059484

Schering-Plough Animal Health Corporation
1095 Morris Ave
Union, NJ 07083

MATERIAL SAFETY DATA SHEET

Schering-Plough urges each user or recipient of this MSDS to read the entire data sheet to become aware of the hazards associated with this material.

SECTION 1. IDENTIFICATION OF SUBSTANCE AND CONTACT INFORMATION

MSDS NAME: **Double Barrel VP Insecticide Ear Tags**

SYNONYM(S): LPM Combination Ear Tag

MSDS NUMBER: SP000854

EMERGENCY NUMBER(S): Schering-Plough Security Control Center (908) 820-6921 (24 hours)

Transportation Emergencies -
CHEMTREC: (800) 424-9300 (Inside Continental USA)
(703) 527-3887 (Outside Continental USA)

Rocky Mountain Poison Center (For Human Exposure):
(303) 595-4869

Animal Health Technical Services:
For Animal Adverse Events: Small Animals and Horses: (800) 224-5318
For Animal Adverse Events: Livestock: (800) 211-3573
For Animal Adverse Events: Poultry: (800) 219-9286

INFORMATION: Animal Health Technical Services:
For Small Animals and Horses: (800) 224-5318
For Livestock: (800) 211-3573
For Poultry: (800) 219-9286

SCHERING-PLOUGH MSDS HELPLINE: (800) 770-8878 (US and Canada)
(908) 629-3657 (Worldwide)
Monday to Friday, 9am to 5pm (US Eastern Time)

SECTION 2. COMPOSITION AND INFORMATION ON INGREDIENTS

PRODUCT USE: Veterinary product

CHEMICAL FORMULA: Pesticide Impregnated Ear Tag

The formulation for this product is proprietary information. Only hazardous ingredients in concentrations of 1% or greater and/or carcinogenic ingredients in concentrations of 0.1% or greater are listed in the Chemical Composition table. Active ingredients in any concentration are listed. For additional information about carcinogenic ingredients see Section 3.

CHEMICAL COMPOSITION

CHEMICAL NAME	CAS NUMBER	PERCENT
Pirimiphos Methyl	29232-93-7	14
Lambda Cyhalothrin	91465-08-6	6.8

ADDITIONAL INFORMATION: This MSDS is written to provide health and safety information for individuals who will be handling the final product formulation during research, manufacturing, and distribution. For health and safety information for individual ingredients used during manufacturing, refer to the appropriate MSDS for each ingredient. Refer to the package insert or product label for handling guidance for the consumer.

SECTION 3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Red or White (formulation specific)
Plastic insecticide ear tag
Characteristic organophosphate odor

Harmful if swallowed.
Harmful if absorbed through skin.
May be irritating to skin.

May cause effects to:
- central nervous system

Toxic to fish and aquatic organisms.
May cause long-term adverse effects in the aquatic environment.

POTENTIAL HEALTH EFFECTS:

The toxicological properties of this mixture have not been fully characterized in humans or animals. However, there are data to describe the toxicological properties of the individual ingredients. The following summary is based upon available information about the individual ingredients of the mixture, or of the expected properties of the mixture.

The active ingredient, lambda cyhalothrin, is a parathyroid insecticide. Cases of severe pyrethroid poisoning in humans are rare. However, in pesticide applicators the following symptoms have been reported: burning, pricking, tickling, or tingling of the skin, skin irritation, numbness, feeling hot or cold, red eyes, coughing and sneezing. In animal studies, lambda cyhalothrin was very toxic by inhalation. However, as an impregnated active ingredient in this product, significant inhalation exposure to this material is not expected.

The active ingredient, pirimiphos methyl, is an organophosphate cholinesterase inhibitor insecticide. Pirimiphos methyl is a skin and eye irritant. Overexposure to pirimiphos methyl may cause loss of appetite, headache, nausea, slurred speech, blurred vision, muscular weakness, and cold sweating. Adverse responses of cholinesterase inhibition in humans include vomiting, diarrhea, abdominal cramping, bronchospasm, pinpoint pupil, slow heart rate, excessive salivation and sweating, muscle fasciculation (twitching), tremors, weakness, increased or decreased blood pressure, agitation, seizures and coma.

At low doses in humans, the only effect observed following pirimiphos methyl administration was a temporary decrease in plasma cholinesterase activity.

LISTED CARCINOGENS

Not listed as a carcinogen by OSHA, IARC, NTP or ACGIH.

