

The logo for Elanco, featuring the word "ELANCO" in white, bold, uppercase letters on a blue rectangular background that is tilted slightly to the right.

**MATERIAL SAFETY DATA SHEET
EXTINOSAD LICE, FLY & MAGGOT ELIMINATOR**

AH0492

Revision 1.8, 18 October 2006

STATEMENT OF HAZARDOUS NATURE:

"Not hazardous according to criteria of Worksafe Australia"

Company Name and Address:

Elanco Animal Health
A Division of Eli Lilly Australia Pty Ltd
A.B.N. 39 000 233 992
112 Wharf Road, West Ryde, N.S.W. 2114, Australia

Contact Numbers:

Tel: (02) 9878 7777
Fax: (02) 9878 7720

Emergency Telephone Numbers:

Elanco Animal Health:
1800 226 324 (Toll free)
OR

Poisons Information Centre:
131126 (Australia-wide)

CHEMWATCH 1800 039 008 24 hour emergency contact number (spills and accidents)

Section 1 - Identification

Product Name: ElancoAH0492 Extinosad Lice, Fly & Maggot Eliminator

Other Names: Spinosad Aqueous Suspension; Spinosad Suspension Concentrate

Manufacturer's Product Code: AH0492

UN Number: None allocated

Dangerous Goods Class/Subsidiary Risk: None allocated

Hazchem Code: None allocated

Poisons Schedule Number: Unscheduled

Pack Size and Container Type: HDPE plastic containers; 250 mL, 1 L, 5 L, and 10 L

Use:

Major recommended uses: For the control of lice (*Bovicola ovis*) in sheep with short wool and long wool, including strains resistant to synthetic pyrethroids.

For treatment and prevention of blowfly (*Lucilia cuprina*) strike on sheep, including strains resistant to organophosphates.

For blowfly strike protection in mulesing and other wounds of sheep for at least 8 days.

Major Recommended Method(s) of Application: Dipping, jetting, flystrike dressing, mulesing & wound dressing

Section 2 - Composition / Information on Ingredients

Ingredient	CAS	Concentration %
Spinosad A	131929-60-7	a
Spinosad D	131929-63-0	a
Propylene Glycol	57-55-6	10
Excipients	NA	7.4
Water	7732-18-5	79.9

a - Spinosad A and Spinosad D combine to make spinosad which accounts for 2.4% to 2.7% of this formulation.

Contains no hazardous components (one percent or greater) or carcinogens (one-tenth percent or greater) not listed above.

Exposure guidelines: Spinosad - Dow AgroSciences Exposure Guideline 0.3 mg/m³ TWA.
Propylene glycol - WEEL 50 ppm (total vapour and aerosol), 10 mg/m³ (aerosol only) TWA for 8 hours.

Section 3 - Hazards Identification

Appearance: Tan to grey aqueous suspension

Physical State: Liquid

Odour: Latex paint

Emergency Overview

Primary Physical and Health Hazards: Liver, Kidney and Bone Marrow Effects.

Caution Statement: Effects of exposure to Extinosad may include liver, kidney, and bone marrow tissue changes.

Routes of entry: Inhalation and skin contact.

Potential Signs and Symptoms of Occupational Exposure: Spinosad, the active ingredient, may be slightly irritating to the eyes and is not expected to be irritating to the skin. Exposure to small amounts during normal handling is not likely to cause harmful effects. Based on animal studies, overexposure to spinosad may cause tissue changes in the liver, kidney, or

bone marrow. Dilute formulations of propylene glycol may be slightly irritating to the eyes and respiratory tract.

Medical Conditions Aggravated by Exposure: None known.

Carcinogenicity: Spinosad (spinosyn A and spinosyn D) - Not listed by IARC, NTP, ACGIH, or OSHA. Did not cause cancer in long term animal studies.

Propylene glycol - Not listed by IARC, NTP, ACGIH, or OSHA. Multiple long term dietary, inhalation, and dermal studies demonstrated no evidence of carcinogenicity in mice, rabbits, or rats.

