Section 1 – Identification of the substance and supplier

Product Name: Rumensin Capsule
Manufacturer’s Product Code: AH0942
UN number: N/A
Proper Shipping Name: N/A
Pack Size: 5 Capsules per foil packet
40 Capsules per bucket
Recommended use: Controlled release capsules for beef and dairy cattle. An aid in the reduction of bloat in beef and dairy cattle. For improved feed efficiency and/or weight gain in beef cattle. An aid in the control of ketosis in dairy and beef cows. For increased milk protein production in dairy cows.

Section 2 - Hazards Identification

Classified as a hazardous substance according to the criteria in the Hazardous Substances (Minimum Degrees of Hazard) Regulations 2001. Rumensin Capsules are approved pursuant to the HSNO Act 1996, HSR002017. The EPA website www.epa.govt.nz should be consulted for the full list of triggered controls and cited regulations.

HSNO Classifications:

6.1A Acute toxin (oral)

(Regulations 14, 25 and 46 of the Hazardous Substances (Identification) Regulations 2001 are varied such that these regulations apply as if the substance is a class 6.1C hazardous substance but is not a class 6.1A hazardous substance)
Safety Data Sheet

Rumensin Capsule AH0942

6.3B Skin irritant
6.5B Skin allergen
8.3A Eye corrosive
9.1A Aquatic ecotoxin
9.2B Soil ecotoxin
9.3A Terrestrial vertebrate ecotoxin

Signal word: DANGER

Hazard Statements: Toxic if swallowed
Causes mild skin irritation
May cause an allergic skin reaction
Causes serious eye damage
Very toxic to aquatic life
Toxic to the soil environment
Very toxic to terrestrial vertebrates

Precautionary Statements: Read label before use
Keep out of reach of children
Wash hands thoroughly after handling
Do not eat, drink or smoke while using this product
Wear protective gloves
Contaminated work clothing should not be allowed out of the workplace
Wash contaminated clothing before reuse
Store locked up
Avoid release to the environment
Collect spillage

Section 3 - Composition / Information on Ingredients

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS-No.</th>
<th>Concentration [%]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monensin sodium</td>
<td>22373-78-0</td>
<td>43 - 50</td>
</tr>
<tr>
<td>Excipients</td>
<td>N/A</td>
<td>50 - 57</td>
</tr>
</tbody>
</table>

N/A = Not applicable, Not assigned, or Not available.

Monensin sodium:
Chemical Name: Monensin sodium
Alternate Chemical Name: Monensin, monosodium salt

Section 4 - First Aid Measures

SYMPTOMS:
If swallowed: When laboratory animals receive a bolus injection of monensin sodium, there are
cardiovascular changes such as increased heart rate and elevated blood pressure.

If inhaled:
Respiratory tract irritation has been reported. Prolonged exposure to high concentrations of grain dust or limestone dust may cause irritation of the respiratory tract and mucous membranes.

If on skin:
Skin rash has been reported.

If in eyes:
Based on animal data, may cause burns or permanent tissue damage to the eyes. Immediate rinsing may prevent permanent damage.

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.

TREATMENT:
If swallowed:
Immediately call the National Poisons Centre 0800 POISON (0800 764766) or a doctor. Rinse mouth. Do not induce vomiting.

If inhaled:
Product is not expected to present a hazard by inhalation due to its solid, tablet 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.

If on 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.

If in eyes:
Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
Section 5 - Fire Fighting Measures

Flash point
Not applicable
Lower explosion limit
Not applicable
Upper explosion limit
Not applicable
Suitable extinguishing media:
Use water, carbon dioxide, dry chemical, foam, or Halon
Unsuitable extinguishing media:
None known
Unusual Fire and Explosion Hazards:
None known
Fire fighting precautions:
May emit toxic fumes when exposed to heat or fire.
Hazchem code:
2Z

Section 6 - Accidental Release Measures

Protective clothing and equipment:
Wear protective equipment, including eye protection, to avoid exposure (see Section 8 for specific handling precautions).
Environmental precautions:
Prevent further migration into the environment. Do not allow material to enter waterways.
Procedure:
Scoop or scrape up spillage.
Emergence response assistance:
For specialist advice in an emergency call 0800 CHEMCALL (0800 243 622) and Elanco Animal Health for assistance

Section 7 - Handling and Storage

Storage instructions:
Keep out of reach of children. Store securely at 30°C or below. Protect from direct heat and sunlight.
Handling precautions:
Wash hands and exposed skin thoroughly after handling.
Emergency response plan required:
100kg
Emergency containment required:
N/A
Signage required:
50kg
Approved Handler:
Not required
Packaging requirements:
Packing Group III
Section 8 - Exposure Controls / Personal Protection

Exposure limits or guidelines: The physical nature and packaging of the product makes exposure to significant quantities of the active ingredient highly unlikely.

