



Rumensin Premix

Effective Date: 09-Aug-2005

Elanco Animal Health
Material Safety Data Sheet

Section 1 - Chemical Product and Company

Manufacturer:

Elanco Animal Health
 Division of Eli Lilly and Company
 2001 West Main St
 PO Box 708
 Greenfield, IN 46140

Manufacturer's Emergency Phone:

1-800-428-4441

CHEMTREC:

1-800-424-9300 (North America)

1-703-527-3887 (International)

Common Name: Rumensin Premix

Chemical Name: Monensin, monosodium salt

Synonym(s): Monensin Block; Rumensin 60; Rumensin 80; Monensin Sodium Formulation; Monensin Formulation; Monensin Premix

Trademarks(s): Romensin; Rumensin

Lilly Item Code(s): AF0322; AF0330; AF0342; AF0360; AF0480; AF1404; AF1406; AF1411; MS8251; MS8252; MS8253; MS8255

See attached glossary for abbreviations.

Section 2 - Composition / Information on Ingredients

<u>Ingredient</u>	<u>CAS</u>	<u>Concentration %</u>
Monensin Sodium	22373-78-0	2 - 22
Diluent	NA	65 - 83
Anti-dusting Oil	NAIF	1 - 3

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

Diluent may include rice hulls, limestone, corn meal, soybean mill run, wheat bran, or semolina.

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.

UK - Maximum Exposure Limit 10 mg/m³ TWA (total) (Sens).

Ireland - Occupational Exposure Limit 10 mg/m³ TWA (Sens).

Limestone dust - PEL 5 mg/m³ TWA (respirable) and 15 mg/m³ TWA (total). TLV 10 mg/m³ TWA.

UK - Exposure Standard 4 mg/m³ TWA (respirable) and 10 mg/m³ TWA (total).

Ireland - Occupational Exposure Limit 4 mg/m³ TWA (respirable) and 10 mg/m³ TWA (total).

France - Occupational Exposure Limit 10 mg/m³ (VME) TWA.

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

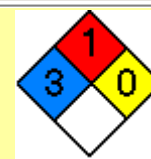
Section 3 - Hazards Identification

Appearance: Brown granular meal

Physical State: Solid

Odor: Musty

Emergency Overview



Emergency Overview Effective Date: 22-Sep-1998

Lilly Laboratory Labeling Codes:

Health 3

Fire 1

Reactivity 0

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

Caution Statement: Rumensin Premix 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.

Effects of Overexposure: 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 or limestone 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

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 poison control center. Drink one or two glasses of water and give 1-2 tablespoons syrup of ipecac to induce vomiting. Do not induce vomiting or 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 ignition up to 1.05 oz/cu ft

Minimum Ignition Temperature of Dust Layer: 300 C (572 F) for Rumensin 80
190 C (374 F) for Rumensin 60

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: Vacuum material with appropriate dust collection filter in place. Be aware of potential for dust explosion when using electrical equipment. If vacuum is not available, lightly mist material and remove by sweeping or wet wiping. Wear protective equipment, including eye protection, to avoid exposure (see Section 8 for specific handling precautions). Large spills due to traffic accidents, etc., should be reported immediately to CHEMTREC and Elanco Animal Health for assistance. Prevent spilled material from flowing onto adjacent land or into streams, ponds, or lakes.

Section 7 - Handling and Storage

Storage Conditions: Store in a cool, dry place. Protect from moisture and heat. Product should not be used after the date printed on the container.

Section 8 - Exposure Controls / Personal Protection

See Section 2 for Exposure Guideline information.

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.

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.

Additional Exposure 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

Appearance: Brown granular meal

Odor: Musty

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

Acute 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.

Rumensin 60 - 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.

Chronic 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 information for ingredient(s) or related material(s) are presented.

Ecotoxicity Data:

Monensin sodium

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

Bluegill 96-hour median lethal concentration: 16.6 mg/L

Daphnia magna 48-hour 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: >264.2 mg/kg

Phytotoxicity 14 species: moderate injury at 4 to 8 mg/kg

Phytotoxicity median effective concentration (growth): 12.9 mg/kg (oats), >4.347 mg/kg (radish), 32.9 mg/kg (mung bean)

Green algae (*S. capricornutum*) median effective concentration (biomass): 0.98 mg/L

Soil Microflora

Carbon transformation (18.3 mg/kg): < 25% deviation from controls

Nitrogen transformation (18.3 mg/kg): < 25% deviation from controls

Environmental Fate:

Monensin sodium

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

Water Solubility (mg/L): degraded, 4.8, 8.9 (pH 4, 7, 9)

Photolysis half-life (days): 43.9

Photolysis rate constant (1/day): 0.0158

Hydrolysis : none measured

Soil degradation half-life (days): 7.5

Soil adsorption coefficient (log Koc): >5.63 (pH 4.5, 6)

Soil biodegradation half life (days): 18, 13, 15 (sandy, silt, clay loams)

Bioconcentration factor (calculated): 72.4

Environmental Summary:

Monensin sodium - Highly toxic to algae. Moderately toxic to plants worms, birds and aquatic organisms. No volatility expected. Not expected to bioconcentrate in aquatic organisms. Adsorbs strongly to soil. 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: 55 micrograms/L

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

Section 13 - Disposal Considerations

Waste Disposal: Dispose of any cleanup materials and waste residue according to all applicable laws and regulations.

Container Disposal: Bags may be burned or buried in accordance with approved safety and environmental standards.

Section 14 - Transport Information

Regulatory Organizations:

DOT: Not Regulated

ICAO/IATA: Not Regulated

IMO: Not Regulated

Section 15 - Regulatory Information

Below is selected regulatory information chosen primarily for possible Elanco Animal Health usage. This section is not a complete analysis or reference to all applicable regulatory information. Please consider all applicable laws and regulations for your country/state.

U.S. Regulations

Monensin sodium

TSCA - No

CERCLA - Not on this list

SARA 302 - Not on this list

SARA 313 - Not on this list

OSHA Substance Specific - No

NADA Number: 95-735

EU Regulations

EC Classification

Contains monensin sodium (C = 2 to 22%)

Xn (Harmful)

Xi (Irritant)

Risk Phrases

R 22 - Harmful if swallowed.

R 37/38 - Irritating to respiratory system and skin.

R 41 - Risk of serious damage to eyes.

Safety Phrases

S 20 - When using do not eat or drink.

S 26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S 36/37/39 - Wear suitable protective clothing, gloves and eye/face protection.

S 45 - In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

Section 16 - Other Information

MSDS Sections Revised: Section 8.

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.

For additional information contact:

ELANCO Animal Health

1-800-428-4441

1-317-276-2000

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)

CHAN = Chemical Hazard Alert Notice

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

Kow = Octanol/Water Partition Coefficient

LEG = Lilly Exposure Guideline

LEL = Lower Explosive Limit

MSDS = Material Safety Data Sheet

MSHA = Mine Safety and Health Administration

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)