Section 4 - First Aid Measures

Eyes: Flush eyes with plenty of water. Get medical attention.

Skin: Remove contaminated clothing and clean before reuse. Wash all exposed areas of skin with plenty of soap and water. Get medical attention if irritation develops.

Inhalation: Move individual to fresh air. Get medical attention if breathing difficulty occurs. If not breathing, provide artificial respiration assistance (mouth-to-mouth) and call a physician immediately.

Ingestion: Do not induce vomiting. Call a physician or Poisons Information Centre. Phone 13 1126 (Australia-wide). If available, administer activated charcoal (6-8 heaping teaspoons) with two to three glasses of water. Do not give anything by mouth to an unconscious person. Immediately transport to a medical care facility and see a physician.

Section 5 - Fire Fighting Measures

Flash Point: No applicable information found

UEL: No applicable information found

LEL: No applicable information found

Extinguishing Media: Use water, carbon dioxide, dry chemical, foam, or Halon.

Unusual Fire and Explosion Hazards: None known.

Hazardous Combustion Products: May emit toxic fumes when exposed to heat or fire.

Section 6 - Accidental Release Measures

Spills: Prevent further migration into the environment. Use absorbent/adsorbent material to solidify liquids. Sweep up or vacuum. Large spills due to traffic accidents, etc., should be reported immediately to Elanco Animal Health for assistance. Prevent spilled material from flowing onto adjacent land or into streams, ponds, or lakes. Wear protective equipment, including eye protection, to avoid exposure (see Section 8 for specific handling precautions).

Section 7 - Handling and Storage

Storage Conditions: Store below 30°C (Room Temperature) in a dry place in tightly closed original container. Do not freeze. Do not store in direct sunlight. KEEP OUT OF REACH OF CHILDREN.

Section 8 - Exposure Controls / Personal Protection

See Section 2 for Exposure Guidelines.

SPECIFIC SAFETY INSTRUCTIONS AS PER AUSTRALIAN REGISTERED LABEL¹:
May irritate the eyes. Avoid contact with eyes. Wash hands after use. When preparing the solution and using the prepared dip wash/jetting fluid/flystrike/wound dressing solution wear cotton overalls buttoned to the neck and wrist and a washable hat and elbow length PVC gloves. Wash hands after use. After each day's use wash gloves and contaminated clothing.

ADDITIONAL INFORMATION PROVIDED BY MANUFACTURER:

When mixing and handling, use protective clothing, impervious gloves, and dust respirator. Operators should wash thoroughly with soap and water after handling. If accidental eye contact occurs, immediately rinse with plenty of water.

Respiratory Protection: Use an approved respirator.

Eye Protection: Safety glasses.

Ventilation: Laboratory fume hood or local exhaust ventilation.

Other Protective Equipment: In a manufacturing setting, wear chemical-resistant gloves and body covering to minimize skin contact. If handled in a ventilated enclosure, as in a laboratory setting, respirator and goggles or face shield may not be required. Safety glasses are always required.

Other Handling Precautions: Under normal use and handling conditions, wear goggles to protect eyes and wear impermeable gloves and protective equipment to avoid direct contact with skin. Wash thoroughly with soap and water after handling.

Section 9 - Physical and Chemical Properties

Boiling Point: Not applicable

Melting Point: Not applicable

Specific Gravity: 1.01-1.04 @ 20°C (68°F)

pH: 7.3-8.7

Evaporation Rate: No applicable information found

¹ Handbook of First Aid Instructions and Safety Directions for Agricultural and Veterinary Chemicals (including Pesticides). Therapeutic Goods Administration

Water Solubility: Soluble

Vapor Density: No applicable information found

Vapor Pressure: No applicable information found

Section 10 - Stability and Reactivity

Stability: Stable at normal temperatures and pressures.

Incompatibility: May react with strong oxidizing agents (e.g., peroxides, permanganates, nitric acid, etc.).

Hazardous Decomposition: May emit toxic fumes when heated to decomposition.

Hazardous Polymerization: Will not occur.

