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Schering-Plough Animal Health Corporation  
556 Morris Avenue  
Summit, NJ 07901

**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:** Ultra Boss Pour-On Insecticide

**SYNONYM(S):** Synergized 5% Permethrin

**MSDS NUMBER:** SP000931

**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) 473-3371 (Worldwide)  
Monday to Friday, 9am to 5pm (US Eastern Time) .

**SECTION 2. HAZARDS IDENTIFICATION**

**EMERGENCY OVERVIEW**

Liquid  
Clear, Amber  
Odorless

Harmful if swallowed.  
Harmful if absorbed through skin.  
May be irritating to respiratory system.  
May be an aspiration hazard if ingested.  
May be harmful by inhalation.

*May cause effects to:*  
central nervous system  
gastrointestinal tract  
respiratory system  
cardiovascular system  
fetus

## SECTION 2. HAZARDS IDENTIFICATION

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

### POTENTIAL HEALTH EFFECTS:

This product is a permethrin insecticide and contains petroleum distillates. This product may cause mild skin sensitization in susceptible individuals or may cause slight eye irritation.

This product contains permethrin, a synthetic Type I pyrethroid ester. Occupational exposure to permethrin has induced temporary skin and facial sensations (feelings of numbness and tingling). Workers exposed to permethrin have also reported irritative symptoms, such as itching and burning of the skin, itching and irritation of the eyes, and irritation of the upper respiratory tract as well as increased nasal secretions. Anaphylactic reactions including bronchospasm and shock may occur in very sensitive individuals. Ingestion of large amounts may cause central nervous system effects resulting in seizures, coma, and respiratory arrest.

Ingestion of pyrethroid esters has caused stomach pain, nausea and vomiting, headache, dizziness, numbness and tingling, anorexia, fatigue, tremors, and intermittent convulsions.

Piperonyl butoxide is used to enhance the action of pyrethrin and pyrethroid insecticides. Clinical effects from piperonyl butoxide exposure include nausea, vomiting, diarrhea, loss of appetite, and mild central nervous system depression. It has been reported to cause decreases in the number of red blood cells, white blood cells and platelets in the circulating blood.

Petroleum distillates may be skin, eye, and respiratory tract irritants. Repeated skin contact may cause oil acne or dermatitis. Exposure to large amounts of petroleum distillates by inhalation or ingestion may cause CNS depression or excitement, headaches, drowsiness, nausea, vomiting, diarrhea, laxative effects, lung damage, or an irregular heartbeat. Aspiration of liquid into the lungs may produce chemical pneumonitis.

### LISTED CARCINOGENS

CHEMICAL NAME	CAS NUMBER	OSHA	IARC	NTP	ACGIH
Permethrin Technical.	52645-53-1		3 Classification not possible from current data.		
Piperonyl Butoxide.	51-03-6		3 Classification not possible from current data.		

Permethrin technical is classified by IARC as a Group 3 carcinogen (unclassifiable as to carcinogenicity in humans). Piperonyl Butoxide is classified by IARC as a Group 3 carcinogen (unclassifiable as to carcinogenicity in humans).

## SECTION 3. COMPOSITION AND INFORMATION ON INGREDIENTS

**PRODUCT USE:** Veterinary product

**CHEMICAL FORMULA:** Mixture.

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 2.

### CHEMICAL COMPOSITION

CHEMICAL NAME	CAS NUMBER	PERCENT
Permethrin Technical.	52645-53-1	5
Piperonyl Butoxide.	51-03-6	5
Distillates, petroleum, solvent-refined light paraffinic.	64741-89-5	40-80
Distillates, petroleum, solvent-refined heavy paraffinic.	64741-88-4	10-50

### 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 4. FIRST AID MEASURES

<b>INHALATION:</b>	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.
<b>SKIN CONTACT:</b>	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.
<b>EYE CONTACT:</b>	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.
<b>INGESTION:</b>	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.
<b>NOTE TO PHYSICIAN:</b>	This product is a permethrin insecticide and contains petroleum distillates. Vomiting is contraindicated due to the possibility of aspiration pneumonia.

