



Material Safety Data Sheet

ORTHENE® PCO Pellets

This Material Safety Data Sheet (MSDS) serves different purposes than and DOES NOT REPLACE OR MODIFY THE EPA-APPROVED PRODUCT LABELING (attached to and accompanying the product container). This MSDS provides important health, safety, and environmental information for employers, employees, emergency responders and others handling large quantities of the product in activities generally other than product use, while the labeling provides that information specifically for product use in the ordinary course.

Use, storage and disposal of pesticide products is regulated by the EPA under the authority of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) through the product labeling. All necessary and appropriate precautionary, use, and storage, and disposal information is set forth on that labeling. It is a violation of federal law to use a pesticide product in any manner not prescribed on the EPA-approved label.

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: ORTHENE® PCO Pellets
VC NUMBER(S): 1127, 1213, 1527, 1535, 1571, 1586, 1587 & 1588
ITEM: 69789
SYNONYM(S): None
EPA REGISTRATION NUMBER: 59639-31

MANUFACTURER
VALENT USA CORPORATION
P.O. Box 8025
1600 Riviera Avenue, Suite 200
Walnut Creek, CA 94596-8025

EMERGENCY TELEPHONE NUMBERS
HEALTH EMERGENCY OR SPILL (24 hr):
(800) 892-0099
TRANSPORTATION (24 hr.): CHEMTREC
(800) 424-9300 or (202) 483-7616

PRODUCT INFORMATION
AGRICULTURAL PRODUCTS: (800) 682-5368
PROFESSIONAL PRODUCTS: (800) 898-2536

The current MSDS is available through our website or by calling the product information numbers listed above. (www.valent.com)

2. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	Weight/ Percent	ACGIH Exposure Limits	OSHA Exposure Limits
Acephate (O,S-dimethyl N-acetylphosphoramidothioate) * (30560-19-1)	94.5 - 99.1	None	None
Others ** (No CAS#)	0.9 - 5.5	None	None

* Active Ingredient

** Other ingredients, which are maintained as trade secrets, are any substances other than an active ingredient contained in this product. Some of these may be hazardous, but their identity is withheld because they are considered trade secrets. The hazards associated with the other ingredients are addressed in this document. Specific information on other ingredients for the management of exposures, spills, or safety assessments can be obtained by a treating physician or nurse by calling **1-800-892-0099** at any time.

Emergency Telephone: (800) 892-0099
REVISION NUMBER: 1

MSDS NO.: 0075
REVISION DATE: 12/15/2005

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

CAUTION

- Harmful if swallowed or absorbed through skin.
- Avoid breathing dust, sprays or vapors.
- Avoid contact with eyes, skin and clothing.
- Keep out of reach of children.

POTENTIAL HEALTH EFFECTS

Acute Toxicity (Primary Routes of Exposure)

Signs and Symptoms of Systemic Effects: This product contains a cholinesterase inhibitor. Signs and symptoms that may be seen, usually within several hours of exposure, may include but are not limited to: headache, dizziness, weakness, constriction of the pupil, blurred or dark vision, excessive salivation or nasal discharge, profuse sweating, abdominal cramps, nausea, diarrhea and vomiting. Severe poisonings may result in incontinence, unconsciousness, convulsions or death.

Acute Eye Contact: This product is expected to cause minimal or no eye irritation. The expected adverse health effects resulting from an exposure may include redness and possibly some minor swelling.

Acute Skin Contact: This product can cause brief and/or minor irritation. The expected adverse health effects resulting from an exposure may include redness and possibly some minor swelling. This product is slightly toxic when absorbed through the skin. This product is not expected to cause allergic skin reactions.

Acute Ingestion: This product is slightly toxic when ingested.

Acute Inhalation: Based on an evaluation of the ingredients and/or similar products, this product may be minimally toxic when inhaled. Exposure to high concentrations of dust may result in respiratory irritation. Signs and symptoms may include, but not be limited to, nasal discharge, sore throat, coughing and difficulty in breathing.

