



**MATERIAL SAFETY DATA SHEET
RUMENSIN 100**

AF1404

Revision 3.0, 15 March 2007

STATEMENT OF HAZARDOUS NATURE:

"Hazardous according to criteria of Worksafe Australia"
Harmful; R22 Harmful if swallowed.
Irritant; R37/38 Irritating to respiratory system and skin.
Irritant; R41 Risk of serious damage to eyes.

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)

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

Section 1 - Identification

Product Name: ElancoAF1404 Rumensin 100 Monensin Sodium

Other Names: Monensin 10%, Rumensin 10%, Rumensin Premix

Manufacturer's Product Code: AF1404

UN Number: None allocated

Dangerous Goods Class/Subsidiary Risk: None allocated

Hazchem Code: None allocated

Poisons Schedule Number: S6

Pack Size and Container Type: 25 kg multiwall paper bag.

Major Recommended Uses:

Feedlot Cattle: For improved feed efficiency. As an aid in the control of bloat.

Dairy cows: For increased milk production under many conditions. As an aid in reducing the severity of non-clinical ketosis in lactating dairy cows. As an aid in the control of bloat.

Cattle: For improved weight gain and feed efficiency in heifers. For improved reproductive performance in heifers. As an aid in the prevention of coccidiosis caused by *Eimeria zuernii* and *Eimeria bovis*.

Pasture Cattle: For improved weight gain and feed efficiency.

Goats: As an aid in the prevention of coccidiosis.

Chickens: As an aid in the prevention of coccidiosis caused by *Eimeria acervulina*, *E. brunetti*, *E. maxima*, *E. mivati*, *E. necatrix* and *E. tenella*.

Major Recommended Method(s) of Application: Mixed in feed.

Section 2 - Composition / Information on Ingredients

Ingredient	CAS	Concentration %
Monensin Sodium	22373-78-0	10
Diluent, including Anti-dusting Oil NA		90

Diluent may include rice hulls, corn grits, or similar.

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

Exposure Guidelines: Monensin sodium - LEG 15 micrograms/m³ TWA for 12 hours.
Grain dust - PEL 10 mg/m³ TWA. TLV 4 mg/m³ TWA for 8 or 12 hours (total). Lilly preferred exposure limit is TLV.

The anti-dusting oil reduces potential exposure under normal conditions of use.

Section 3 - Hazards Identification

Appearance: Brown granular meal

Physical State: Solid

Odor: Musty

Emergency Overview

Primary Physical and Health Hazards: Toxic. Corrosive (eyes). Irritant (skin, respiratory tract). Suspect Allergen. Heart and Muscle Effects.

Caution Statement: Rumensin 100 contains monensin sodium, is toxic, may cause burns or permanent tissue damage to the eyes, may be irritating to the skin and respiratory tract, and may cause allergic reactions. Effects of exposure may include changes in heart rate/rhythm and heart and muscle tissue changes.

Routes of Entry: Inhalation and skin contact.

Potential Signs and Symptoms of Occupational Exposure: Skin rash and skin and respiratory tract irritation have been reported. Based on animal data, may cause burns or permanent tissue damage to the eyes. Immediate rinsing may prevent permanent damage. Prolonged exposure to high concentrations of grain dust may cause irritation of the respiratory tract and mucous membranes.

Medical Conditions Aggravated by Exposure: Hypersensitivity to monensin sodium. Persons with a history of allergies, contact dermatitis, or chronic rashes should use special precautions to avoid skin contact or exposure to dust. When laboratory animals receive a bolus injection of monensin sodium, there are cardiovascular changes such as increased heart rate and elevated blood pressure. In experience with human exposure, however, there is no corroborative information available that would establish the aggravation of a medical condition by exposure to monensin sodium.

Carcinogenicity: Monensin sodium - Not listed by IARC, NTP, ACGIH, or OSHA. Not considered carcinogenic in animal studies conducted by Lilly Research Laboratories. Remaining ingredients - Not listed by IARC, NTP, ACGIH, or OSHA.

Section 4 - First Aid Measures

SPECIFIC FIRST AID INSTRUCTIONS AS PER AUSTRALIAN REGISTERED LABEL¹:
If poisoning occurs, contact a doctor or Poisons Information Centre. Phone 13 1126. If in eyes, hold eyes open, flood with water for at least 15 minutes and see a doctor.

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

ADDITIONAL INFORMATION PROVIDED BY MANUFACTURER:

Eyes: Hold eyes open and flush with a steady, gentle stream of water for 15 minutes. See an ophthalmologist (eye doctor) or other physician immediately. Immediate rinsing may prevent permanent damage.

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: Product is not expected to present a hazard by inhalation due to its coarse, granular nature. If inhalation does occur, remove individual to fresh air. If not breathing, provide artificial respiration assistance (mouth-to-mouth) and call a physician immediately.

Ingestion: Call a physician or Poisons Information Centre. 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 ignition up to 1.05 oz/cu ft.

Minimum Ignition Temperature of Dust Layer: 300°C (572°F) for 8% Monensin sodium mixture, 190°C (374°F) for 6% Monensin sodium mixture.

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

Unusual Fire and Explosion Hazards: As a finely divided material, may form dust mixtures in air which could explode if subjected to an ignition source.

