SAFETY DATA SHEET

1. Identification

Product identifier **Maxiban™ Premix**

Other means of identification

Item Code AF1372, AF1375, AF1370, MS8266, MS8265

Recommended use Feed additive (functional group coccidiostats)

Recommended restrictions None known.

Manufacturer/Importer/Supplier/Distributor information

Manufacturer

Company Name

Elanco Animal Health
2500 Innovation Way
Greenfield, IN 46140
US

Phone: 1-877-Elanco1 (1-877-352-6261)

Email: lilly_msds@lilly.com

Emergency Telephone Numbers: Elanco Product Technical Support / Human or Animal Exposure Reporting: 1-888-545-5973
Transportation Emergency Telephone: CHEMTREC: 1-800-424-9300 (Outside U.S. 1-703-527-3887)

2. Hazard(s) identification

Physical hazards Not classified.

Health hazards

Acute toxicity, oral	Category 4
Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 1
Sensitization, respiratory	Category 1
Specific target organ toxicity, repeated exposure	Category 2

OSHA defined hazards Combustible dust

Label elements

Signal word Danger

Hazard statement

May form combustible dust concentrations in air.
H302 Harmful if swallowed.
H315 Causes skin irritation.
H318 Causes serious eye damage.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H373 May cause damage to organs (Heart, Nervous system, Muscle) through prolonged or repeated exposure.

Precautionary statement

Prevention

P260 Do not breathe dust.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P284 Wear respiratory protection.

Response

P304 + P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER or doctor/physician.

Storage Not available.

Disposal

P501	Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazard(s) not otherwise classified (HNOC) None known.

Supplemental information None.

3. Composition/information on ingredients

Mixtures

Chemical name	Common name and synonyms	CAS number	%
Narasin	(2R)-2-{(2R,3S,5S,6R)-6-[(1S,2S,3S,5R)-5-{(2S,5S,7R,9S,10S,12R,15R)-2-[(2R,5R,6S)-5-ethyl-5-hydroxy-6-methyltetrahydro-2H-pyran-2-yl]-15-hydroxy-2,10,12-trimethyl-1,6,8-trioxadispiro[4.1.5.3]pentadec-13-en-9-yl}-2-hydroxy-1,3-dimethyl-4-oxoheptyl]-3,5-dimethyltetrahydro-2H-pyran-2-yl}butanoic acid Salinomycin, 4-methyl-, (4S)-	55134-13-9	4 - 9
Nicarbazin	Urea, N,N'-bis(4-nitrophenyl)-, compd. with 4,6-dimethyl-2(1H)-pyrimidinone (1:1) 1,3-Bis(4-nitrophenyl)urea--4,6-dimethylpyrimidin-2-ol (1:1)	330-95-0	4 - 9
Excipient: Grain Dust		NA	82
Anti-dusting Oil		NA	2
Microtracer F-Red		NA	1 - 2
Other components below reportable levels			1 - < 3

Composition comments Excipients may include: Rice hulls. Corn cob grits. Soybean mill run.
The anti-dusting oil reduces potential exposure under normal handling conditions of use.

4. First-aid measures

Inhalation If dust from the material is inhaled, remove the affected person immediately to fresh air. Oxygen or artificial respiration if needed. Call a POISON CENTER or doctor/physician if you feel unwell. This formulation is not considered to be toxic by inhalation due to its coarse granular nature and its low potential for aerosolization.

Skin contact Wash off immediately with soap and plenty of water. Get medical attention if irritation develops and persists. Remove contaminated clothing and shoes. Wash contaminated clothing before reuse.

Eye contact In case of eye contact, remove contact lens and rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Call a physician or Poison Control Center immediately.

Ingestion Give several glasses of water. Never give anything by mouth to a victim who is unconscious or is having convulsions. Call a physician or poison control center immediately.