Chronic Toxicity (including cancer): 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 based on the cancer produced in female mice. This product is not listed as a carcinogen by the National Toxicology Program (NTP), the International Agency for Research on Cancer (IARC), or the Occupational Safety and Health Administration (OSHA).

Developmental Toxicity (birth defects): There is no evidence that Acephate Technical causes birth defects.

Reproductive Toxicity: There is no evidence that Acephate Technical causes reproductive effects in humans.

Potentially Aggravated Medical Conditions: Individuals with preexisting medical conditions that lower cholinesterase levels may have increased susceptibility to cholinesterase depression.

For complete discussion of the toxicology data from which this evaluation was made, refer to Section 11. For Regulatory Information, refer to Section 15.

4. FIRST AID MEASURES

EMERGENCY NUMBER (800) 892-0099

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact **1-800-892-0099** for emergency medical treatment information.

Emergency Telephone: (800) 892-0099
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EYE CONTACT:

Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

SKIN CONTACT:

Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

INGESTION:

Call a poison control center or doctor immediately for treatment advice. Have a person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or doctor. Do not give anything by mouth to an unconscious person.

INHALATION:

Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control center or doctor for further treatment advice.

NOTES TO PHYSICIAN:

This material contains a cholinesterase inhibitor. Measurement of blood cholinesterase activity may be useful in monitoring exposure, but decisions regarding treatment will usually need to be made before test results are available. If signs of cholinesterase inhibition appear, atropine sulfate is antidotal. 2-PAM (PROTOPAM) is also antidotal and may be used in conjunction with atropine, but should not be used alone.

5. FIRE FIGHTING MEASURES

FLASH POINT: Not applicable
FLASH POINT METHOD: Not applicable
AUTOIGNITION: No data available
EXTINGUISHING MEDIA: Water fog, carbon dioxide, foam, dry chemical
FLAMMABLE LIMITS IN AIR - LOWER (%): Not applicable
FLAMMABLE LIMITS IN AIR - UPPER (%): Not applicable

NFPA RATING:
 Health: 1
 Flammability: 1
 Reactivity: 1
 Special: 0

(Least-0, Slight-1, Moderate-2, High-3, Extreme-4). These values are obtained using professional judgement. Values were not available in the guidelines or published evaluations prepared by the National Fire Protection Association, NFPA.

FIRE FIGHTING INSTRUCTIONS: Products of combustion from fires involving this material may be toxic. Avoid breathing smoke and mists. Avoid personnel and equipment contact with fallout and runoff. Minimize the amount of water used for fire fighting. Do not enter any enclosed area without full protective equipment, including self-contained breathing equipment. Contain and isolate runoff and debris for proper disposal. Decontaminate personal protective equipment and fire fighting equipment before reuse. Read the entire document.

HAZARDOUS COMBUSTION PRODUCTS: Normal combustion forms carbon dioxide, water vapor and may produce: Oxides of sulfur. Oxides of nitrogen. Oxides of phosphorous. Incomplete combustion can produce carbon monoxide.

6. ACCIDENTAL RELEASE MEASURES

VALENT EMERGENCY PHONE NUMBER: (800) 892-0099
CHEMTREC EMERGENCY PHONE NUMBER: (800) 424-9300
OBSERVE PRECAUTIONS IN SECTION 8: PERSONAL PROTECTION

Stop the source of the spill if safe to do so. Contain the spill to prevent further contamination of the soil, surface water, or ground water. For additional spill response information refer to the North American Emergency Response Guidebook.

FOR SPILLS ON LAND:

CONTAINMENT: Reduce airborne dust. Avoid runoff into storm sewers or other bodies of water.

CLEANUP: Clean up spill immediately. Vacuum or sweep up material and place in a chemical waste container. Wash area with soap and water. Pick up wash liquid with additional absorbent and place in a chemical waste container.

FOR SPILLS IN WATER:

CONTAINMENT: This material will disperse or dissolve in water. Stop the source of the release. Contain and isolate to prevent further release into soil, surface water and ground water.

CLEANUP: Clean up spill immediately. Absorb spill with inert material. Remove contaminated water for treatment or disposal.

