAZARD LABEL(s):	None
ICAO/IATA:	Not regulated
PROPER SHIPPING NAME(s):	Not regulated
REPORTABLE QUANTITY:	No
US SURFACE FREIGHT CLASS:	

TYPICAL PACKAGING

GENERAL DESCRIPTION: 10 x 1.4 oz bags in a foil pouch; 0.773 lb (350 g) bag; 7.73 lb (3.5 kg) bag; 10 lb bag; 50 lb drum

15. REGULATORY INFORMATION

U.S. FEDERAL REGULATIONS: This product is registered under EPA/FIFRA Regulations. It is a violation of Federal Law to use this product in any manner inconsistent with its labeling. Read and follow all label directions. This product is excluded from listing requirements under EPA/TSCA.

SARA TITLE III DATA

Section 311 & 312 Hazard Categories:

Immediate Health Hazard:	Yes
Delayed Health Hazard:	Yes
Fire Hazard:	No
Reactive Hazard:	No
Sudden Pressure Release Hazard:	No

Section 302 Extremely Hazardous Substances: None

Section 313 Toxic Chemicals:

Acephate (30560-19-1) - 94.5-99.1%

CERCLA/EPCRA Reportable Quantities (RQ): None

STATE REGULATIONS:

CALIFORNIA (Proposition 65): None

16. OTHER INFORMATION

MSDS STATUS:

Date This Revision: 20 March, 2009
Date Previous Revision: 27 March, 2008
Person Responsible for Preparation: Gary A. Braden

Reasons for Revision: Registration transfer is complete. AMVAC registration numbers are now on the first page of the msds.

DISCLAIMER: This information is provided for the limited guidance to the user. While AMVAC believes that the information is, as of the date hereof, reliable, it is the user's responsibility to determine the suitability of the information for its purposes. The user is advised not to construe the information as absolutely complete since additional information may be necessary or desirable when particular, exceptional, or variable conditions or circumstances exist (like combinations with other materials), or because of applicable regulations. No express or implied warranty of merchantability or fitness for a particular purpose or otherwise is made hereunder with respect to the information or the product to which the information relates.

ABBREVIATIONS:

ACGIH	-	American Conference of Governmental Industrial Hygienists
CERCLA	-	Comprehensive Environmental Response, Compensation, and Liability Act
DOT	-	Department of Transportation
EPA	-	Environmental Protection Agency
EPCRA	-	Emergency Planning and Community Right-to-Know Act
FIFRA	-	Federal Insecticide, Fungicide, and Rodenticide Act
IARC	-	International Agency for Research on Cancer
IATA	-	International Air Transport Association
IMDG	-	International Maritime Dangerous Goods
NTP	-	National Toxicology Program
OSHA	-	Occupational Safety and Health Agency
SARA	-	Superfund Amendments and Reauthorization Act
TSCA	-	Toxic Substances Control Act

This is the last page of this MSDS. There should be 8 pages.