



# SAFETY DATA SHEET

## 1. Identification

**Product identifier** Orthene® Turf, Tree, & Ornamental 97 Spray

**Other means of identification**

**SDS number** 372

**Product registration number** 5481-8978

**Recommended use** Organophosphate insecticide.

**Recommended restrictions** See product label for restrictions.  
No other uses are advised.  
Keep out of the Reach of Children!

**EPA Registration number** EPA: 5481-8978

**Manufacturer/Importer/Supplier/Distributor information**

**Manufacturer**

**Company name** AMVAC Chemical Corporation

**Address** 4685 MacArthur Court  
Suite 1200  
Newport Beach, CA 92660

**Telephone** AMVAC Chemical Corp 949-260-1200  
AMVAC Chemical Corp 949-260-6270(FAX)

**Website** www.Amvac-Chemical.com

**E-mail** CustServ@Amvac-Chemical.com

**Emergency phone number** Medical 888-681-4261  
CHEMTREC® 800-424-9300  
(USA+Canada)  
Product Use 888-462-6822  
CHEMTREC® (Outside USA) +1-703-527-3887

## 2. Hazard(s) identification

**Physical hazards** Not classified.

**Health hazards** Acute toxicity, oral Category 4

**Environmental hazards** Hazardous to the aquatic environment, long-term hazard Category 2

**OSHA defined hazards** Not classified.

**Label elements**



**Signal word** Warning

**Hazard statement**

H302 Harmful if swallowed.  
H411 Toxic to aquatic life with long lasting effects.  
H313 May be harmful in contact with skin.

**Precautionary statement**

**Prevention**

P264 Wash thoroughly after handling.  
P270 Do not eat, drink or smoke when using this product.

**Response**

P301 + P312  
P330  
P391

If swallowed: Call a poison center/doctor if you feel unwell.  
Rinse mouth.  
Collect spillage.

**Storage**

Store away from incompatible materials.

**Disposal**

P501

Dispose of contents/container in accordance with local/regional/national/international regulations.

**Hazard(s) not otherwise classified (HNOC)**

None known.

**Supplemental information**

This is a pesticide product registered by the United States Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets (SDS), and for workplace labels of non-pesticide chemicals. The hazard information required on the pesticide label is reproduced in section 15. The pesticide label also includes other important information, including directions for use.

### 3. Composition/information on ingredients

**Mixtures**

Chemical name	Common name and synonyms	CAS number	%
Acephate (O,S-Dimethylacetylphosphoramido thioate)		30560-19-1	97.4
Other compounds			2.6

### 4. First-aid measures

**Inhalation**

Move to fresh air. Call a physician if symptoms develop or persist. Do not use mouth-to-mouth method if victim inhaled the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

**Skin contact**

Wash off with soap and water. Get medical attention if irritation develops and persists.

**Eye contact**

Get medical attention if irritation develops and persists.

**Ingestion**

Rinse mouth. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Get medical advice/attention if you feel unwell. If victim is conscious, administer an 8 oz. glass of water containing 2 tbsp. activated charcoal. Have person lie on their left side to slow down absorption of the ingested material.

**Most important symptoms/effects, acute and delayed**

This product is a Cholinesterase Inhibitor. Preexisting skin or respiratory disorders may be aggravated by exposure to components of this product. Preexisting conditions which lower cholinesterase levels increase vulnerability to cholinesterase depression. these include: (for plasma) chronic alcoholism; malnutrition; dermatomyositis; existing toxicity from exposure to carbon disulfide; benzalkonium salts, organic mercury compounds, ciguatoxins or solanines; and (for RBC) hemolytic anemia. 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. Product may cause slight but temporary irritation to the eyes and may cause irritation of the skin.