#### SECTION 5. FIRE FIGHTING MEASURES

##### FLAMMABILITY DATA:

Flash Point: 154.4 deg C ( 310 deg F ) Method: Pensky-Martens closed-cup tester

##### SPECIAL FIRE FIGHTING PROCEDURES:

Wear full protective clothing and self-contained breathing apparatus (SCBA).

##### SUITABLE EXTINGUISHING MEDIA:

Carbon dioxide (CO<sub>2</sub>), 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 very toxic to 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.

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.

Ultra Boss Pour-On Insecticide

MSDS NUMBER: SP000931

Latest Revision Date: 21-Mar-2008

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**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. 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 the active ingredient(s) or any other hazardous ingredient in this formulation.

**SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

<b>FORM:</b>	Liquid
<b>COLOR:</b>	Clear, Amber
<b>ODOR:</b>	Odorless
<b>VAPOR PRESSURE:</b>	< 2 mmHg @ 25 deg C
<b>SPECIFIC GRAVITY:</b>	0.885 at 25 deg C
<b>SOLUBILITY:</b>	
Water:	Negligible

**ADDITIONAL INFORMATION:** Viscosity: 40 Centipoise

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:**  
Carbon oxides (COx). Organic vapors. Hydrogen chloride (HCl). Chlorine.

**SECTION 11. TOXICOLOGICAL INFORMATION**

The information presented below pertains to the formulated product unless indicated otherwise.

## ACUTE TOXICITY DATA

PRODUCT / CHEMICAL NAME	EXPOSURE ROUTE	STUDY DESCRIPTION	RESULT
Ultra Boss Pour-On Insecticide	Inhalation	LC50 (rat)	> 5.82 mg/L
	Dermal	LD50 (rat)	> 2020 mg/kg
	Oral	LD50 (rat)	> 5050 mg/kg
	Eye	Eye Irritation (rabbit)	Slightly irritating
	Skin	Skin Sensitization (guinea pig)	Weak sensitizer

### INHALATION:

Reduced body weight gain and clinical signs of toxicity including staggered gait, decreased activity, aggression, alopecia, diarrhea, piloerection, placing reflex and ptosis were observed in rats following inhalation exposure to Ultra Boss Pour-On Insecticide at a concentration of 5.82 mg/L.

### SKIN:

Dermal irritation, diarrhea, decreased defecation, and nasal discharge was observed following the dermal application of 2020 mg/kg of Ultra Boss Pour-On Insecticide to rats.

### ORAL:

Clinical signs of toxicity following oral administration of Ultra Boss Pour-On Insecticide to rats included tremors, piloerection, and polyuria.

## REPEAT DOSE TOXICITY DATA

### SUBCHRONIC / CHRONIC TOXICITY:

In sub-chronic studies ranging from 14 days to 26 weeks, rats and mice were treated with oral dosages of permethrin up to 10,000 mg/kg. Dose-dependent effects such as an increase in liver/body weight ratio, hypertrophy of the liver, and clinical signs of poisoning such as tremor were observed. The no-observed effects-level (NOEL) in rats ranged from 20 mg/kg diet (in studies lasting 90 days or 6 months) to 1500 mg/kg diet (in a 6-month study). Chronic studies ranging from 1 to 2 years were conducted in rats, mice and dogs. Dosages varied with species ranging from 1 mg/kg/day to 375 mg/kg/day of permethrin. Target organs of toxicity were the liver (increased liver weight and hepatocellular swelling), lung (increased weight), and testes (decreased weight). Depression and increased mortality were observed in mice at 75 mg/kg/day and above. Additional signs and symptoms of toxicity in the rat include hyperexcitation, sparring behavior, aggressiveness, enhanced startle response, whole body tremor and prostration.

Piperonyl Butoxide: Mice given 0.3 to 0.9% in their diet for 20 days had increased liver weights and other signs of liver toxicity. Repeat dose toxicity studies on piperonyl butoxide were conducted in mice, rats, and dogs in studies ranging from 7 weeks to 1 year in duration, and at dosage levels ranging from 62.5 to 30,000 mg/kg. Effects on body weight, food consumption, organ weights, and the liver were observed.