Most important symptoms/effects, acute and delayed Causes eye burns. Skin irritation. Rash. May cause irritation of respiratory tract. May cause allergic respiratory reaction. Prolonged exposure may cause chronic effects. Changes in blood cell count.

Indication of immediate medical attention and special treatment needed Provide general supportive measures and treat symptomatically. In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation. Symptoms may be delayed.

General information Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. In the case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

5. Fire-fighting measures

Suitable extinguishing media Water fog. Dry chemical. Foam. Dry chemical powder. Carbon dioxide (CO2). Apply extinguishing media carefully to avoid creating airborne dust.

Unsuitable extinguishing media	None known.
Specific hazards arising from the chemical	Hazardous decomposition products formed under fire conditions. Minimum Ignition Temperature of Dust Layer: 155 C
Special protective equipment and precautions for firefighters	Wear self-contained breathing apparatus and protective clothing.
Fire fighting equipment/instructions	In the event of fire, cool tanks with water spray. Water runoff can cause environmental damage.
General fire hazards	Dust may form explosive mixture with air.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Do not get in eyes. Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Avoid inhalation of dust. Wear appropriate protective equipment and clothing during clean-up. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.
Methods and materials for containment and cleaning up	Vacuum material with appropriate dust collection filter in place. If vacuum is not available, lightly mist/wet material and remove by mopping or wet wiping. Be aware of potential for dust explosion when using electrical equipment. Large spills due to traffic accidents, etc., should be reported immediately to CHEMTREC and Elanco Animal Health for assistance.
Environmental precautions	Contact local authorities in case of spillage to drain/aquatic environment. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling	Minimize dust generation and accumulation. 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. NOT INTENDED FOR HUMAN USE.
Conditions for safe storage, including any incompatibilities	Keep containers tightly closed in a dry, cool and well-ventilated place.

8. Exposure controls/personal protection

Occupational exposure limits

ACGIH

Components	Type	Value	Form
Excipient: Grain Dust	TWA	4 mg/m3	(grain dust)

U.S. - OSHA

Components	Type	Value	Form
Excipient: Grain Dust	TWA	10 mg/m3	(grain dust)

Lilly (LEG)

Components	Type	Value
Narasin (CAS 55134-13-9)	TWA (12hrs)	11 ug/m3
Nicarbazin (CAS 330-95-0)	TWA (12hrs)	150 ug/m3
	TWA (8hrs)	230 ug/m3

Biological limit values	No biological exposure limits noted for the ingredient(s).
Appropriate engineering controls	Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Individual protection measures, such as personal protective equipment

Eye/face protection	Wear goggles/face shield.
Skin protection	
Hand protection	Chemical-resistant gloves and impermeable body covering to minimize skin contact.

Other	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. 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.
Respiratory protection	Dust mask/respirator. In case of inadequate ventilation or risk of inhalation of dust, use suitable respiratory equipment with particle filter (type P2).
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.
General hygiene considerations	Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Appearance	
Physical state	Solid.
Form	Solid. Granular.
Color	Tan to Brown.
Odor	Musty.
Odor threshold	No data available
pH	6 - 7 (50% aqueous solution)
Melting point/freezing point	No data available.
Initial boiling point and boiling range	No data available.
Flash point	No data available.
Evaporation rate	No data available.
Flammability (solid, gas)	No test data available.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	No data available.
Flammability limit - upper (%)	No data available.
Explosive limit - lower (%)	> 0.002 gm/cm3
Explosive limit - upper (%)	No data available.
Vapor pressure	No data available.
Vapor density	No data available.
Relative density	No data available.
Solubility(ies)	
Solubility (water)	Insoluble
Partition coefficient (n-octanol/water)	No data available.
Auto-ignition temperature	No data available.
Decomposition temperature	No data available.
Viscosity	No data available.
Other information	
Density	No data avaialble.
Explosive properties	Not explosive
Oxidizing properties	No oxidizing properties.
Potential for dust explosion	No data available.

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.