SECTION 4. FIRST AID MEASURES

INHALATION: Remove to fresh air. If any trouble breathing, get immediate medical attention. Administer artificial respiration if breathing has ceased. If irritation or symptoms occur or persist, consult a physician.

SKIN CONTACT: In case of skin contact, IMMEDIATELY flush exposed skin thoroughly with plenty of water. While wearing protective gloves, remove any contaminated clothing, including shoes and continue to wash skin thoroughly with soap and water for at least 15 minutes. Get IMMEDIATE medical attention. Treat symptomatically.

EYE CONTACT: In case of eye contact, immediately rinse eyes thoroughly with plenty of water. If wearing contact lenses, remove only after initial rinse, and continue rinsing eyes for at least 15 minutes. If irritation occurs or persists, consult a physician.

INGESTION: DO NOT induce vomiting. Do not attempt to give anything by mouth to a seizing, drowsy or unconscious person. If alert, rinse mouth, drink a glass of water and IMMEDIATELY consult a physician.

NOTE TO PHYSICIAN: Acetylcholinesterase inhibitor. Organophosphate poisoning may result in 1) muscarinic (parasympathetic) symptoms including salivation, lacrimation, urination, defecation and sweating (SLUDS), 2) nicotinic or autonomic ganglia and somatic motor responses and 3) Central Nervous System (CNS) manifestations. Treat symptomatically and provide supportive care as necessary. Decontamination must proceed concurrently with treatment. Atropine and pralidoxime (2-PAM) may be antidotal but are not always indicated depending on class of pesticide and amount of exposure and may cause further toxicity. Follow current medical procedures for the proper treatment of pesticide poisonings.

SECTION 5. FIRE FIGHTING MEASURES

FLAMMABILITY DATA:

FLASH POINT: > 200 deg C

SPECIAL FIRE FIGHTING PROCEDURES:
Wear full protective clothing and self-contained breathing apparatus (SCBA).

SUITABLE EXTINGUISHING MEDIA:
Carbon dioxide (CO2), extinguishing powder or water spray.

See Section 9 for Physical and Chemical Properties.

SECTION 6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS:
Keep personnel away from the clean-up area. Wear appropriate personal protective equipment as specified in Section 8.

SPILL RESPONSE / CLEANUP:
All spills should be handled according to site requirements and based on precautions cited in the MSDS. In the case of liquids, use proper absorbent materials. For laboratories and small-scale operations, incidental spills within a hood or enclosure should be cleaned by using a HEPA filtered vacuum or wet cleaning methods as appropriate. For large dry or liquid spills or those spills outside enclosure or hood, appropriate emergency response personnel should be notified. In manufacturing and large-scale operations, HEPA vacuuming prior to wet mopping or cleaning is required.

ENVIRONMENTAL PRECAUTIONS:
This product is toxic to fish and/or aquatic organisms. Do not allow product to reach ground water, water course, sewage or drainage systems.

See Sections 9 and 10 for additional physical, chemical, and hazard information.

SECTION 7. HANDLING AND STORAGE

HANDLING:
Avoid contact with eyes. Avoid contact with skin and clothing. Keep containers adequately sealed during material transfer, transport, or when not in use.

Appropriate handling of this material is dependent on many factors, including physical form, duration and frequency of process or task, and effectiveness of engineering controls. Site-specific risk assessments should be conducted to determine the feasibility and the appropriateness of all exposure control measures. See Section 8 (Exposure Controls) for additional guidance.

STORAGE:
Store in a cool, dry, well ventilated area. Store out of direct sunlight.

See Section 8 for exposure controls and additional safe handling information.

SECTION 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

The following guidance applies to the handling of the active ingredient(s) in this formulation.

EXPOSURE CONTROLS:
The health hazard risks of handling this material are dependent on many factors, including physical form, duration and frequency of process or task, and effectiveness of engineering controls. Site-specific risk assessments should be conducted to determine the feasibility and the appropriateness of all exposure control measures. Exposure controls for normal operating or routine procedures follow a tiered strategy. Engineering controls are the preferred means of long-term or permanent exposure control. If engineering controls are not feasible, appropriate use of personal protective equipment (PPE) may be considered as alternative control measures. However, PPE should not be used as a method of permanent or long-term exposure control. Exposure controls for non-routine operations must be evaluated and addressed as part of the site-specific risk assessment.

RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT (PPE):

Respiratory Protection:	Respiratory protective equipment (RPE) may be required for certain laboratory and large-scale manufacturing tasks if potential airborne breathing zone concentrations of substances exceed the relevant exposure limit(s). Workplace risk assessment should be completed before specifying and implementing RPE usage. Potential exposure points and pathways, task duration and frequency, potential employee contact with the substance, and the ability of the substance to be rendered airborne during specific tasks should be evaluated. Initial and ongoing strategies of quantitative exposure measurement should be obtained as required by the workplace risk assessment. All RPE must conform to local and regional specifications for efficacy and performance. Consult your site or corporate health and safety professional for additional guidance.
Skin Protection:	Gloves that provide an appropriate barrier to the skin are recommended if there is potential for contact with this material. Consult your site safety staff for guidance.
Eye Protection:	Safety glasses with side shields. Use of goggles or full face protection may be required based on hazard, potential for contact, or level of exposure. Consult your site safety staff for guidance.
Body Protection:	In small-scale or laboratory operations, lab coats or equivalent protection is required. Disposable Tyvek or other dust impermeable suit should be considered based on procedure or level of exposure. Use of additional PPE such as shoe coverings, gauntlets, hood, or head covering may be necessary. Consult your site safety staff for guidance. In large-scale or manufacturing operations, disposable Tyvek or other dust impermeable suit is recommended and based on level of exposure. Use of additional PPE such as shoe coverings, gauntlets, hood, or head covering may be necessary. Consult your site safety staff for guidance.

EXPOSURE LIMIT VALUES

No exposure limits are available for this material.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

FORM:	Plastic insecticide ear tag
COLOR:	Red or White (formulation specific)
ODOR:	Characteristic organophosphate odor
SOLUBILITY:	
Water:	Insoluble

See Section 5 for flammability/explosivity information.

SECTION 10. STABILITY AND REACTIVITY

STABILITY/ REACTIVITY:
Stable under normal conditions.

INCOMPATIBLE MATERIALS / CONDITIONS TO AVOID:
Open flames and high temperatures. Oxidizers.

HAZARDOUS DECOMPOSITION PRODUCTS / REACTIONS:
Hydrogen chloride. Carbon oxides (COx). Phosphorus oxides. Nitrogen oxides (NOx). Sulfur oxides (SOx). Ammonia Halogens. Halogen acids.

SECTION 11. TOXICOLOGICAL INFORMATION

The toxicological properties of this material have not been fully characterized in humans or animals. The information presented below pertains to the following individual ingredients of this material and not to the formulated product.

ACUTE TOXICITY DATA

This information pertains to the following ingredient(s) and does not apply to the final product or its formulation(s).

INHALATION:
Pirimiphos methyl: Inhalation LC50: > 4.7 mg/L (rat)

Lambda Cyhalothrin: Inhalation LC50 (4hr): 60 mg/m^3 (3.26 ppm) (rat)
Although this material is very toxic by inhalation, this is not a route of exposure relevant to its use in this product.

SKIN:
Pirimiphos methyl: Dermal LD50: 2200-3500 mg/kg (rabbit).
Pirimiphos methyl was slightly to moderately irritating to the skin of rabbits.

Lambda Cyhalothrin: Dermal LD50: 632 - 696 mg/kg (rat)
Lambda Cyhalothrin was not irritating to rabbit skin.

EYE:
Pirimiphos methyl was irritating to the eyes of rabbits.

Lambda Cyhalothrin produced mild irritation in rabbit eyes.

ORAL:
Pirimiphos methyl: Oral LD50: 2400-5976 mg/kg (rat)
In an acute neurotoxicity study with pirimiphos methyl, rats were dosed by gavage at levels ranging from 15 to 1500 mg/kg/day. Clinical signs included convulsions, at all dose levels, and behavioral abnormalities. Inhibition of plasma, red blood cell, or brain cholinesterase was measured at all dose levels [NOEL for neurotoxicity: < 15 mg/kg/day].

Lambda Cyhalothrin: Oral LD50: 56 - 79 mg/kg (rat)
No clinical or hematological effects were observed in six human volunteers given a single oral dose of 5 mg of lambda cyhalothrin (equivalent to 0.05 to 0.07 mg/kg).

SENSITIZATION:
Pirimiphos methyl was not a skin sensitizer in guinea pigs.

Lambda Cyhalothrin was not a skin sensitizer in guinea pigs.