### REPRODUCTIVE / DEVELOPMENTAL TOXICITY:

In a three-generation reproductive study with permethrin, rats were administered doses ranging from 25 to 125 mg/kg/day. Systemic effects observed in the offspring were seen in the liver (hepatocyte hypertrophy and eosinophilia) and eye (infantile glaucoma). Body tremors were observed in the parents and offspring at 125 mg/kg/day. No teratogenic effects, maternal toxicity or fetotoxicity were observed in rats and rabbits administered 200 and 400 mg/kg/day, respectively, of permethrin.

Piperonyl Butoxide: Teratogenicity was reported in a rabbit study. Fetotoxicity (fetal deaths and reduced body weights) and teratogenicity (limb deformity and decreased digits) were observed in mice and rats given oral dosages as high as 1800 mg/kg on days 9 through 11 of gestation. Effects on litter sizes, pup survival, pup weights, and behavioral parameters were observed in 1-, 2-, and 3-generation reproductive studies in rats and mice given dosages as high as 8000 mg/kg or 0.8% in the diet. In addition, deviations in neurobehavioral changes were also noted in mice in subsequent generations.

### MUTAGENICITY / GENOTOXICITY:

Permethrin was negative in a bacterial mutagenicity study (Ames) and in a mammalian mutagenicity study (mouse lymphoma).

Piperonyl Butoxide: Not mutagenic in bacteria, silkworms, cultured mammalian cells, an Ames assay, and a dominant lethal test. It was negative in an unscheduled DNA synthesis study and in a chromosome aberration study. It induced sister chromatid exchanges in cultured Chinese hamster ovary cells in both the presence and absence of metabolic activation, and was positive in a mouse lymphoma assay with metabolic activation. Equivocal results were noted in a point mutation assay without metabolic activation, and it was negative with activation.

### CARCINOGENICITY:

Six carcinogenicity assays, three each in mice and rats, were conducted with permethrin. No tumorigenicity was seen in rat studies. However, species specific increases in pulmonary adenomas, a common benign tumor of mice with a high spontaneous background incidence, were seen in the three mouse studies. In one of these studies, there was an increased incidence of pulmonary alveolar cell carcinomas and benign liver adenomas when permethrin was administered in the diet at 5,000 ppm.

Piperonyl Butoxide: Liver tumors were noted in rats given concentrations as high as 2.4% in the diet for approximately two years. Hepatocellular carcinomas were induced in male mice administered concentrations as high as 1.2% in the diet for a year. However, in other studies, no carcinogenic effects were noted in mice or rats.

## SECTION 12. ECOLOGICAL INFORMATION

There are no data for the final product or its formulation(s). The information presented below pertains to the following ingredient(s).

### ECOTOXICITY DATA

**INGREDIENT ECOTOXICITY**

Permethrin:96-hr LC50 (rainbow trout): 0.1 to 314 ug/L  
Permethrin: 96-hr LC50 (brook trout): 2.3 to 5.2 ug/L  
Permethrin: 96-hr LC50 (channel catfish): 1.1 ug/L  
Permethrin: 48-hr EC50 (daphnid): 0.2 to 22 ug/L

Piperonyl Butoxide: 48-hr LC50 (ceriodaphnid): 330 ug/L  
Piperonyl Butoxide: 96-hr LC50 (bluegill): 4.2 ug/L  
Piperonyl Butoxide: 96-hr LC50 (rainbow trout): 3.4 ug/L

**ENVIRONMENTAL DATA**

**OTHER INGREDIENT ENVIRONMENTAL DATA:**

Permethrin is readily biodegradable.

Piperonyl Butoxide is potentially biodegradable based on data from related chemicals.

**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(s).

**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, IATA, 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. (permethrin)  
Hazard Class: 9  
UN Number: UN 3082  
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**

CHEMICAL NAME	TSCA
Piperonyl Butoxide.	Listed.
Distillates, petroleum, solvent-refined light paraffinic.	Listed.
Distillates, petroleum, solvent-refined heavy paraffinic.	Listed.

**U.S. STATE REGULATIONS**

CHEMICAL NAME	California Proposition 65	CARTK	NJRTK	CTRTK	MARTK
Permethrin Technical.			Substance no. 3422 Listed.		Listed.
Piperonyl Butoxide.			Substance no. 3732 Listed.		
Distillates, petroleum, solvent-refined light paraffinic.					Listed.

**SECTION 16. OTHER INFORMATION**

## 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:**

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