

----- MATERIAL SAFETY DATA SHEET -----

Valent USA

ORTHENE(R) PCO FORMULA II

HEALTH: 1
 FLAMMABILITY: 1
 REACTIVITY: NDA
 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 in any manner not prescribed on the EPA-approved label.

 SECTION 1: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Orthene(R) PCO Formula II
 PRODUCT NUMBER(S): 69786
 EPA REGISTRATION NUMBER: 59639-31
 SYNONYM(S): None
 MANUFACTURER: VALENT USA CORPORATION
 P.O. BOX 8025
 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]	Percent	Exposure Limit	Ref.
ACEPHATE* (30560-19-1) [O,S-DIMETHYL ACETYLPHOSPHORAMIDOTHIOATE]	99.000	None	-
INERT INGREDIENTS**	1.000	None	-

* Active Ingredient
 ** Inert Ingredients, which are maintained as trade secrets, are any substance 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 inert ingredients are addressed in this document. Specific information on inert 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 CONTACT WITH EYES, SKIN, OR CLOTHING
 - AVOID BREATHING DUST OR SPRAY MIST
 - AVOID BREATHING VAPOR
 - KEEP OUT OF REACH OF CHILDREN

 POTENTIAL HEALTH EFFECTS
 ACUTE TOXICITY (Primary Routes of Exposure)
 SIGNS AND SYMPTOMS OF SYSTEMIC EFFECTS:
 EYE: This substance is slightly irritating to the eyes and could cause prolonged (days) impairment of your vision. The degree of the injury will depend on the amount of material that gets into the eye and the speed and thoroughness of the first aid treatment. Signs and symptoms may include pain, tears, swelling, redness, and blurred vision. May produce systemic toxicity by absorption through the eyes.
 SKIN: This substance is not expected to cause prolonged or significant skin irritation. This hazard evaluation is based on data from similar materials. The systemic toxicity of this substance has not been determined. However, it should be practically non-toxic to internal organs if it gets on the skin. This hazard evaluation is based on data from similar materials.
 INGESTION: The oral toxicity of this substance has not been determined. However, it may be slightly toxic to internal organs if swallowed. The degree of injury will depend on the amount absorbed from the gut. This hazard evaluation is based on data from similar materials.
 INHALATION: The inhalation toxicity of this substance has not been determined. However, it should be practically non-toxic to internal organs if inhaled. This substance may be irritating if inhaled. Signs and symptoms of respiratory tract irritation may include, but may not be limited to, one or more of the following: nasal discharge, sore throat, coughing, bronchitis, pulmonary edema and difficulty in breathing. This hazard evaluation is based on the known toxicity of the ingredients in this substance.
 CHRONIC TOXICITY (Including Cancer): High doses of Acephate have produced cancer in mice but there is no evidence that Acephate causes cancer in humans.
 TERATOLOGY (Birth Defects) INFORMATION: There is no evidence that Acephate causes birth defects.
 REPRODUCTION INFORMATION: There is no evidence that Acephate causes reproductive effects in humans.
 POTENTIALLY AGGRAVATED CONDITION: NDA
 For complete discussion of the toxicology data from which this evaluation was made, refer to Section 11.

 SECTION 4: FIRST AID MEASURES

EMERGENCY NUMBER: (800) 892-0099
 EYES: Flush eyes immediately with fresh water for at least 15 minutes while holding the eyelids open. Remove contact lenses if worn. No additional first aid should be necessary. However, if irritation persists, see a doctor.
 SKIN: If on skin, remove contaminated clothing, wash skin with plenty of soap and water. Wash contaminated clothing before reuse.
 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, Poison Control Center, or emergency 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: Move victim to fresh air. If not breathing, give artificial respiration, preferably mouth to mouth. Get medical attention.

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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: NDA

EXTINGUISHING MEDIA: CO2, dry chemical, foam, water fog.

FLAMMABLE LIMITS (% by volume in air):

LOWER: NDA

UPPER: NDA

NFPA RATINGS:

HEALTH: 1

FLAMMABILITY: 1

REACTIVITY: NDA

SPECIAL: NDA

(Least-0, Slight-1, Moderate-2, High-3, Extreme-4). These values are obtained using 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, nitrogen and phosphorous. Incomplete combustion can produce carbon monoxide.

SECTION 6: ACCIDENTAL RELEASE MEASURES

VALENT EMERGENCY PHONE NUMBER: (800) 892-0099 (24 hour).

CHEMTREC EMERGENCY PHONE NUMBER: (800) 424-9300 (24 hour).

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 and other bodies of water.

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

FOR SPILLS IN WATER:

CONTAINMENT: This material will quickly dissolve in water. Stop the source of the release. Contain and isolate to prevent further release into soil, surface water and ground water. Notify and consult with appropriate regulatory authorities.

CLEANUP: Cleanup spill immediately. Absorb spill with inert material. Vacuum or sweep up and place into a disposable container. For further information, call 1-800-829-0099.

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. Store in a cool, dry place, out of direct sunlight. Do not contaminate food or feed.

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 chemical goggles.

