Material Safety Data Sheet

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, 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.

SECTION 1: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME:	ORTHENE ® PCO Pellets
VC NUMBER(S):	VC-1127, VC-1128, VC-1213, VC-1216, VC1240 and VC-1242
EPA REGISTRATION NUMBER:	59639-31
SYNONYM(S):	None

MANUFACTURER
VALENT USA CORPORATION
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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) 6VALENT
PROFESSIONAL PRODUCTS: (800) 89VALENT

SECTION 2: COMPOSITION / INFORMATION ON INGREDIENTS

Ingredient Name (CAS #) [Chemical Name]	Weight Percent	Exposure Limit	Ref.
ACEPHATE* (30560-19-1) [O,S-DIMETHYL ACETYL-PHOSPHORAMIDOTHIOATE]	94.5 – 99.1	None	---
Other**	0.9 – 5.5	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.

SECTION 3: HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

CAUTION:
- **HARMFUL IF SWALLOWED**
- **AVOID BREATHING DUST, SPRAYS OR VAPORS**
- **AVOID CONTACT WITH EYES, SKIN OR 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, include 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: This product is expected to cause minimal or no eye irritation. The degree of injury will depend on the amount and duration of contact and the speed and thoroughness of the first aid treatment. The expected adverse health effects resulting from an exposure may include redness and possibly some minor swelling.

Skin: This product is expected to cause brief and/or minor irritation. The degree of injury will depend on the amount and duration of contact and the speed and thoroughness of

the first aid treatment. The expected adverse health effects resulting from an exposure may include redness and possibly some minor swelling.

Based on an evaluation of the ingredients and/or similar products, this product is not expected to cause allergic skin reactions.

This product has been shown to be slightly toxic when absorbed through the skin. The degree of injury will depend on the amount of material inhaled and the speed and thoroughness of the first aid treatment. The expected adverse systemic health effects are described above.

Ingestion: This product has been shown to be slightly toxic when ingested. The degree of injury will depend on the amount of material ingested and the speed and thoroughness of the first aid treatment. The expected adverse systemic health effects are described above.

Inhalation: Based on an evaluation of the ingredients and/or similar products, this product is expected to be minimally toxic when inhaled. The degree of injury will depend on the amount of material inhaled and the speed and thoroughness of the first aid treatment. The expected adverse systemic health effects are described above.

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).

Teratology (Birth Defects) Information: There is no evidence that Acephate Technical causes birth defects.

Reproduction Information: There is no evidence that Acephate Technical causes reproductive effects in humans.

Potentially Aggravated Condition: Individuals with preexisting medical conditions which 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.

SECTION 4: FIRST AID MEASURES

EMERGENCY NUMBER (800) 892-0099

EYES: Flush eyes immediately with plenty of water while holding eyelids open. Remove contact lenses if worn. If irritation persists, see a doctor.

SKIN: Wash with soap and water. Remove and wash contaminated clothing separately. Get medical attention if irritation persists.

INGESTION: If swallowed, drink 1 or 2 glasses of water (or milk) and induce vomiting by touching the back of the throat with finger. If possible, contact a physician or Poison Control Center before inducing vomiting. Do not induce vomiting or give anything by mouth to an unconscious person. Take person and product container to the nearest emergency treatment center.

INHALATION: If inhaled, remove victim to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. Get medical attention.

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.

SECTION 5: FIRE FIGHTING MEASURES

FLASH POINT: NA **METHOD:** NA
AUTOIGNITION: NA
EXTINGUISHING MEDIA: CO_2, dry chemical, foam, water fog.

FLAMMABLE LIMITS (% by volume in air): Lower: NA Upper: NA

NFPA RATINGS: Health 1; Flammability 1; Reactivity 1; Special None

(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 product 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, nitrogen and phosphorous. Incomplete combustion can produce carbon monoxide.

SECTION 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 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.

SECTION 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.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

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

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

RESPIRATION/VENTILATION: Use this material only in well ventilated areas. Unless ventilation is adequate to keep airborne concentrations below recommended exposure standards, approved respiratory protection should be worn.

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

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE:	White pellets
ODOR:	Strong cabbage-like odor
MELTING POINT:	NDA
BULK DENSITY:	41 lbs./cu. ft.
SOLUBILITY:	Soluble in water.
VAPOR PRESSURE:	1.7×10^{-6} mm Hg @ 24° C (acephate)
pH:	3.5 – 6.0

SECTION 10: STABLITY 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.
HAZARDOUS DECOMPOSITION PRODUCTS: Contact with alkaline materials including hypochlorite oxidants may produce noxious gases.

SECTION 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 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: Eye irritation tests produced minimal effects that cleared within 24 hours. (Toxicity Category IV)

Skin Irritation: Skin irritation tests produced slight transient irritation at 72 hours after exposure. (Toxicity Category IV)

Dermal Toxicity: The dermal LD_{50} in rabbits was > 2 g/kg. (Toxicity Category III)

Oral Toxicity: The oral LD_{50} is 688 mg/kg in male rats, 1127 mg/kg in female rats and 846 mg/kg in the combined sexes. (Toxicity Category III)

Inhalation Toxicity: No product specific data is available. The 4-hour LC50 in rats of Acephate Technical, a similar product, is >61.7 mg/l. (Toxicity Category IV) Exposure to high concentrations of dust in the air may result in respiratory irritation.

Skin Sensitization: No product specific data available**.** Acephate Technical did not induce a positive skin sensitization reaction in the guinea pig using the modified Buehler or the Maximization techniques.

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.

TERATOLOGY/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.

SECTION 12: ECOLOGICAL INFORMATION

AVIAN TOXICITY: Acephate Technical is moderately toxic to birds.

Oral LD_{50} Mallard Duck: 350 mg/kg
Oral LD_{50} Pheasant: 140 mg/kg
Oral LD_{50} 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 LC_{50} for Acephate Technical was found to be higher than 1,000 ppm in rainbow trout, bluegill, and channel catfish. The following LC_{50} 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 LD_{50} for bees is 1.2 ug/bee.

SECTION 13: DISPOSAL CONSIDERATIONS

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

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

SECTION 14: TRANSPORT INFORMATION

D.O.T. SHIPPING NAME:	Insecticide, dry, non-regulated
TECHNICAL SHIPPING NAME:	Acephate 97% Powder
RQ:	NA
D.O.T. HAZARD CLASS:	NA
U.N./N.A. NUMBER:	NA
REMARKS:	None
EXEMPTION REQUIREMENT:	None

SECTION 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:

OSHA: NA
CERCLA RQ*: NA
RCRA:** NA
SARA TITLE III:
Sara (313) Chemicals: Acephate
Sara (311,312):
Immediate Health Effects: Yes
Chronic Health Effects: Yes
Fire Hazard: No
Sudden Release of Pressure: No
Reactivity Hazard: No
Sara Section 302: NA

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).

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.

* RQ: Reportable Quantity

** RCRA waste codes must be determined on a case-by-case basis (i.e., spill, processing waste, etc.).

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

SECTION 16: OTHER INFORMATION

REASON FOR ISSUE:	Previously released as MSDS Number 0132c. Product assigned new MSDS Number 0075. Revisions to multiple sections of the MSDS.
REVISION NUMBER:	0
REVISION DATE:	05/30/2000
SUPERSEDES DATE:	None, replaces MSDS Number 0132c
MSDS NUMBER:	0075

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 CORPORATION TO CONFIRM IF YOU HAVE THE MOST CURRENT MSDS.

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