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

Section 6 - Accidental Release Measures

Spills: Contain dry material by sweeping up or vacuuming. Vacuuming may disperse dust if appropriate dust collection filter is not part of the vacuum. Be aware of potential for dust explosion when using electrical equipment. 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: Store below 30°C (Room Temperature) in a dry place.

Section 8 - Exposure Controls / Personal Protection

See Section 2 for Exposure Guideline information.

SPECIFIC SAFETY INSTRUCTIONS AS PER AUSTRALIAN REGISTERED LABEL¹:
Poisonous if swallowed. Will irritate the eyes, nose, throat and skin. Avoid contact with eyes and skin. Repeated exposure may cause allergic disorders. Do not inhale dust when opening the container and mixing into feed. Wear cotton overalls buttoned to the neck and wrist, a washable hat, elbow length PVC gloves, and half facepiece respirator with dust cartridge or canister. After use and before eating, drinking or smoking, wash hands, arms and face thoroughly with soap and water. After each day's use, wash gloves, respirator and if rubber wash with detergent and warm water, 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: Chemical goggles and/or face shield.

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

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: CAUTION: DO NOT FEED UNDILUTED TO ANIMALS. Do not allow horses or other equines access to feeds containing monensin sodium. Ingestion of monensin sodium by horses has been fatal. The feeding of undiluted premix or feeds containing high concentrations of monensin sodium (mixing errors) could be fatal to cattle. Monensin sodium-medicated feed is safe at approved dosages for use in approved species only. Consumption by unapproved species may result in toxic reactions.

NOT INTENDED FOR HUMAN CONSUMPTION.

Section 9 - Physical and Chemical Properties

Boiling Point: Not applicable.

Melting Point: Not applicable.

Specific Gravity: No applicable information found.

pH: No applicable information found.

Evaporation Rate: No applicable information found.

Water Solubility: Insoluble.

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: 24% Monensin sodium mixture - Rat, median lethal dose estimated greater than 200 mg/kg, mortality.

6% Monensin sodium mixture - Rat, median lethal dose 314 mg/kg, reduced activity, incoordination.

Skin: 24% Monensin sodium mixture - Rabbit, 500 mg/kg, no deaths or toxicity.

Inhalation: 24% Monensin sodium mixture - Rat, 370 mg/m³ for 1 hour, no deaths.

Skin Contact: 24% Monensin sodium mixture - Rabbit, slight irritant.

Eye Contact: 24% Monensin sodium mixture - Rabbit, corrosive, but permanent damage prevented by immediate rinsing.

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: Monensin sodium - Heart effects (degenerative and reparative tissue changes, electrocardiogram changes, congestive heart failure), muscle effects (skeletal muscle changes, elevated blood enzymes of muscle origin).

Other Effects: Monensin sodium - Decreased body weight gains, increased kidney, heart, thyroid, adrenal, prostate, testes, liver, and spleen weights.

Reproduction: Monensin sodium - No effects identified in animal studies.

Sensitization: Monensin sodium - Guinea pig, not a contact sensitizer.

Mutagenicity: Monensin sodium - Not mutagenic in bacterial cells.

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: Monensin sodium

Rainbow trout 96-hr median lethal concentration: 9.0 mg/L

Bluegill 96-hr median lethal concentration: 16.6 mg/kg

Daphnia magna 48-hr median effective concentration: 10.7 mg/L

Bobwhite 14-day oral median lethal dose: 85.7 mg/kg

Bobwhite 5-day dietary median lethal concentration: 1090 ppm

Mallard 5-day dietary median lethal concentration: > 5000 ppm

Earthworm 14-day median lethal concentration: > 100 mg/kg

Environmental Fate: Monensin sodium

Log Kow: 4.24, 2.75, 3.79 (pH 5, 7, 9)

Water Solubility at (mg/L): 63 and 0.85 (pH 7 and 9)

Photolysis half-life (days): 43.9

Photolysis rate constant (1/day): 0.0158

Hydrolysis: none measured

Soil degradation half-life (days): 7.5

Environmental Summary: Monensin sodium

Moderately to slightly toxic to fish. Moderately toxic to aquatic invertebrates and bobwhite quail. Practically nontoxic to mallards and earthworms. No volatility expected. Not expected to bioconcentrate in aquatic organisms. Not persistent in the environment due to biodegradation and photolysis.

Lilly Aquatic Exposure Guideline (LAEG): Monensin sodium

LAEG for Drinking Water: 75 micrograms/L

LAEG for Chronic Exposure of Aquatic Organisms: 63 micrograms/L

LAEG for Acute Exposure of Aquatic Organisms: 562 micrograms/L

Section 13 - Disposal Considerations

Disposal of bags: Shake and empty contents into medicated feed. Do not dispose of undiluted chemicals on site. Puncture or shred and bury empty bags in a local authority landfill. If not available bury the bag below 500 mm in a disposal pit specifically marked and set up for this purpose clear of waterways, vegetation and roots. Empty bags and product should not be burnt.

Section 14 - Transport Information

No special transport requirements necessary.

Section 15 - Other Information

Sections revised: Section 1 : Addition of Pasture Cattle claim

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

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)