RESPIRATORY/VENTILATION REQUIREMENTS: No special respiratory protection is normally required. However, if operating conditions create airborne concentrations which exceed the recommended exposure standards, the use of an approved respirator is required. Use adequate ventilation to keep the airborne concentrations of this material below the recommended exposure standard.

SKIN PROTECTION: No special skin protection is usually necessary. Avoid prolonged or frequently repeated skin contact with this material. Skin contact can be minimized by wearing protective clothing.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: White powder with strong cabbage-like odor.

ODOR: NDA

MELTING POINT: NA

BOILING POINT: NDA

DENSITY/BULK DENSITY/SPECIFIC GRAVITY: 82 - 89 deg C (Decomposes)

SOLUBILITY: Soluble in water, alcohol and acetone (moderately), and aromatic solvents (slightly to moderately).

VAPOR PRESSURE: 1.7 X 10⁻⁶ mm Hg @24 deg C

DISSOCIATION CONSTANT: NDA

OCTANOL/WATER PARTITION COEFFICIENT: NDA

pH: NDA

VISCOSITY: NDA

MISCIBILITY: NDA

CORROSION CHARACTERISTICS: NDA

EVAPORATION RATE: NDA

SECTION 10: STABILITY AND REACTIVITY

CHEMICAL STABILITY: Stable at temperatures below 180 deg F (82 deg C).

INCOMPATIBILITY: Avoid contact with alkaline materials. Reaction products may include noxious gases.

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

HAZARDOUS POLYMERIZATION: Polymerization will not occur.

IMPACT EXPLODABILITY: NDA

OXIDATION/REDUCTION PROPERTIES: NDA

SECTION 11: TOXICOLOGICAL INFORMATION

ACUTE (Product specific information)

EYE IRRITATION: Tests with Acephate produced minimal effects which cleared within 24 hours.

SKIN IRRITATION: Tests with Acephate produced no irritation at 72 hours after exposure.

DERMAL TOXICITY: The dermal LD50 of Acephate in rabbits is >10 g/kg.

ORAL TOXICITY: The oral LD50 of Acephate in male rats is 1447 mg/kg. The oral LD50 of Acephate in female rats is 1030 mg/kg.

INHALATION TOXICITY: No product toxicology data available. The 4-hour LC50 in rats of the active ingredient, Acephate, is >61.7 mg/l.

SKIN SENSITIZATION: No product toxicology data available. The hazard evaluation was based on data on the components. The active ingredient, Acephate, did not induce a positive skin sensitization reaction in the guinea pig using the Modified Buehler or the Maximization techniques.

SUBCHRONIC: The most significant treatment related effect of Acephate is a decrease in cholinesterase activity of plasma, RBC, and brain.

CHRONIC/CARCINOGENICITY: When mice were fed diets containing Acephate throughout their entire lifetime, a compound-related increase in liver weight, together with liver carcinoma (a commonly occurring cancer in mice) 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 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.

TERATOLOGY/DEVELOPMENTAL TOXICITY: There is no evidence that Acephate causes birth defects.

REPRODUCTION: When male and female rats were fed Acephate continuously for two generations through weaning of the third generation, animals in the mid- and high-dose groups demonstrated compound-related effects on reproductive performance. The low-dose was judged to be a no-effect level.

MUTAGENICITY: Acephate has been shown to have a weak potential to cause mutations when tested in microbes or cultured cells and in some studies using mice. However, the results of most live animal studies indicate that Acephate does not cause mutations in whole animals.

OTHER: The significance of the above-mentioned results cannot be fully evaluated for humans. However, based on the dose-response observed in these studies and risk evaluation of the results, it is concluded that the risk of developing cancer or other adverse health effects is minimal if one follows the precautions outlined on the product label, material safety data sheet and any plant safety instructions.

SECTION 12: ECOLOGICAL INFORMATION

AVIAN TOXICITY: Acephate 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 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 is practically non-toxic to freshwater fish. The 96-hour LC50 for Orthene 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 is highly toxic to bees. The acute oral LD50 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: Insecticides (Non-Regulated)
TECHNICAL SHIPPING NAME: ORTHENE PCO Formula II
D.O.T. HAZARD CLASS: NA
U.N./N.A. NUMBER: NA

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.

U.S. FEDERAL REGULATIONS:

OSHA: None
CERCLA RQ*: None
RCRA**: Not Regulated
SARA TITLE III:
SARA 311 CATEGORIES:
1. IMMEDIATE (ACUTE) HEALTH EFFECTS: Yes
2. DELAYED (CHRONIC) HEALTH EFFECT: Yes
3. FIRE HAZARD: No
4. SUDDEN RELEASE OF PRESSURE HAZARD: No
5. REACTIVITY HAZARD: NDA

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.). The waste code presented below is based on available product characteristics only.

SECTION 16: OTHER INFORMATION

REASON FOR ISSUE: Revised format and Sections 6 and 14.
PREPARED BY: Rebecca Stevens
REVISION DATE: 4/28/94
SUPERSEDES DATE: 5/14/94
MSDS NUMBER: 0004
EMERGENCY TELEPHONE #: (800) 892-0099
NDA - No Data Available
NA - Not Applicable
MSDS NUMBER: 0004
REVISION NUMBER: 1
REVISION DATE: 4/28/94

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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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