ORTHENE® 75 S Soluble Powder

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® 75 S Soluble Powder

EPA REGISTRATION NUMBER: 59639-26

SYNONYM(S): ORTHENE® 75 S Soluble Powder (Water Soluble Packets)

VC-1119, VC-1166, VC-1167, VC-1168

MANUFACTURER

VALENT USA CORPORATION
P.O. Box 8025
1333 N. California Blvd, Suite 600
Culver 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

SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Ingredient Name</th>
<th>CAS #</th>
<th>Weight</th>
<th>Exposure Limit Ref.</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACHEPHATE®</td>
<td>(30560-19-1)</td>
<td>72 - 77</td>
<td>OSHA</td>
<td></td>
</tr>
<tr>
<td>AMORPHOUS SILICA (7631-86-9)</td>
<td>(SILICON DIOXIDE)</td>
<td>20 - 25</td>
<td>mg/m³</td>
<td>OSHA total dust</td>
</tr>
<tr>
<td>AMORPHOUS SILICA</td>
<td>(7631-86-9)</td>
<td>20 - 25</td>
<td>mg/m³</td>
<td>ACGIH total dust</td>
</tr>
<tr>
<td>Particle</td>
<td>3</td>
<td>mg/m³</td>
<td>Respirable</td>
<td></td>
</tr>
</tbody>
</table>

OTHER INGREDIENTS**:

- Active Ingredient

** Other 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 these ingredients are addressed in this document. Specific information on the other ingredients for the management of a waste and wash contaminated 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
- CAUSES EYE IRRITATION

-AVOID BREATHING DUST OR SPRAY MIST
-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, headache, dizziness, blurring 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.

Eyes: 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.

Skin: This substance is not expected to cause prolonged or significant skin irritation. Based on an evaluation of the ingredients, this product is not expected to cause allergic reactions. If absorbed through the skin, this substance is considered practically non-toxic to internal organs.

Ingestion: This substance is slightly toxic to internal organs if swallowed. The degree of injury will depend on the amount absorbed from the gut. Signs and symptoms which may be seen are described above. 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 data from similar materials.

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. Occupations where there is long term, high exposure to small silica particles can result in silicosis, a disease in which scarring of the lung occurs, causing shortness of breath and cough. It is unlikely, however, that exposure to this product under the conditions specified on the label will result in silicosis.

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. Pre-existing lung disorders may be aggravated by exposure to this material.

For complete discussion of the toxicology data from which this evaluation was made, refer to Section 11. See regulatory information in Section 15.

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: Wash skin thoroughly with soap and water. Remove contaminated clothing and wash contaminated clothing, if necessary.

INGESTION: If swallowed, drink 1 or 2 glasses of water (or milk) and induce vomiting by touching the back of the throat with a finger. If possible, contact a physician. Provide contaminated clothing, or emergency treatment 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 there are signs or symptoms as described in this document due to breathing this material, move person to fresh air. If breathing has stopped, apply artificial respiration and call a doctor.

NOTES TO PHYSICIAN: This material contains a cholinesterase inhibitor. Measurement of blood cholinesterase activity may be used 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 (PROTAPAM) 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: CO₂, dry chemical, foam, water fog.

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

NFPA RATINGS: Health 1; Flammability 1; Reactivity 1; 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

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 form sewers or 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: Clean up 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. Do not put concentrate into food or drink containers. Do not dilute concentrate in food or drink containers. Do not store diluted spray. Store in 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. RASHING/VENTILATION: Wear approved respiratory protection when working with this material unless ventilation is adequate to keep airborne concentrations below recommended exposure standards. SKIN PROTECTION: 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

