

## MATERIAL SAFETY DATA SHEET

### SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**COMPANY ADDRESS:**

RAINBOW TREECARE SCIENTIFIC ADVANCEMENTS  
2239 Edgewood Ave. S.  
St. Louis Park, MN 55426

**EMERGENCY TELEPHONE NUMBERS:**

(800) 424-9300 (CHEMTREC, transportation and spills)

**PRODUCT NAME** : Lepitect Systemic Tree & Ornamental Insecticide  
**CHEMICAL NAME** : [O,S-DIMETHYL ACETYLPHOS-PHORAMIDOTHIOATE  
**CHEMICAL FAMILY** : Insecticide  
**EPA REG NO** : 74779 - 6

### SECTION 2 - COMPOSITION, INFORMATION OF INGREDIENTS

COMPONENT	PERCENTAGE	CAS NUMBER	OSHA PEL	ACIGH TLV
Acephate (O,S-Dimethyl acetylphosphoramidothioate)	94.5 – 99.1	30560-19-1		
Other Ingredients	0.9 – 4.5			

Ingredients not precisely identified are proprietary or non-hazardous. Values are not product specifications.

### SECTION 3 - HAZARDS IDENTIFICATION SUMMARY

(As defined by OSHA Hazard Communication Standard, 29 CFR 1910.1200)

**HEALTH HAZARDS:** Causes eye irritation. Harmful if swallowed. Avoid breathing dust or spray mist. Avoid contact with eyes, skin, or clothing. Wash hands thoroughly with soap and water after handling. Remove contaminated clothing and wash before reuse. **Keep out of reach of children.**

**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 with an exposure may include redness and possibly some minor swelling.

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.

**PHYSICAL HAZARDS:** Stable at normal ambient temperatures. Acephate can degrade on prolonged exposure to elevated temperatures or at alkaline pH. Contact with alkaline materials, including hypochlorite oxidants may produce noxious gas.

**ENVIRONMENTAL HAZARDS:** Extremely toxic to bees. Moderately toxic to birds. Practically non-toxic to freshwater fish. Keep out of waterways. Do not contaminate water when cleaning equipment or disposing of equipment wash water.

#### **SECTION 4 - FIRST AID MEASURES**

**IF SWALLOWED:** Call physician or Poison Control Center immediately. Drink 1 or 2 glasses of water (or milk) and induce vomiting by touching back of 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.

**IF IN EYES:** Immediately flush eyes with water for at least 15 minutes while holding eyelids open. Remove contact lenses if worn. Get medical attention if irritation persists.

**IF INHALED:** Remove victim to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. Get medical attention if symptoms develop.

**IF ON SKIN:** Remove contaminated clothing and wash separately. Wash skin with plenty of soap and water. Get medical attention if irritation persists.

**NOTE 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.

Have the product container or label with you when calling a poison control center or doctor, or going for treatment.

#### **SECTION 5 - FIRE FIGHTING MEASURES**

**FLASHPOINT (method):** NA

**FLAMMABLE LIMITS (LFL-UFL):** 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.

**EXTINGUISHING MEDIA:** Use CO<sub>2</sub>, dry chemical, foam, or water fog when fighting fires involving this material.

**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.

**FIRE FIGHTING EQUIPMENT:** Full protective equipment with self-contained breathing apparatus with full facepiece.

**HAZARDOUS COMBUSTION PRODUCTS:** Normal combustions 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**

Clean up spills immediately, observing precautions in Section 8 of this document. Isolate hazard area. Keep unnecessary and unprotected personnel from entering.

**LAND SPILLS:** Reduce airborne dust. Avoid runoff into storm sewers or other bodies of water. Clean up spill immediately. Vacuum or sweep up material and place in a container for reuse or disposal. Wash area with soap and water. Pick up wash liquid with additional absorbent and place in a chemical waste container.

**WATER SPILLS:** 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. Clean up spill immediately. Absorb spill with inert material. Remove contaminated water for treatment and disposal.

## SECTION 7 - HANDLING AND STORAGE

KEEP OUT OF REACH OF CHILDREN!

**HANDLING:** Use only in a well-ventilated area. Minimize dust generation and accumulation.

**STORAGE:** Keep insecticide in original container when not in use. 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

**EXPOSURE LIMITS (8 HOUR TWA):** (Refer to Section 3)

**ENGINEERING CONTROLS:** Proper ventilation is required when handling or using this product to keep exposure to airborne contaminants below the exposure limit. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

**PERSONAL PROTECTIVE EQUIPMENT:**

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

**CLOTHING** – Avoid contact with skin or clothing. Skin contact should be minimized by wearing protective clothing including gloves. Long-sleeved shirt and long pants, Chemical-resistant footwear plus socks

**GLOVES** - Chemical-resistant gloves, such as barrier laminate, butyl rubber, nitrile rubber, neoprene rubber, natural rubber, polyvinyl chloride (PVC), viton

**RESPIRATOR** – 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. When handling in enclosed areas with inadequate ventilation, use a dust/mist filtering respirator (MSHA/NIOSH approval number prefix TC-21C)

Discard clothing and other absorbent materials that have been heavily contaminated with this product. Do not reuse them. Follow manufacturer's instructions for cleaning and maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

**USER SAFETY RECOMMENDATIONS:**

1. Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
2. Remove clothing immediately if insecticide gets inside. Then wash thoroughly and put on clean clothing.
3. Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

## SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

**PHYSICAL DESCRIPTION:** White pellets

**ODOR:** Strong cabbage-like odor

**MELTING POINT:** NDA

**BULK DENSITY:** 27 lbs/cu ft

**pH:** NA

**VAPOR PRESSURE:**  $1.7 \times 10^{-6}$  mmHg @ 24° C (acephate)

**WATER SOLUBILITY:** Soluble in water

## SECTION 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 WITH OTHER MATERIALS:** Avoid contact with alkaline materials.