REPEAT DOSE TOXICITY DATA

SUBCHRONIC / CHRONIC TOXICITY:
In a 28-day feeding study, conducted in rats (5/sex/group), pirimiphos methyl was administered at dose levels of 0, 0.25, 0.40, 0.50, and 2.50 mg/kg/day. The LOEL was 2.5 mg/kg/day based upon the plasma cholinesterase inhibition observed in both male and female rats. In a 13-week oral study, pirimiphos methyl was administered to four groups of dogs (4/sex/dose) at dose levels as high as 25 mg/kg/day once daily. A reversible and non-progressive inhibition of plasma cholinesterase and dose-related inhibition in red blood cell cholinesterase levels were noted in both male and females at all dose levels (20% beginning in Week 1). No significant effects on brain cholinesterase levels were observed. However, the data are questionable because the post-mortem to assay time was not reported [LOEL for systemic toxicity: 2 mg/kg/day] [NOEL: < 2 mg/kg/day]. In a subchronic neurotoxicity study, male rats were dosed as high as 21 mg/kg/day and female rats were dosed as high as 25 mg/kg/day in their diets for 90 days. No neurotoxicity or systemic effects were noted.

In a chronic toxicity study, dogs were administered pirimiphos methyl at dose levels as high as 10 mg/kg/day for two years. Inhibition of plasma, red blood cell and brain cholinesterase was observed [LOEL for brain and plasma cholinesterase inhibition: less than or equal to 0.5 mg/kg/day; LOEL for red blood cell cholinesterase inhibition: 2 mg/kg/day] [NOEL for chronic toxicity: 0.5 mg/kg/day]. In a combined carcinogenicity/ chronic toxicity study, rats were administered 0.4 to 12.6 mg/kg/day of pirimiphos methyl for two years. Dose-related and progressive plasma and brain cholinesterase inhibition were seen at 2.1 and 12.6 mg/kg/day. Red blood cell cholinesterase was observed at 12.6 mg/kg/day at various time points. There were no effects on body weight, food consumption and hematology [NOEL for chronic toxicity: 12.6 mg/kg/day].

Subacute (5-days) to chronic (1-year) oral studies using lambda cyhalothrin were conducted in mice, rats, rabbits, and dogs. Dosages varied with species ranging from 1 to 25 mg/kg/day. The adverse effects observed included decreased body weight and food consumption, neurologic signs associated with pyrethoid toxicity (e.g. ataxia, unsteady or abnormal gait, and hyperexcitability) [NOEL: 5 mg/kg/day (rats) and 0.5 mg/kg/day (dogs)].

REPRODUCTIVE / DEVELOPMENTAL TOXICITY:
Reproduction (two-generation male and female rats) and developmental (female rats and rabbits) oral studies were conducted with pirimiphos methyl. Dose levels in the rat reproduction study ranged from 0.87 mg/kg/day to 15.4 mg/kg/day. There were no clinical signs of toxicity in parental animals and no effect on reproductive parameters. Plasma cholinesterase was inhibited at dose levels of 3.43 mg/kg/day and higher. Dose levels in the rat and rabbit developmental studies ranged from 1.5 to 150 mg/kg/day and 12 to 48 mg/kg/day, respectively. Female rats were dosed during gestation days 7-16 while female rabbits were dosed during gestation days 6-18. No developmental effects were seen in rats up to 150 mg/kg/day. Maternal toxicity including abnormal gait, changes in behavior and respiration, incontinence and tremors were noted in dams. No significant toxicological effects were observed at 15 mg/kg/day. The only maternal toxicity in rabbits was inhibition of plasma, red blood cell, or brain cholinesterase. No developmental defects were seen in treated rabbits [NOEL for developmental toxicity: 48 mg/kg/day].

In a two-generation (two-litter) reproduction study male and female rats were dosed orally with cyhalothrin. Dose levels ranged from 0.6 to 6.1 mg/kg/day. Decreased body weight and decreased litter size were noted at the 6.1 mg/kg/day dosage [NOEL: 1.7 mg/kg/day].

An oral developmental toxicity study was conducted in female rats and rabbits using cyhalothrin in corn oil. Dose levels ranged from 5-15 mg/kg/day in the rat study and 3-30 mg/kg/day in the rabbit study. Rats were dosed during gestation days 6-15 while the rabbits were dosed during gestation days 6-18. There was a decrease of body weight gain at the higher dose levels in both rats and rabbits. Decreased food consumption and clinical signs of neurotoxicity were also observed. Maternal toxicity was observed at the higher dose levels; however, there was no effect on fetal development at any dose levels. Cyhalothrin was not teratogenic in rats or rabbits [NOEL for maternal toxicity: 10 mg/kg/day (rat and rabbit)].