Section 11 - Toxicological Information

Animal Toxicity Data Single Exposure

No data available for mixture or formulation. Data for ingredient(s) or related material(s) are presented.

Oral: Spinosad suspension (44%) - Rat, median lethal dose estimated greater than 5000 mg/kg.

Skin: Spinosad suspension (44%) - Rabbit, median lethal dose estimated greater than 2000 mg/kg.

Inhalation: Spinosad suspension (44%) - Rat, median lethal concentration estimated greater than 5000 mg/m³ (duration not specified).

Skin Contact: Spinosad suspension (44%) - Rabbit, slight irritant.

Eye Contact: Spinosad suspension (44%) - Rabbit, slight irritant.

Animal Toxicity Data Repeat Exposure

No data available for mixture or formulation. Data for ingredient(s) or related material(s) are presented.

Target Organ Effects: Spinosad - In animals, has been shown to cause vacuolation of cells in liver, kidney, and bone tissues and changes in blood and serum biochemistry. Dose levels producing these effects were many times higher than any dose levels expected from exposure due to use.

Propylene glycol - No significant adverse effects were reported in monkeys exposed to saturated vapour for 18 months or dogs administered 2000 mg/kg for 2 years.

Reproduction: Spinosad - In laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals.

Propylene glycol - In animal studies, has been shown not to interfere with reproduction.

Sensitization: Spinosad - Did not cause allergic skin reactions when tested in guinea pigs.

Mutagenicity: Spinosad - Not mutagenic in bacterial or mammalian cells.

Propylene glycol - In vitro mutagenicity studies were negative. Animal mutagenicity studies were negative.

Section 12 - Ecological Information

No environmental data for the mixture or formulation. The environmental data for ingredient(s) or related material(s) are presented.

Ecotoxicity Data: Spinosad

Rainbow trout 96-hour median lethal concentration: 30 mg/L

Bluegill 96-hour median lethal concentration: 5.94 mg/L

Sheepshead minnow 96-hour median lethal concentration: 7.87 mg/L

Daphnia magna 48-hour median lethal concentration: 92.7 mg/L

Bobwhite 5-day dietary median lethal concentration: >5253 ppm

Mallard 5-day dietary median lethal concentration: >5156 ppm

Bobwhite 14-day oral median lethal dose: >2000 mg/kg

Mallard 14-day oral median lethal dose: >2000 mg/kg

Honey bee 48-hour acute contact median lethal dose: 0.0029 microgram/bee

Green algae (*S. capricornutum*) median effective concentration: >105.5 ppm

Blue-green algae (*Anabaena flos-aquae*) median effective concentration: 8.09 mg/L

Diatom (*Navicula* sp.) median effective concentration: 0.107 mg/L

Diatom (*Skeletonema costatum*) median effective concentration: 0.227 mg/L

Eastern oyster 96-hour median effective concentration: 0.3 ppm

Grass shrimp 96-hour median lethal concentration: >9.76 mg/L

Environmental Fate: Spinosad

Photolysis half-life in water (days): 0.93 for spinosyn A at pH 7; 0.82 for spinosyn D at pH 7

Photolysis half-life in soil (days): 82 for spinosyn A; 44 for spinosyn D

Hydrolysis half-life (days): none, none (pH 5, 7); 200 for spinosyn A (pH 9); 259 for spinosyn D (pH 9)

Field soil dissipation half-life (days): 0.3 to 0.5 for spinosyn A

Soil leaching: immobile

Aerobic biodegradation half-life in soil (days): 9.4-17.3 for spinosyn A; 14.5 for spinosyn D

Anaerobic biodegradation half-life in water (days): 161 for spinosyn A; 250 for spinosyn D

Bioconcentration factor (BCF) in whole fish: 114

Environmental Summary:

Spinosad - Highly toxic to honey bees, oysters, and diatoms. Moderately toxic to blue-green algae. Slightly to moderately toxic to fish and aquatic invertebrates. No more than slightly to practically nontoxic to birds. Practically nontoxic to green algae. No volatility expected. Does not bioconcentrate in aquatic organisms. Not persistent due to photolysis and biodegradation.