7. HANDLING AND STORAGE

END USER MUST READ AND OBSERVE ALL PRECAUTIONS ON PRODUCT LABEL.

Keep pesticide in original container. Do not store or transport near food or feed. Do not contaminate food or feed. Do not put concentrate into food or drink containers. Do not dilute concentrate in food or drink containers. Store in a cool, dry place, out of direct sunlight.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

END USER MUST READ AND OBSERVE ALL PRECAUTIONS ON PRODUCT LABEL.

EYES: Do not get this material in your eyes. Eye contact can be avoided by wearing protective eyewear.

RESPIRATORY PROTECTION: Use this material only in well ventilated areas. If operating conditions result in airborne concentrations of this material, the use of an approved respirator is recommended.

SKIN PROTECTION: Avoid contact with skin or clothing. Skin contact should be minimized by wearing protective clothing including gloves.

EXPOSURE LIMITS - See Section 2.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE:	Pellet
COLOR:	White
ODOR:	Strong cabbage-like odor
MELTING POINT:	No data available
BULK DENSITY:	27 lbs./cu. ft.
VAPOR PRESSURE:	1.7 X 10 ⁻⁶ mmHg @ 24° C (acephate)
pH:	3.5 - 6.0
SOLUBILITY:	Soluble in water.

10. STABILITY AND REACTIVITY

CHEMICAL STABILITY:	Stable at normal ambient temperatures. Acephate can degrade on prolonged exposure to elevated temperatures or at alkaline pH.
INCOMPATIBILITY:	Avoid contact with alkaline materials.
OXIDATION/REDUCTION PROPERTIES:	No data available
EXPLODABILITY:	Not explosive.
HAZARDOUS DECOMPOSITION PRODUCTS:	Contact with alkaline materials including hypochlorite oxidants may produce noxious gases.

11. TOXICOLOGICAL INFORMATION

ACUTE (Product Specific Information):

This product contains acephate, a cholinesterase inhibitor. Acute overexposures by oral, dermal or inhalation routes may produce signs and symptoms of toxicity, usually within several hours of exposure, including but are not limited to, headaches, dizziness, weakness, constriction of the pupil, blurred or dark vision, excessive salivation or nasal discharge, profuse sweating, abdominal cramps, nausea, diarrhea and vomiting. Severe poisonings may result in incontinence, unconsciousness, convulsions and death.

Eye Irritation:	This product produced minimal or no eye irritation in the eyes of test animals. (Toxicity Category IV)
Skin Irritation:	This product produced brief and/or minor irritation in animals. (Toxicity Category IV)
Oral Toxicity:	The oral LD ₅₀ in rats is 688 mg/kg for males and 1127 mg/kg for females. (Toxicity Category III)
Dermal Toxicity:	The dermal LD ₅₀ in rabbits is > 2000 mg/kg. (Toxicity Category III)
Inhalation Toxicity:	No product specific data available. Based on an evaluation of the ingredients and/or similar products, the 4-hour inhalation LC ₅₀ is expected to be >61.7 mg/L. (Toxicity Category IV) Exposure to high concentrations in the air may result in respiratory irritation.
Skin Sensitization:	No product specific data available. Acephate Technical was not a skin sensitizer in guinea pigs using the modified Buehler or Maximization techniques.

TOXICITY OF ACEPHATE TECHNICAL

SUBCHRONIC: The dermal administration of Acephate Technical to rats, five days per week for three weeks, at doses up to 300 mg/kg/day produced statistically significant inhibition of cholinesterase activity in the brain of males and females treated with the highest dose (300 mg/kg/day) and in females at the mid-dose (60 mg/kg/day). The degree of inhibition was less than 15% in all cases and no clinical signs of toxicity were observed. The NOEL was 60 mg/kg/day for males and 12 mg/kg/day for females.