**HAZARDOUS DECOMPOSITION PRODUCTS:** Contact with alkaline materials including hypochlorite may produce noxious

gases.

## SECTION 11 - TOXICOLOGICAL INFORMATION

### **ACUTE TOXICITY:**

Oral LD <sub>50</sub> (male rat)	- > 688 mg/Kg (Toxicity Category III)
Oral LD <sub>50</sub> (female rat)	- > 1127 mg/Kg (Toxicity Category III)
Oral LD <sub>50</sub> (female/male rat)	- > 846 mg/Kg (Toxicity Category III)
Dermal LD <sub>50</sub> (rabbit)	- > 2 g/Kg (Toxicity Category III)
Inhalation LC <sub>50</sub> (rat)	- > 61.7 mg/L (Toxicity Category IV)
Eye Irritation (rabbit)	- Minimal effects clearing within 24 hours. (Toxicity Category IV)
Skin Irritation (rabbit)	- Slight and transient irritation was present at 72 hours after exposure. (Toxicity Category IV)
Sensitization (guinea pig)	- Acephate technical did not induce a positive skin sensitization reaction in the guinea pig using the modified Buehler or the Maximization techniques.

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 poisoning may result in incontinence, unconsciousness, convulsions and death.

**SUBCHRONIC TOXICITY:** 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 (300mg/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 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 highest dose tested. The developmental NOEL was 20 mg/kg/day.

**REPRODUCTION:** Male and female rates 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 decreased 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.

**MUTAGENIC DATA:** 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.

**ADDITIONAL DATA:** 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**

**ENVIRONMENTAL SUMMARY:** This product is highly toxic to aquatic invertebrates. Keep out of water bodies. Extremely toxic to bees by direct exposure or residues on treated crop. Do not apply to or allow drift on blooming crops that bees may visit.

**FISH TOXICITY:** (Technical)

96 hour LC<sub>50</sub>, Black Bass – 1,725 ppm  
 96 hour LC<sub>50</sub>, Bluegill – 2,050 ppm  
 96 hour LC<sub>50</sub>, Catfish – 2,230 ppm  
 96 hour LC<sub>50</sub>, Mosquito Fish – 6,000 ppm  
 96 hour LC<sub>50</sub>, Goldfish – 9,550 ppm  
 96 hour LC<sub>50</sub>, Crayfish – 750 ppm

Acephate Technical is practically non-toxic to freshwater fish. The 96-hour LC<sub>50</sub>, was found to be higher than 1,000 ppm in rainbow trout, bluegill, and channel catfish.

**AVIAN TOXICITY:** (Technical)

Oral LD<sub>50</sub>, Pheasant - 140 mg/Kg  
 Oral LD<sub>50</sub>, Mallard duck – 350 mg/kg  
 Oral LD<sub>50</sub>, 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).

**BEE TOXICITY:**

Oral LD<sub>50</sub>, Bees – 1.2 ug/bee (Acephate Technical is highly toxic to bees.)

### **SECTION 13 - DISPOSAL CONSIDERATIONS**

**WASTE:** Insecticide wastes are toxic. Dispose of in accordance with applicable Federal, state and local laws and regulations.

**CONTAINER:** Completely empty container into processing equipment. Then dispose of empty container in sanitary landfill or by incineration, or if allowed by State and local authorities, by burning. If burned, stay out of smoke.

### **SECTION 14 - TRANSPORT INFORMATION**

<b>DOT SHIPPING DESCRIPTION:</b>	Insecticide, dry, non-regulated
<b>TECHNICAL SHIPPING NAME:</b>	Acephate 97% Powder
<b>DOT HAZARD CLASS:</b>	N/A
<b>UN NUMBER:</b>	N/A
<b>DOT PACKING GROUP:</b>	N/A
<b>DOT PRIMARY/SECONDARY LABEL:</b>	N/A
<b>DOT PRIMARY/SECONDARY PLACARD:</b>	N/A
<b>DOT EMERGENCY RESPONSE GUIDE #:</b>	N/A



## 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 misuses of products, and storage of large quantities of products containing hazardous or extremely hazardous substance.

<b>CERCLA REPORTABLE QUANTITY:</b>	- NA
<b>OSHA:</b>	- NA
<b>RCRA:</b>	- NA
<b>SARA TITLE III STATUS:</b>	
311/312 Hazard Categories	- Immediate Health Effects: Yes - Chronic Health Effects: Yes - Fire Hazard: No - Sudden Release of Pressure: No - Reactivity Hazard: No
313 Chemicals	- Acephate
Sara Section 302:	- NA

**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.

## SECTION 16 - OTHER INFORMATION

**DISCLAIMER:** The information presented herein is based on available data from reliable sources and is correct to the best of Rainbow Treecare Scientific Advancements knowledge. Rainbow Treecare Scientific Advancements makes no warranty, express or implied, regarding the accuracy of the data or the results obtained from the use of this product. Nothing herein may be construed as recommending any practice or any product in violation of any law or regulations. The user is solely responsible for determining the suitability of any material or product for a specific purpose and for adopting any appropriate safety precautions. We disclaim all liability for injury or damage stemming from any improper use of the material or product described herein.

<b>REVISED DATE:</b>	Jan, 2009
<b>REVISED FOR:</b>	Initial draft