**Indication of immediate medical attention and special treatment needed**

Treat symptomatically. Keep victim warm. Keep victim under observation. Symptoms may be delayed. This product is an Organophosphate (OP) Insecticide. Do not handle the patient without the following protective equipment in place: chemical resistant gloves and apron (preferably nitrile). Remove contaminated clothing and do not reuse without thorough cleaning with detergent and hot water. Dispose of heavily contaminated clothing, including shoes, as a hazardous waste. 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 against parasympathetic nervous stimulation. If there are signs of parasympathetic stimulation, Atropine Sulfate should be injected at 10 minutes intervals in doses of 1 to 2 milligrams until complete atropinization has occurred. Pralidoxime chloride (2-PAM chloride) may also be used as an effective antidote in addition to and while maintaining full atropinization. In adults, an initial dose of 1 gram of 2-PAM should be injected, preferably as an infusion, in 250 cc of saline over a 15 to 20 minute period. If this is not practical, 2-PAM may be administered slowly by intravenous injection as a 5% solution in water over not less than 2 minutes. After about an hour, a second dose of 1 gram of 2-PAM will be indicated if muscle weakness has not been relieved. For infants and children, the dose of 2-PAM is 0.25 grams. Avoid morphine, aminophylline, phenothiazine, reserpine, furosemide and ethacrynic acid. Clear chest by postural drainage. Oxygen administration may be necessary. Observe patient continuously for 48 hours. Repeated exposure to cholinesterase inhibitors may without warning cause prolonged susceptibility very small doses of any cholinesterase inhibitor. Allow no further exposure until time for cholinesterase regeneration has been attained as determined by a blood test. Bathe and shampoo contaminated skin and hair. If ingested, empty stomach; activated charcoal is useful to further to further limit absorption. If victim is alert, Syrup of Ipecac (2 tablespoons in adults, 1 tablespoon in small 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.

**General information**

Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. This product is a Cholinesterase Inhibitor. A physician should be contacted in all cases of exposure to the technical and its formulations.

**5. Fire-fighting measures**

**Suitable extinguishing media**

Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).

**Unsuitable extinguishing media**

Do not use water jet as an extinguisher, as this will spread the fire.

**Specific hazards arising from the chemical**

During fire, gases hazardous to health may be formed.

**Special protective equipment and precautions for firefighters**

Not available.

**Fire fighting equipment/instructions**

Use water spray to cool unopened containers.

**Specific methods**

Use standard firefighting procedures and consider the hazards of other involved materials.

**General fire hazards**

No unusual fire or explosion hazards noted.

**6. Accidental release measures**

**Personal precautions, protective equipment and emergency procedures**

Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

**Methods and materials for containment and cleaning up**

Prevent product from entering drains.

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS. Shovel up, sweep up or vacuum up the material and place in a container for salvage or disposal. Decontaminate the area and equipment with dilute alkali or ammonia (less than 5%) and detergent.

**Environmental precautions**

Avoid release to the environment. Inform appropriate managerial or supervisory personnel of all environmental releases. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

**7. Handling and storage**

**Precautions for safe handling**

Do not taste or swallow. When using, do not eat, drink or smoke. Provide adequate ventilation. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Avoid release to the environment. Observe good industrial hygiene practices.

**Conditions for safe storage, including any incompatibilities** Store in tightly closed container. Store away from incompatible materials (see Section 10 of the SDS).

## 8. Exposure controls/personal protection

**Occupational exposure limits** This mixture has no ingredients that have PEL, TLV, or other recommended exposure limit.

**Biological limit values** No biological exposure limits noted for the ingredient(s).

**Appropriate engineering controls** Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

**Individual protection measures, such as personal protective equipment**

**Eye/face protection** Face shield is recommended. Wear safety glasses with side shields (or goggles).

**Skin protection**

**Hand protection** Wear appropriate chemical resistant gloves. Nitrile gloves are recommended (minimum thickness 0.40 mm). Wash when contaminated. Dispose of gloves when contaminated inside, when perforated or when contamination outside cannot be removed. Always wash hands before eating, drinking, smoking or using the toilet.