SECTION 10: STABILITY AND REACTIVITY
CHEMICAL STABILITY: Stable at temperatures below 180°F (82°C). INCOMPATIBILITY: Avoid 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: Minimal irritation clearing within 7 days. (Toxicity Category IV) Skin Irritation: No irritation at 72 hours after exposure. (Toxicity Category IV) Dermal Toxicity: No product toxicity data available. The hazard evaluation was based on data on the components. The dermal LD₅₀ of Acephate in rabbits is > 10,000 mg/kg. (Toxicity Category IV) Oral Toxicity: No product toxicity data available. The hazard evaluation was based on data on the components. The oral LD₅₀ of Acephate in male rats is 1447 mg/kg. The oral LD₅₀ of Acephate in female rats is 1030 mg/kg. (Toxicity Category III) Inhalation Toxicity: The 1-hour LC₅₀ in rats is > 12.1 mg/l. (Toxicity Category III) Skin Sensitization: No product toxicity data available. The hazard evaluation was based on data on the components. The active ingredient, 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 10% 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, there was no treatment-related increase in tumors at any site. The most significant treatment-related effect was a decrease in cholesterolaemia activity of plasma, RBC, and brain. Acephate is classified by the Environmental Protection Agency as a Group C (possible) human carcinogenic. 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 other maternal effects) 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 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. REPRODUCTION: Tests have been conducted with Acephate Technical. When male and female rats were fed Acephate Technical 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 non-effect level. MUTAGENICITY: Tests have been conducted with Acephate Technical. Acephate Technical has been shown to have a weak potential to cause mutations when tested in microbes or cultured mammalian cells and in some studies using mice. However, the results of most mouse animal studies indicate that Acephate Technical does not cause mutations in whole animals. TOXICITY OF OTHER INGREDIENT: Occupations where there is long term, high exposure to small silica particles can result in silicosis, a disease in which scarring of the lungs occurs, causing shortness of breath and cough. It is unlikely, however, that exposure to this product under the conditions specified on the label will result in silicosis. See Section 3 for a summary of the potential for adverse health effects from exposure to this product. See Section 15 for regulatory information.

SECTION 12: ECOLOGICAL INFORMATION
AVIAN TOXICITY: Acephate Technical is moderately toxic to birds. Oral LD₅₀ Mallard Duck: 350 mg/kg Oral LD₅₀ Phasianus colchicus: 100 mg/kg Oral LD₅₀ Chickens: 855 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 nontoxic 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 Golder Thym 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 TANK SOURCE ORGANISM TOXICITY: Acephate Technical is highly toxic to bees. The acute oral LD₅₀ for bees is 1.2 ug/beee.

SECTION 13: DISPOSAL CONSIDERATIONS
END USERS MUST DISPOSE OF ANY UNUSED PRODUCT AS PER THE LABEL RECOMMENDATIONS. DISPOSAL METHODS: Check governmental regulations and local authority requirements 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 75% powder

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 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. The Environmental Protection Agency classifies acephate as a Group C (possible) human carcinogenic. OTHER U.S. FEDERAL REGULATIONS: OSHA: NONE CERCLA RQ*: NONE RCRA**: Not Regulated SARA Title III: NA SARA 313 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; NADA SARA 313: Acephate is subject to reporting under Section 313 and Section 6077 of the Pollution Prevention Act. PCB: NADA 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. Proposition 65: This product contains a chemical(s) known to the state of California to cause cancer. New Jersey Environmental Hazardous Substance: Acephate is listed. OTHER: This product is not listed as a carcinogen by NTP, IARC, or OSHA. * 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 is based on available product characteristics only. See Sections 3 and 11 for toxicology information.

SECTION 16: OTHER INFORMATION
REASON FOR ISSUE: Revisions to multiple sections throughout MSDS. PROJECT MANAGER: Mike Riffee APPROVAL DATE: 2/26/96 REVISION DATE: 2/26/96 SUPERSSEDES DATE: 4/27/94 MSDS NUMBER: 0011 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. JUDGEMENTS AS TO THE SUITABILITY OF INFORMATION HEREIN FOR THE INDIVIDUAL’S OWN USE OR PURPOSES ARE NECESSARILY THE INDIVIDUAL’S OWN RESPONSIBILITY. ALTHOUGH REASONABLE CARE HAS BEEN TAKEN IN THE PREPARATION OF SUCH INFORMATION, VALENT EXTENDS NO WARRANTIES, MAKES NO REPRESENTATIONS, AND ASSUMES NO RESPONSIBILITY AS TO THE ACCURACY OR SUITABILITY OF SUCH INFORMATION FOR APPLICATION TO THE INDIVIDUAL’S PURPOSES OR THE CONSEQUENCES OF ITS USE.

EMERGENCY TELEPHONE #: (800) 892-0099 NDA - No Data Available NA - Not Applicable Revision Number: 3