



Maxiban Premix

Effective Date: 08-Sep-2004

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: Maxiban Premix

Synonym(s): 079891 Formulation; 093760 Formulation; Maxiban 36 with Microtracer; Maxiban 72 with Microtracer; Narasin; Nicarbazin

Trademarks(s): Maxiban G 160 Premix

Lilly Item Code(s): AF1370; AF1372; AF1375; MS8265; MS8266

See attached glossary for abbreviations.

Section 2 - Composition / Information on Ingredients

<u>Ingredient</u>	<u>CAS</u>	<u>Concentration %</u>
Narasin	55134-13-9	4 - 9
Nicarbazin	330-95-0	4 - 9
Excipients	NA	82.2
Anti-dusting Oil	NAIF	2
Microtracer F-Red	NA/NAIF	1 - 2

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

Excipients may include rice hulls, corn cob grits, and soybean mill run.

Exposure Guidelines: Narasin - LEG 11 micrograms/m³ TWA for 12 hours.

Nicarbazin - LEG 150 micrograms/m³ TWA for 12 hours, LEG 230 micrograms/m³ TWA for 8

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).

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

Section 3 - Hazards Identification

Appearance: Mixture of tan to yellow and gray to brown particles.

Physical State: Solid

Odor: Musty

Emergency Overview



Emergency Overview Effective Date: 18-May-1999

Lilly Laboratory Labeling Codes:

Health 3

Fire 1

Reactivity 0

Primary Physical and Health Hazards: Corrosive (eyes). Irritant (skin, respiratory tract). Nervous System, Heart, Blood, Kidney and Muscle Effects.

Caution Statement: Maxiban Premix contains narasin and nicarbazin, may cause burns or permanent tissue damage to the eyes, and may be irritating to the skin and respiratory tract. Effects of exposure may include reduced activity, nerve tissue changes, changes in heart rate/rhythm, heart tissue changes, decreased red blood cell count, kidney tissue changes, and muscle tissue changes.

Routes of Entry: Inhalation and skin contact.

Effects of Overexposure: Skin rash and respiratory tract irritation have been reported with occupational exposure to a narasin formulation. Based on animal studies, may cause burns or permanent tissue damage to the eyes and may be irritating to the skin.

Medical Conditions Aggravated by Exposure: Hypersensitivity to narasin and nicarbazin.

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

Nicarbazin - No carcinogenicity data found. Not listed by IARC, NTP, ACGIH, or OSHA.

Section 4 - First Aid Measures

Eyes: Hold eyelids 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. Get medical attention if breathing difficulty occurs. If not breathing, provide artificial respiration assistance (mouth-to-mouth) and call a physician immediately.

Ingestion: Call a physician or poison control center. Drink promptly a large quantity of milk, egg white, gelatin solution, or if these are not available, large quantities of water. Avoid alcohol. Induce vomiting by giving syrup of ipecac. Do not induce vomiting or give anything by mouth to an unconscious person.

Section 5 - Fire Fighting Measures

Flash Point: No applicable information found

UEL: No applicable information found

LEL: Greater than 2.0 oz/cubic feet

Minimum Ignition Temperature of Dust Layer: 155 C (311 F)

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: Sweep or clean with vacuum. Control the dust by use of oils or water during clean-up. Residues may be flushed with water. 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 allow adult turkeys, horses, or other equines access to formulations containing narasin. Ingestion of narasin by equines and adult turkeys has been fatal. Do not feed to laying chickens. Avoid inhalation and direct contact. Avoid contact with eyes. Nicarbazin is a dye. 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

Appearance: Mixture of tan to yellow and gray to brown particles.

Odor: Musty

Boiling Point: Not applicable

Melting Point: Not applicable

Specific Gravity: Not applicable

pH: 6 to 7 (aqueous 50/50)

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.) and strong bases.

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

Hazardous Polymerization: Will not occur.

Section 11 - Toxicological Information

Acute Exposure

Oral: Rat, median lethal dose between 500 and 5000 mg/kg, reduced activity, soft stools, lethargy, drooping eyelids, diarrhea.

Skin: Rabbit, 5000 mg/kg, no deaths, body weight loss.