**Other** Long-sleeved shirt and long pants or coveralls, socks and closed toe shoes are required.

**Respiratory protection** If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn.

**Thermal hazards** Wear appropriate thermal protective clothing, when necessary.

**General hygiene considerations** Keep away from food and drink. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

## 9. Physical and chemical properties

**Appearance** White pellet

**Physical state** Solid.

**Form** Pellets.

**Color** White.

**Odor** Strong cabbage-like odor

**Odor threshold** Not available.

**pH** Not available.

**Melting point/freezing point** 188.42 °F (86.9 °C) estimated / 188 °F (87 °C) estimated

**Initial boiling point and boiling range** Not available.

**Flash point** Not available.

**Evaporation rate** Not available.

**Flammability (solid, gas)** Not available.

**Upper/lower flammability or explosive limits**

**Flammability limit - lower (%)** Not available.

**Flammability limit - upper (%)** Not available.

**Explosive limit - lower (%)** Not available.

**Explosive limit - upper (%)** Not available.

**Vapor pressure** 1.70E-06 mm Hg estimated

**Vapor density** Not available.

**Relative density** Not available.

**Solubility(ies)**

**Solubility (water)** Not available.

**Auto-ignition temperature** Not available.

**Decomposition temperature** Not available.

Viscosity Not available.

**Other information**

Bulk density 27 lb/ft<sup>3</sup>  
Explosive properties Not explosive.  
Oxidizing properties Not oxidizing.

**10. Stability and reactivity**

**Reactivity** The product is stable and non-reactive under normal conditions of use, storage and transport.

**Chemical stability** Material is stable under normal conditions.

**Possibility of hazardous reactions** No dangerous reaction known under conditions of normal use.

**Conditions to avoid** Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. Strong oxidizing agents and alkaline compounds.

**Incompatible materials** Strong oxidizing agents.

**Hazardous decomposition products** Emits hazardous fumes and smoke of unknown composition when heated to decomposition or burned.

**11. Toxicological information**

**Information on likely routes of exposure**

Inhalation No adverse effects due to inhalation are expected.  
Skin contact No adverse effects due to skin contact are expected.  
Eye contact Direct contact with eyes may cause temporary irritation.  
Ingestion Harmful if swallowed.

**Symptoms related to the physical, chemical and toxicological characteristics** Direct contact with eyes may cause temporary irritation.

**Information on toxicological effects**

**Acute toxicity** Harmful if swallowed.

Product	Species	Test Results
Orthene® Turf, Tree, & Ornamental 97 Spray		
<b>Acute</b>		
<b>Dermal</b>		
LD50	Rabbit	> 2000 mg/kg
<b>Oral</b>		
LD50	Rat	688 mg/kg
Components	Species	Test Results

Acephate (O,S-Dimethylacetylphosphoramidothioate) (CAS 30560-19-1)

**Acute**

**Dermal**

LD50 Rabbit 10 g/kg (Tox Cat IV)

**Skin corrosion/irritation** Prolonged skin contact may cause temporary irritation.

**Irritation Corrosion - Skin**

Orthene® Turf, Tree, & Ornamental 97 Spray, Slight Irritant

**Serious eye damage/eye irritation** Direct contact with eyes may cause temporary irritation.

**Eye**

Orthene® Turf, Tree, & Ornamental 97 Spray, Slight Irritant

**Respiratory or skin sensitization**

**Respiratory sensitization** Not a respiratory sensitizer.

**Skin sensitization** This product is not expected to cause skin sensitization.

**Skin sensitization**

Acephate (O,S-Dimethylacetylphosphoramidothioate), Not a sensitizer  
Species: Guinea pig

**Germ cell mutagenicity** No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

**Carcinogenicity** Not classifiable as to carcinogenicity to humans.

**IARC Monographs. Overall Evaluation of Carcinogenicity**

Not listed.

**OSHA Specifically Regulated Substances (29 CFR 1910.1001-1052)**

Not regulated.

**US. National Toxicology Program (NTP) Report on Carcinogens**

Not listed.

**Reproductive toxicity** This product is not expected to cause reproductive or developmental effects.

**Specific target organ toxicity - single exposure** Not classified.

**Specific target organ toxicity - repeated exposure** Not classified.

**Aspiration hazard** Not an aspiration hazard.

## 12. Ecological information

**Ecotoxicity** Toxic to aquatic life with long lasting effects.

Components		Species	Test Results
Acephate (O,S-Dimethylacetylphosphoramidothioate) (CAS 30560-19-1)			
<b>Aquatic</b>			
Crustacea	EC50	Water flea (Daphnia magna)	> 50 mg/l, 48 hours
Fish	LC50	Rainbow trout,donaldson trout (Oncorhynchus mykiss)	2.36 - 3 mg/l, 96 hours

**Persistence and degradability** No data is available on the degradability of any ingredients in the mixture.

**Bioaccumulative potential**

**Partition coefficient n-octanol / water (log Kow)**

Acephate (O,S-Dimethylacetylphosphoramidothioate) -0.85

**Mobility in soil** No data available.

**Other adverse effects** No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

## 13. Disposal considerations

**Disposal instructions** Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.

**Local disposal regulations** Dispose in accordance with all applicable regulations.

**Hazardous waste code** The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

**Waste from residues / unused products** Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

**Contaminated packaging** Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

## 14. Transport information

**DOT**

Not regulated as dangerous goods.