CHRONIC/CARCINOGENICITY: When mice were fed diets containing Acephate Technical throughout their entire lifetime, a compound-related increase in liver weight, together with liver carcinoma (a commonly occurring cancer in mice) and adenoma occurred in high-dose females. These changes were not observed in the males at any dose level or in low- or mid-dose females. When rats were fed diets containing Acephate Technical throughout their entire lifetime, there was no treatment-related increase in tumors at any site. The most significant treatment-related effect was a decrease in cholinesterase activity of plasma, RBC, and brain. Based on the increased incidence of liver carcinoma and adenoma in female mice, EPA has classified acephate as a Group C (possible) human carcinogen. This product is not listed as a carcinogen or suspected carcinogen by NTP, IARC, or OSHA.

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DEVELOPMENTAL TOXICITY: In a developmental toxicity study in rats, Acephate Technical produced maternal toxicity (tremors, decreased motor activity and/or decreased body weight gain) at dosages of 20 mg/kg/day or higher. Developmental toxicity (decreased fetal body weight and delayed skeletal ossification) was observed in the 75 mg/kg/day dose group. The maternal NOEL was 5 mg/kg/day. The developmental NOEL was 20 mg/kg/day. In a developmental toxicity study in rabbits, Acephate Technical produced maternal toxicity (increase in nasal discharge and 2/16 abortions) in animals exposed to 10 mg/kg/day. No developmental toxicity was produced at this dose level. The maternal NOEL was 3 mg/kg/day and the developmental NOEL was 10 mg/kg/day, the highest dose tested.

REPRODUCTION: Male and female rats were fed 25, 50 or 500 ppm Acephate Technical in the diet continuously for two generations through weaning of the third generation. Reproductive performance and toxicity was monitored for each generation. Based on decreased body weights and/or body weight gains for adult males (each generation), and for adult females and pups (some generations), decreased food consumption during gestation and lactation periods, and decreases in litter size (some generations), the parental LOEL and NOEL are 500 ppm (25 mg/kg/day) and 50 ppm (2.5 mg/kg/day), respectively. Based on decreases in viability index (two generations) and in mating performance (one generation), the reproductive LOEL and NOEL are also 500 ppm and 50 ppm, respectively.

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.

For a summary of the potential for adverse health effects from exposure to this product, refer to Section 3. For information regarding regulations pertaining to this product, refer to Section 15.

12. ECOLOGICAL INFORMATION

AVIAN TOXICITY:

Acephate Technical is moderately toxic to birds:

Oral LD₅₀ Mallard Duck: 350 mg/kg;
Oral LD₅₀ Pheasant: 140 mg/kg;
Oral LD₅₀ Chickens: 852 mg/kg.

In addition, Acephate Technical in the diet causes adverse effects on reproduction in mallard ducks (no effect level greater than 5 ppm, but less than 20 ppm) and in bobwhite quail (no-effect level greater than 20 ppm, but less than 80 ppm).

AQUATIC ORGANISM TOXICITY: Acephate Technical is practically non-toxic to freshwater fish. The 96-hour LC₅₀ for Acephate Technical was found to be higher than 1,000 ppm in rainbow trout, bluegill, and channel catfish. The following LC₅₀ values for Orthene 75 S Soluble Powder substantiate the low toxicity to fish:

Bluegill: 2,050 ppm;
Black Bass: 1,725 ppm;
Catfish: 2,230 ppm;
Mosquito Fish: 6,000 ppm;
Goldfish: 9,550 ppm;
Crayfish: 750 ppm.

OTHER NON-TARGET ORGANISM TOXICITY: Acephate Technical is highly toxic to bees. The acute oral LD₅₀ for bees is 1.2 µg/bee.

13. DISPOSAL CONSIDERATIONS

END USERS MUST DISPOSE OF ANY UNUSED PRODUCT AS PER THE LABEL RECOMMENDATIONS.

DISPOSAL METHODS: Check government regulations and local authorities for approved disposal of this material. Dispose in accordance with applicable laws and regulations.