Inhalation: This formulation is not considered to be an inhalation hazard due to its coarse granular nature and its low potential for aerosolization.

Skin Contact: Rabbit, irritant

Eye Contact: Rabbit, corrosive, but permanent damage prevented by immediate rinsing

Chronic Exposure

No data are available for Maxiban Premix. The following effects were reported in chronic, teratogenic, and reproductive toxicity studies with narasin or nicarbazin in laboratory animals where experimental dosage levels and durations of exposure were in excess of those likely to occur in humans.

Target Organ Effects: Narasin - Nervous system effects (lesions in peripheral nerves, reduced activity, tremors), heart effects (tissue changes, reduced heart rate, abnormal heart rhythm), muscle effects (skeletal muscle tissue changes).

Nicarbazin - Nervous system effects (reduced activity), blood effects (decreased red blood cell count), kidney effects (tissue changes).

Other Effects: Narasin - Decreased appetite, labored respiration.

Reproduction: Narasin - No effects identified in animal studies.

Sensitization: Narasin - Guinea pig, not a contact sensitizer.

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

Nicarbazin - Not mutagenic in bacterial or mammalian 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:

Narasin

Rainbow trout 96-hour median lethal concentration: >1.4 to <2.0 mg/L

Bluegill 96-hour median lethal concentration: 3.27 mg/L

Daphnia magna 48-hour median effective concentration: 7.72 mg/L

Bobwhite 14-day median lethal concentration: (male) 73.96 mg/kg, (female) >70 to <100 mg/kg

Bobwhite 5-day dietary median lethal concentration: (mycelial) 630 ppm
Mallard 5-day dietary median lethal concentration: (mycelial) 3800 ppm
Earthworm 14-day median lethal concentration: 46.4 mg/kg
Phytotoxicity median effective concentration (emergence): >29.26 mg/kg (oats), 5.07 mg/kg (radish), >29.26 mg/kg (mung bean)
Phytotoxicity 14 species: (severe injury) 10 to 40 mg/kg, (limited injury) 1.5, no injury at 0.15 mg/kg
Green algae (*S. capricornutum*) 72-hour median effective concentration (biomass): 0.77 mg/L
Soil Microflora
Carbon transformation: no significant effects at 17.43 mg/kg
Nitrogen transformation: no significant effects at 17.43 mg/kg

Environmental Fate:

Narasin

Log Kow: 4.85 (pH 8); >6.2 (HPLC)

Water solubility (mg/L): 102, 681 (pH 7, 9)

Photolysis half-life (days): 1.5 (pH 7)

Hydrolysis half-life (days): 3.5, none, none, (pH 5, 7, 9)

Soil degradation half-life (days): 8.8

Soil adsorption coefficient (log K_{oc}): > 5.63 at pH 4.5 and 6

Soil biodegradation half-life (days): 21, 49, 29 (sandy loam, loam, clay loam)

Environmental Summary:

Narasin - Moderately toxic to plants, worms, birds, and aquatic organisms, and is highly toxic to green algae. No significant effects on soil microorganisms at highest tested concentration. Measurable concentrations in the atmosphere are not expected since it is a non-volatile solid. Water soluble at pH 7 and pH 9. Material will adsorb strongly to sediment or soil. Soil concentrations expected to decline quickly due to fairly rapid degradation. Dissipates from the aquatic environment by photolysis or biodegradation. Material has potential to bioconcentrate in aquatic organisms, however, its rapid biodegradation in soil and photolysis rate make bioconcentration unlikely.

Lilly Aquatic Exposure Guideline (LAEG):

Narasin

LAEG for Drinking Water: 30 micrograms/L

LAEG for Chronic Exposure of Aquatic Organisms: 15.5 micrograms/L

LAEG for Acute Exposure of Aquatic Organisms: 139 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

Narasin

TSCA - No

CERCLA - Not on this list

SARA 302 - Not on this list

SARA 313 - Not on this list

OSHA Substance Specific - No

Nicarbazin

TSCA - Yes

CERCLA - Not on this list

SARA 302 - Not on this list

SARA 313 - Not on this list

OSHA Substance Specific - No

NADA Number: 138-952

EU Regulations

EC Classification

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 22 - Do not breathe dust.

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 12.

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)