Possibility of hazardous reactions	Hazardous polymerization does not occur.
Conditions to avoid	Keep away from heat, sparks and open flame. None known. Minimize dust generation and accumulation.
Incompatible materials	Strong oxidizing agents.
Hazardous decomposition products	Irritating, corrosive and/or toxic gases or fumes will be released during a fire.

11. Toxicological information

Information on toxicological effects

Acute toxicity Harmful if swallowed. This formulation is not considered to be toxic by inhalation due to its coarse granular nature and its low potential for aerosolization.

Product	Species	Test Results
Maxiban™ Premix		
Acute		
Dermal		
LD	Rabbit	> 5000 mg/kg No mortality.
Oral		
LD50	Rat	500 - 5000 mg/kg

Components	Species	Test Results
Narasin (CAS 55134-13-9)		
Acute		
Dermal		
LD	Rabbit	> 500 mg/kg No mortality. No toxicity.
Inhalation		
LC50	Rat	87 mg/m3, 4 h
Oral		
LD50	Rat	26.9 mg/kg
Nicarbazin (CAS 330-95-0)		
Acute		
Dermal		
LD	Rabbit	> 2000 mg/kg No mortality. No toxicity.
Inhalation		
LC50		> 4.09 mg/l Mortality.
Oral		
LD	Rat	> 5000 mg/kg No mortality.

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation	Rabbit: Irritating. Due to lack of data the classification is not possible.
Serious eye damage/eye irritation	Causes eye burns. Rabbit: Immediate rinsing may prevent permanent damage.
Respiratory or skin sensitization	
Respiratory sensitization	May cause sensitization by inhalation. (Grain dust) Did not cause sensitization on laboratory animals. (Narasin)
Skin sensitization	Did not cause sensitization on laboratory animals. (Narasin) This information is not available. (Nicarbazin) Due to lack of data the classification is not possible.
Germ cell mutagenicity	Result in genetic toxicity assays (in vitro and in vivo): Negative (Narasin) Result in genetic toxicity assays (in vitro and in vivo): Negative (Nicarbazin) Due to lack of data the classification is not possible.
Carcinogenicity	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA. No effects identified in animal studies. (Narasin) (Nicarbazin)

IARC Monographs. Overall Evaluation of Carcinogenicity

Not available.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

US. National Toxicology Program (NTP) Report on Carcinogens

Not available.

Reproductive toxicity	No effects identified in animal studies. (Narasin) (Nicarbazin)
Specific target organ toxicity - single exposure	No effects identified in animal studies. (Narasin) No effects identified in animal studies. (Nicarbazin)
Specific target organ toxicity - repeated exposure	Animal studies have reported the following effects: Central nervous system effects. Tremors. Convulsions. Heart effects. Change in heart rate or rhythm. Skeletal muscle effects. (Narasin)
Aspiration hazard	No aspiration toxicity classification Due to lack of data the classification is not possible.

12. Ecological information

12.1. Toxicity

Components		Species	Test Results
Narasin (CAS 55134-13-9)			
	LC50	Earthworm (Eisenia fetida)	46.4 mg/kg, 14 d
Other	LC50	Duck	3800 mg/l, 5 d Dietary (mycelial)
		Quail	630 mg/l, 5 d Dietary (mycelial)
			73.96 mg/kg, 14 d Male
			70 - 100 mg/kg, 14 d Female
Acute			
Other	EC50	Pseudokirchnerella subcapitata	2.92 mg/l, 72 h (average specific growth rate)
			0.77 mg/l, 72 h (biomass)
Aquatic			
Acute			
Crustacea	EC50	Daphnia magna	7.72 mg/l, 48 h
Fish	LC50	Bluegill (Lepomis macrochirus)	3.27 mg/l, 96 h
		Rainbow Trout	1.4 - 2 mg/l, 96 h
Nicarbazin (CAS 330-95-0)			
Aquatic			
Acute			
Fish	LC50	Bluegill (Lepomis macrochirus)	> 122 mg/l, 96 h (99.4% Nicarbazin - moiety HDP)
			> 72 mg/l, 96 h (98.0% Nicarbazin - moiety DNC)
		Rainbow Trout	> 110 mg/l, 96 h (99.4% Nicarbazin - moiety HDP)
			> 69 mg/l, 96 h (98% Nicarbazin - moiety DNC)

* Estimates for product may be based on additional component data not shown.