MUTAGENICITY / GENOTOXICITY:
Pirimiphos methyl was negative in an in vitro chromosome aberration assay in human lymphocytes, in an in vitro mouse lymphoma TK+/- forward gene mutation assay, and in an in vitro Salmonella typhimurium reverse gene mutation assay. In an in vivo bone marrow cytogenetic assay in CD-1 mice, pirimiphos methyl was negative at dose levels ranging from 24 mg/kg/day to 234 mg/kg/day. It was positive in an vitro sister chromatid exchange Chinese lung fibroblasts assay.

Lambda Cyhalothrin was negative in an in vitro chromosome aberration assay in human lymphocytes and human Hela cells, in an in vitro mouse lymphoma TK+/- forward gene mutation assay, and in four in vitro Salmonella typhimurium reverse gene mutation assays. In an in vivo bone marrow cytogenetic assay in CD-1 mice, lambda cyhalothrin was negative at dose levels ranging from 35 mg/kg/day.

CARCINOGENICITY:
This material has not been evaluated for carcinogenicity.

Pirimiphos methyl was not carcinogenic in a combined carcinogenicity/chronic toxicity study conducted in rats or in carcinogenicity studies conducted in mice.

Lambda Cyhalothrin was reported to be not oncogenic in chronic feeding studies in rats and mice.

SECTION 12. ECOLOGICAL INFORMATION

ECOTOXICITY DATA

INGREDIENT ECOTOXICITY

Pirimiphos methyl: 96-hr LC50 (rainbow trout): 404 mg/L
Pirimiphos methyl: 96-hr LC50 (bluegill sunfish): 2860 mg/L
Pirimiphos methyl: 24-hr LC50 (fathead minnow): 2.5 mg/L

Lambda Cyhalothrin: 48-hr EC50 (daphnid): 0.04 - 0.76 mg/L
Lambda Cyhalothrin: 96-hr LC50 (rainbow trout): 0.24 - 11.2 mg/L

ENVIRONMENTAL DATA

OTHER INGREDIENT ENVIRONMENTAL DATA: Pirimiphos methyl: log Pow (octanol/water partition coefficient): 4.12

SECTION 13. DISPOSAL CONSIDERATIONS

MATERIAL WASTE:
Disposal must be in accordance with applicable federal, state/provincial, and/or local regulations. Incineration is the preferred method of disposal, when appropriate. Operations that involve the crushing or shredding of waste materials or returned goods must be handled to meet the recommended exposure limit.

PACKAGING AND CONTAINERS:
Disposal must be in accordance with applicable federal, state/provincial, and/or local regulations.

SECTION 14. TRANSPORT INFORMATION

This material is not subject to the transportation regulations of DOT, ICAO, and the IMO. Refer to site-specific procedures and requirements for additional guidance.

ADR CLASSIFICATION:

Proper Shipping Name:	Environmentally hazardous substance, solid, n.o.s. (lambda cyhalothrin)
Hazard Class:	9
UN Number:	UN 3077
Packing Group:	III

ADDITIONAL INFORMATION:
Although this material is regulated only under the ADR, both the IATA and IMO have special provisions that allow the shipper to transport materials under the shipping name "Environmentally hazardous substance, solid, n.o.s." if the material is being transported under both ADR and either IATA or IMO regulations.

SECTION 15. REGULATORY INFORMATION

TSCA LISTING

This material is not subject to TSCA requirements.

U.S. STATE REGULATIONS

CHEMICAL NAME	California Proposition 65	CARTK	NJRTK	CTRTK	MARTK
Pirimiphos Methyl			Substance no. 3430 Listed.		

SECTION 16. OTHER INFORMATION

Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained therein, and assume no responsibility regarding the suitability of this information for the user's intended purposes or for the consequence of its use. Each individual should make a determination as to the suitability of the information for their particular purpose(s).

DEPARTMENT ISSUING MSDS:	Global Safety and Environmental Affairs Occupational and Environmental Toxicology Schering-Plough Corporation 1095 Morris Avenue Union, NJ 07083 USA
SCHERING-PLOUGH MSDS HELPLINE:	(800) 770-8878 (US and Canada) (908) 629-3657 (Worldwide) Monday to Friday, 9am to 5pm (US Eastern Time)
MSDS CREATION DATE:	14-Aug-1998
SUPERSEDES DATE:	14-Aug-1998