Schering Canada Inc.
3535 Trans-Canada
Pointe Claire, Quebec
Canada H9R 1B4

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: **Dri-Kil Louse Powder**

SYNONYM(S): Dri-Kil Dust

MSDS NUMBER: SP001423

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

Transportation Emergencies - CANUTEC:
(613) 996-6666 (Canada)

INFORMATION: Animal Health Technical Services:
(888) 306-0069 (Canada)

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. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Off-white
Powder
Odor unknown

May be irritating to skin, eyes, or mucous membranes.
May be irritating to respiratory system.
May cause dermal sensitization.

May cause effects to:
- liver
- kidney
- respiratory system
- gastrointestinal tract
- central nervous system

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

POTENTIAL HEALTH EFFECTS:

This product may cause eye, respiratory, and slight skin irritation. It may also cause numbness of the nose and throat. Ingestion of this product may cause nausea, vomiting, tremors, and numbness.

This product contains Rotenone, an ectoparasiticide, as the active ingredient. Rotenone is harmful if absorbed through the skin. It is irritating to the eyes, skin, mucous membranes, and respiratory system. Prolonged or repeated exposure to rotenone my cause nausea, vomiting, abdominal pain, incontinence (inability to control bodily excretions), muscle tremors, poor muscle coordination, CNS depression, seizures, shallow breathing, skin sensitization, skin rashes, and eye, nose and mouth lesions.

Acute exposure to sulfur may cause irritation of the skin, eyes, and mucous membranes. Inhalation of sulfur dust may cause breathing difficulty, coughing, respiratory tract irritation, inflammation of the nasal mucosa, and inflammation of the trachea and bronchi. Chronic exposure to sulfur may cause chronic inflammation of the lungs and various bronchopulmonary diseases, such as, emphysema, bronchiectasis (chronic dilation of bronchi), and asthma. Chronic exposure to sulfur may also cause skin damage including, dermatitis and skin eruption, eczema-like lesions, ulcerations, and inflammation around hair follicles.

LISTED CARCINOGENS

CHEMICAL NAME	CAS NUMBER	OSHA	IARC	NTP	ACGIH
Rotenone (in a 7.2% mixture)	83-79-4				Group A4 Not classifiable as a human carcinogen.

Rotenone is classified by ACGIH as a Group A4 carcinogen (not classifiable as a human carcinogen). Fields in the above table that do not contain data indicate that the materials have not been classified as human or animal carcinogens.

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 3.

HAZARDOUS COMPONENTS

CHEMICAL NAME	CAS NUMBER	PERCENT
Rotenone (in a 7.2% mixture)	83-79-4	0.15
Sulfur	7704-34-9	10-20

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

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, while wearing protective gloves, carefully remove any contaminated clothing, including shoes, and wash skin thoroughly with soap and water. If irritation or symptoms occur or persist, consult a physician.

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: Rinse mouth and drink a glass of water. Do not induce vomiting. If symptoms persist, consult a physician.

SECTION 5. FIRE FIGHTING MEASURES

FLAMMABILITY DATA:

FLASH POINT: Not determined (liquids) or not applicable (solids).

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

SUITABLE EXTINGUISHING MEDIA:
Water, carbon dioxide (CO_2), foam, or dry chemical.

See Section 9 for Physical and Chemical Properties.

SECTION 6. ACCIDENTAL RELEASE MEASURES

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

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.

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

SECTION 7. HANDLING AND STORAGE

HANDLING:
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. Do not store near heat or open flame.

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

CHEMICAL NAME	CAS NUMBER	ACGIH TLV (TWA)	OSHA PEL (TWA)
Rotenone (in a 7.2% mixture)	83-79-4	5 mg/m^3	5 mg/m^3

Fields in the above table(s) that do not contain data indicate that exposure limits are not available for those endpoints.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

FORM: Powder
COLOR: Off-white
ODOR: Odor unknown
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:
Oxidizers.

HAZARDOUS DECOMPOSITION PRODUCTS / REACTIONS:
Sulfur oxides (SOx). Carbon oxides (COx).

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, and not to the mixture(s).
The information presented below for the 5% rotenone dust mixture, is similar to the rotenone mixture used in this product.