14. TRANSPORT INFORMATION

DOT (ground) SHIPPING NAME: Pesticides, dry, non-regulated
DOT TECHNICAL SHIPPING NAME: Acephate 97% Solid
DOT REPORTABLE QUANTITY (RQ): Not applicable
UN/NA NUMBER: Not applicable
HAZARD CLASS: Not applicable
REMARKS: None
EXEMPTION REQUIREMENT: Not applicable.
ICAO/IATA PROPER SHIPPING NAME: Not regulated.
IMDG PROPER SHIPPING NAME: Not regulated

15. REGULATORY INFORMATION

REGULATIONS UNDER FIFRA: All pesticides are governed under FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act). Therefore, the regulations presented below are pertinent only when handled outside of the normal use and applications of pesticides. This includes waste streams resulting from manufacturing/formulation facilities, spills or misuse of products, and storage of large quantities of products containing hazardous or extremely hazardous substances.

OTHER U.S. FEDERAL REGULATIONS:

Chemical Name	RCRA - U Series Wastes	Clean Water Act - Hazardous Substances	Clean Water Act Section 307
Acephate (O,S-dimethyl N-acetylphosphoramidothioate) * (30560-19-1)	None	Not listed	Not listed
Others ** (No CAS#)	None	Not listed	Not listed

CWA Section 311: No data

Chemical Name	SARA 313 Chemicals	SARA Section 302	CERCLA Reportable Quantity (RQ):
Acephate (O,S-dimethyl N-acetylphosphoramidothioate) * (30560-19-1)	1.0% de minimis concentration	Not listed	None
Others ** (No CAS#)	Not listed	Not listed	None

SARA (311, 312):

Immediate Health: Yes
 Chronic Health: Yes
 Fire: No
 Sudden Pressure: No
 Reactivity: No

Chemical Name	IARC - Group 1 (carcinogenic to humans)	IARC - Group 2A (Probably carcinogenic)	IARC - Group 2B (Possibly carcinogenic)	NTP Carcinogen List
Acephate (O,S-dimethyl N-acetylphosphoramidothioate) * (30560-19-1)	No	No	No	Not listed
Others ** (No CAS#)	No	No	No	Not listed

STATE REGULATIONS:

Each state may promulgate standards more stringent than the federal government. This section cannot encompass an inclusive list of all state regulations. Therefore, the user should consult state or local authorities. The state regulations reviewed include: California Proposition 65, California Directors List of Hazardous Substances, Massachusetts Right to Know, Michigan Critical Materials List, New Jersey Right to Know, Pennsylvania Right to Know, Rhode Island Right to Know and the Minnesota Hazardous Substance list. For Washington State Right to Know, see Section 2 for Exposure Limit information. For Louisiana Right to Know refer to SARA information listed under U.S. Regulations above.

Chemical Name	California Proposition 65	California - Directors List of Hazardous Substances
Acephate (O,S-dimethyl N-acetylphosphoramidothioate) * (30560-19-1)	Not listed	Not listed
Others ** (No CAS#)	Not listed	Not listed

Chemical Name	MI - Critical Materials List	MA Right To Know	NJ Right To Know
Acephate (O,S-dimethyl N-acetylphosphoramidothioate) * (30560-19-1)	Not listed	Not listed	Not listed
Others ** (No CAS#)	Not listed	Not listed	Not listed

Chemical Name	PA Right To Know	RI Right To Know	MN Hazardous Substance
Acephate (O,S-dimethyl N-acetylphosphoramidothioate) * (30560-19-1)	Not listed	Not listed	Not listed
Others ** (No CAS#)	Not listed	Not listed	Not listed

California Proposition 65: Not listed

CANADIAN REGULATIONS:

WHMIS Hazard Class: Not determined

For information regarding potential adverse health effects from exposure to this product, refer to Sections 3 and 11.

16. OTHER INFORMATION

REASON FOR ISSUE: Change the Manufacturer's address, input MSDS into the new system and minor edits throughout.
MSDS NO.: 0075
REVISION NUMBER: 1
REVISION DATE: 12/15/2005
SUPERCEDES DATE: 05/30/2000

THE INFORMATION IN THIS MSDS IS BASED ON DATA AVAILABLE TO US AS OF THE REVISION DATE GIVEN HEREIN, AND BELIEVED TO BE CORRECT. CONTACT VALENT USA CORPORATON TO CONFIRM IF YOU HAVE THE MOST CURRENT MSDS.

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