12.2. Persistence and degradability

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

Soil microflora:
Carbon transformation: no significant effects at 17.43 mg/kg (Narasin)
(Narasin)

No data is available on the degradability of this product. (Nicarbazin)

Photolysis

Half-life (Photolysis-aqueous)

Narasin	1.5 days, (pH 7)

Half-life (Photolysis-soil)

Narasin	8.8 days

Hydrolysis

Half-life (Hydrolysis)

Narasin	3.5 days, (pH 5)

12.3. Bioaccumulative potential Kow >/= 4 (Narasin)
No data available on bioaccumulation. (Nicarbazin)

Partition coefficient n-octanol/water (log Kow)

Narasin	> 6.2, (HPLC) 4.85, (pH 8)

12.4. Mobility in soil

Adsorption

Soil/sediment sorption - log Koc

Narasin	> 5.63, (pH 4.5 and 6)

12.6. Other adverse effects No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

12.7. Additional information German Water Hazard Classification: WGK 3 (severe hazard to waters)

12.8. Ecotoxicological Properties

Drinking Water

Components	Test Results
Narasin	30 µg/l, (Lilly Aquatic Exposure Guideline)

Chronic Exposure of Aquatic Organisms

Components	Test Results
Narasin	15.5 µg/l, (Lilly Aquatic Exposure Guideline)

Acute Exposure of Aquatic Organisms

Components	Test Results
Narasin	139 µg/l, (Lilly Aquatic Exposure Guideline)

13. Disposal considerations

Disposal instructions Do not allow this material to drain into sewers/water supplies. Dispose of contents/container in accordance with local/regional/national/international regulations.

14. Transport information

DOT

Not regulated as dangerous goods.

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not available.

15. Regulatory information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
CERCLA/SARA Hazardous Substances - Not applicable.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Not listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories Immediate Hazard - Yes
Delayed Hazard - Yes
Fire Hazard - Yes
Pressure Hazard - No
Reactivity Hazard - No

SARA 313 (TRI reporting)

Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.

US state regulations

US. California Controlled Substances. CA Department of Justice (California Health and Safety Code Section 11100)

Not listed.

US. Massachusetts RTK - Substance List

Not regulated.

US. New Jersey Worker and Community Right-to-Know Act

Not listed.

US. Pennsylvania Worker and Community Right-to-Know Law

Not listed.

US. Rhode Island RTK

Not regulated.

US. California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Canada	Domestic Substances List (DSL)	No
Canada	Non-Domestic Substances List (NDSL)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	No

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date 03-18-2016

Version # 01

Further information Refer to NFPA 654, Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids, for safe handling.

Lilly Lab Code

Health: 3
Fire: 1
Reactivity: 0
Special 1: A

List of abbreviations

LEG = Lilly Exposure Guideline

STEL: Short Term Exposure Limit

TWA: Time Weighted Average

Disclaimer

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 MERCHANT ABILITY 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:

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Revision Information

Product and Company Identification: Alternate Trade Names
Hazard(s) identification: Response
Physical & Chemical Properties: Multiple Properties
Toxicological Information: Toxicological Data
Toxicological information: Carcinogenicity
Toxicological information: Chronic effects
Toxicological information: Reproductivity
Toxicological information: Specific target organ toxicity - repeated exposure
Toxicological information: Specific target organ toxicity - single exposure
Ecological information: Persistence / degradability
GHS: Classification