ACUTE TOXICITY DATA

INHALATION:
Rotenone Dust 5% mixture: Inhalation LC50: 0.087 mg/L (rat, male); 0.045 mg/L (rat, female)

Sulfur: Inhalation LC50 (at 90%): > 5.49 mg/L (rat)

SKIN:
Rotenone: Dermal LD50: >940 mg/kg (rat); > 1000 mg/kg (rabbit)

Sulfur: Dermal LD50: > 2020 mg/kg (rat)
Sulfur was slightly irritating to the skin of rabbits.

EYE:
Rotenone was moderately irritating to the eyes of animals.

Sulfur was slightly irritating to the non-washed eyes of rabbits.

ORAL:
Rotenone: Oral LD50: 25 to 1500 mg/kg (rat); 2.8 to 350 mg/kg (mouse); 1500 mg/kg (rabbit)

Sulfur: Oral LD50: > 5050 mg/kg (rat)

SENSITIZATION:
A 5% Rotenone Dust mixture was a skin sensitizer in guinea pigs.

REPEAT DOSE TOXICITY DATA

SUBCHRONIC / CHRONIC TOXICITY:
Fatty changes in the liver and kidneys were observed in dogs fed rotenone at 5 mg/kg/day for a month. In dogs given 10 mg/kg/day of rotenone, severe toxic injury to the liver and mortality were observed.

REPRODUCTIVE / DEVELOPMENTAL TOXICITY:
In a reproductive study conducted in rats, dams were administered 2.5, 5, or 10 mg/kg/day of rotenone on days 6 to 15 of pregnancy. In the 10 mg/kg dose group, mortality was observed in 12 of 20 dams. There was a significant decrease in the number of live fetuses per surviving dams and an increase in the proportion of resorptions. In the 5 mg/kg dose group, increased frequencies of skeletal aberrations were observed. No significant effects were noted at 2.5 mg/kg.

MUTAGENICITY / GENOTOXICITY:
Rotenone was not mutagenic nor clastogenic when tested in the following tests, Ames, Yeast, Mouse Lymphoma, Mouse Micronucleus, Chromosome Aberration, and the Mitotic Recombination Test in Yeast. In Chinese Hamster Ovary Cells, rotenone was negative for sister chromatid exchange in the absence of metabolic activation; however, equivocal for sister chromatid exchange in the presence of metabolic activation.

CARCINOGENICITY:
Rotenone was not carcinogenic in female rats when dosed intraperitoneally for 5 days per week for 8 weeks at 1 or 2 mg/kg/bw. Additional studies, conducted in rats, mice, and hamsters showed no evidence of carcinogenicity.

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

Rotenone: 48-hr EC50 (daphnia): 100 mg/L
Rotenone: 96-hr LC50 (rainbow trout): 0.031 to 0.046 mg/L
Rotenone: 96-hr LC50 (bluegill): 0.023 to 0.141 mg/L
Rotenone: 96-hr LC50 (fathead minnow): 0.142 to 6.0 mg/L

ENVIRONMENTAL DATA

There are no environmental data available for this product or its components.

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

Refer to site-specific procedures and requirements for additional guidance.

DOT CLASSIFICATION:

Proper Shipping Name:	Pesticides, solid, toxic, n.o.s. (rotenone)
Hazard Class:	6.1
UN Number:	UN 2588
Packing Group:	II

IATA CLASSIFICATION:

Proper Shipping Name:	Pesticides, solid, toxic, n.o.s. (rotenone)
Hazard Class:	6.1
UN Number:	UN 2588
Packing Group:	II

ADR CLASSIFICATION:

Proper Shipping Name:	Pesticides, solid, toxic, n.o.s. (rotenone)
Hazard Class:	6.1
UN Number:	UN 2588
Packing Group:	II

IMDG CLASSIFICATION:

Proper Shipping Name:	Pesticides, solid, toxic, n.o.s. (rotenone)
Hazard Class:	6.1
UN Number:	UN 2588
Packing Group:	II

SECTION 15. REGULATORY INFORMATION

This classification is based on a 5% rotenone dust mixture that is highly toxic by inhalation and is similar to the 2% rotenone mixture used in this product.

WHMIS CLASSIFICATIONS:

This product has been classified in accordance with the hazard criteria on the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

The final packaged product is not subject to WHMIS classification. The following classification applies to the bulk formulation handled in the workplace.

Controlled Product Class: D1A: Very Toxic

TSCA LISTING

CHEMICAL NAME	TSCA
Sulfur	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)
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