**IATA**

Not regulated as dangerous goods.

Read safety instructions, SDS and emergency procedures before handling.

**IMDG**

**UN number** UN3077

**UN proper shipping name** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Acephate), MARINE POLLUTANT

**Transport hazard class(es)**

**Class** 9

**Subsidiary risk** -

**Packing group** III

**Environmental hazards**

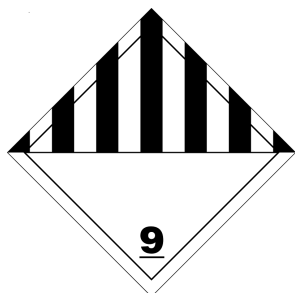
**Marine pollutant** Yes

**EmS** F-A, S-F

**Special precautions for user** Read safety instructions, SDS and emergency procedures before handling.

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code** Not applicable.

**IMDG**



**Marine pollutant**



**15. Regulatory information**

**US federal regulations**

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

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.

This is a pesticide product registered by the United States Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets (SDS), and for workplace labels of non-pesticide chemicals. The hazard information required on the pesticide label is reproduced below. The pesticide label also includes other important information, including directions for use.

HAZARD TO HUMANS AND DOMESTIC ANIMALS.

CAUTION! Harmful if swallowed.

**ENVIRONMENTAL HAZARDS**

This pesticide is toxic to birds. For terrestrial uses, do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwater or rinsate. This product and its degradate are highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops or weeds if bees are visiting the treatment area.

**Toxic Substances Control Act (TSCA)**

**TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)**

Not regulated.

**CERCLA Hazardous Substance List (40 CFR 302.4)**

Not listed.

**SARA 304 Emergency release notification**

Not regulated.

**OSHA Specifically Regulated Substances (29 CFR 1910.1001-1052)**

Not regulated.

**Superfund Amendments and Reauthorization Act of 1986 (SARA)****SARA 302 Extremely hazardous substance**

Not listed.

**SARA 311/312 Hazardous chemical** Yes**Classified hazard categories** Acute toxicity (any route of exposure)**SARA 313 (TRI reporting)**

Chemical name	CAS number	% by wt.
Acephate (O,S-Dimethylacetylphosphoramidothioate)	30560-19-1	97.4

**Other federal regulations****Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List**

Not regulated.

**Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)**

Not regulated.

**Safe Drinking Water Act (SDWA)** Contains component(s) regulated under the Safe Drinking Water Act.**US state regulations****California Proposition 65**California Safe Drinking Water and Toxic Enforcement Act of 2016 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).**International Inventories**

Country(s) or region	Inventory name	On inventory (yes/no)*
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	No

\*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

**16. Other information, including date of preparation or last revision****Issue date** Jul-09-2018**Revision date** Jan-09-2019

**References**

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

**Version #** 2.0**HMIS® ratings**  
Health: 2  
Flammability: 0  
Physical hazard: 0**NFPA ratings**  
Health: 2  
Flammability: 0  
Instability: 0



**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.

AMVAC Chemical Corporation cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use.

©2019 AMVAC Chemical Corporation. All Rights Reserved. AMVAC and the AMVAC Logo are trademarks owned by AMVAC Chemical Corporation.

Orthene is a trademark owned by AMVAC Chemical Corporation.

ACGIH is a trademark of the American Conference of Governmental Industrial Hygienists.

CHEMTREC is a trademark of the American Chemistry Council, Inc.

HMIS is a trademark of the American Coatings Association.

NFPA is a trademark of the National Fire Protection Association, Inc.

**Revision information**

Transport Information: Material Transportation Information

Transport information: General information

Other information, including date of preparation or last revision: Disclaimer