Propylene glycol - Practically non-toxic to aquatic organisms. Material is not expected to bioconcentrate in aquatic organisms. Material may leach from soil into groundwater. Material is expected to be degraded by microorganisms. Biodegradation is expected to be achievable in secondary waste water treatment plant. Material is not expected to readily

evaporate, however once in the atmosphere, it is expected to rapidly degrade (within minutes to hours).

SPECIFIC LABEL INSTRUCTIONS AS PER AUSTRALIAN REQUIREMENTS - PROTECTION OF THE ENVIRONMENT: Used (polluted) dip wash or jetting fluid can be safely disposed of by pumping into a small holding dam pit or ontopasture bare land to which animals do not have access for 1 month.

Section 13 - Disposal Considerations

Disposal: Triple or (preferably) pressure rinse remaining container contents into the dip or jetting tank. Do not dispose of undiluted chemicals on site. Break, crush or puncture and bury empty containers in a local authority landfill. If not available bury the containers below 500mm in a disposal pit specifically marked and set up for this purpose clear of waterways, vegetation and roots. Empty containers and product should not be burnt.

Section 14 - Transport Information

No special transport requirements necessary.

Section 15 - Other Information

Sections revised: Header and Footer: Removed automatic print date from header. Pagination changed to page number only. Section 1: Added CHEMWATCH contact details.. Section 15: Deleted contact point details. (moved to section 1)

As of the date of issuance, we are providing available information relevant to the handling of this material in the workplace. All information contained herein is offered with the good faith belief that it is accurate. THIS MATERIAL SAFETY DATA SHEET SHALL NOT BE DEEMED TO CREATE ANY WARRANTY OF ANY KIND (INCLUDING WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE). In the event of an adverse incident associated with this material, this safety data sheet is not intended to be a substitute for consultation with appropriately trained personnel. Nor is this safety data sheet intended to be a substitute for product literature which may accompany the finished product.

GLOSSARY

(Abbreviations Used in Material Safety Data Sheets)

ACGIH = American Conference of Governmental Industrial Hygienists
AIHA = American Industrial Hygiene Association
BEI = Biological Exposure Index
CAS Number = Chemical Abstract Service Registry Number
CERCLA = Comprehensive Environmental Response Compensation and Liability Act (of 1980)
CHEMTREC = Chemical Transportation Emergency Center
DOT = Department of Transportation
EC = European Community
EINECS = European Inventory of Existing Chemical Substances
ELINCS = European List of New Chemical Substances
EPA = Environmental Protection Agency
HEPA = High Efficiency Particulate Air (Filter)
IARC = International Agency for Research on Cancer
ICAO/IATA = International Civil Aviation Organization/International Air Transport Association
IEG = Lilly Interim Exposure Guideline
IMO = International Maritime Organization
LEG = Lilly Exposure Guideline
LEL = Lower Explosive Limit
MSDS = Material Safety Data Sheet
NA = Not Applicable, except in Section 14 where NA = North America
NADA = New Animal Drug Application
NAIF = No Applicable Information Found
NCI = National Cancer Institute
NIOSH = National Institute for Occupational Safety and Health
NOS = Not Otherwise Specified
NTP = National Toxicology Program
OSHA = Occupational Safety and Health Administration
PEL = Permissible Exposure Limit (OSHA)
RCRA = Resource Conservation and Recovery Act
RQ = Reportable Quantity
RTECS = Registry of Toxic Effects of Chemical Substances
SARA = Superfund Amendments and Reauthorization Act
STEG = Lilly Short Term Exposure Guideline
STEL = Short Term Exposure Limit
TLV = Threshold Limit Value (ACGIH)
TPQ = Threshold Planning Quantity
TSCA = Toxic Substances Control Act
TWA = Time Weighted Average/8 Hours Unless Otherwise Noted
UEL = Upper Explosive Limit
UN = United Nations
WEEL = Workplace Environmental Exposure Level (AIHA)