LEG 15 µg/m³ TWA (12h)

Monensin sodium:

Engineering measures: 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.

Personal protective equipment: In a manufacturing setting, use protective clothing, impervious gloves, and approved respirator. Chemical goggles and/or face shield. Under normal use and handling conditions, protective equipment is not required. Wash thoroughly with soap and water after handling.

Precautions: Do not feed undiluted to animals. Do not allow dogs, horses or other equines access to feeds containing monensin sodium. Ingestion of monensin sodium by horses has been fatal. Wear impermeable gloves when handling the core. Capsule contains a coiled spring. Caution should be exercised when opening the core. Avoid direct contact with the skin.

Section 9 - Physical and Chemical Properties

Appearance: Yellow to white tablets contained within an orange translucent plastic core, with retaining wings

Physical state: Solid

Odour: Odourless

pH: Not applicable

Boiling point: Not applicable

Freezing point: Not applicable

Solubility: Insoluble

Specific Gravity: No applicable information found

Flammability: No applicable information found

Section 10 - Stability and Reactivity

Stability: Stable at normal temperatures and pressures

Conditions to avoid: None known
**Incompatible materials:** May react with strong oxidizing agents (e.g., peroxides, permanganates, nitric acid, etc.).

**Hazardous decomposition products:** May emit toxic fumes when heated to decomposition.

**Hazardous reactions** Hazardous polymerisation does not occur.

## Section 11 - Toxicological Information

No data available for mixture. Data for ingredients or related materials are presented.

**Acute oral toxicity**

<table>
<thead>
<tr>
<th>Material</th>
<th>Rat, LD&lt;sub&gt;50&lt;/sub&gt; 34 mg/kg, reduced activity, incoordination, skeletal muscle weakness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monensin sodium</td>
<td></td>
</tr>
</tbody>
</table>

**Acute inhalation toxicity**

<table>
<thead>
<tr>
<th>Material</th>
<th>Rat, 370 mg/m&lt;sup&gt;3&lt;/sup&gt; for 1 hour, no deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>24% Monensin sodium mixture</td>
<td></td>
</tr>
</tbody>
</table>

**Acute dermal toxicity**

<table>
<thead>
<tr>
<th>Material</th>
<th>Rabbit, 500 mg/kg, no deaths or toxicity</th>
</tr>
</thead>
<tbody>
<tr>
<td>24% Monensin sodium mixture</td>
<td></td>
</tr>
</tbody>
</table>

**Skin irritation**

<table>
<thead>
<tr>
<th>Material</th>
<th>Rabbit, slight irritant</th>
</tr>
</thead>
<tbody>
<tr>
<td>24% Monensin sodium mixture</td>
<td></td>
</tr>
</tbody>
</table>

**Eye irritation**

<table>
<thead>
<tr>
<th>Material</th>
<th>Rabbit, corrosive, but permanent damage prevented by immediate rinsing.</th>
</tr>
</thead>
<tbody>
<tr>
<td>24% Monensin sodium mixture</td>
<td></td>
</tr>
</tbody>
</table>

**Sensitisation**

<table>
<thead>
<tr>
<th>Material</th>
<th>Guinea pig, not a contact sensitiser</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monensin sodium</td>
<td></td>
</tr>
</tbody>
</table>

**Repeated dose toxicity**

<table>
<thead>
<tr>
<th>Material</th>
<th>Heart effects (degenerative and reparative tissue changes, electrocardiogram changes, congestive heart failure), muscle effects (skeletal muscle changes, elevated blood enzymes of muscle origin). Decreased body weight gains, increased kidney, heart, thyroid, adrenal, prostate, testes, liver, and spleen weights.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monensin sodium</td>
<td></td>
</tr>
</tbody>
</table>

**Carcinogenicity**

<table>
<thead>
<tr>
<th>Material</th>
<th>Not listed by IARC, NTP, ACGIH, or OSHA. Not considered carcinogenic in animal studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monensin sodium</td>
<td></td>
</tr>
</tbody>
</table>

**Reproductive toxicity**

<table>
<thead>
<tr>
<th>Material</th>
<th>No effects identified in animal studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monensin sodium</td>
<td></td>
</tr>
</tbody>
</table>

**Mutagenicity**

<table>
<thead>
<tr>
<th>Material</th>
<th>Result in genetic toxicity assays (in vitro and in vivo): negative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monensin sodium</td>
<td></td>
</tr>
</tbody>
</table>

## Section 12 - Ecological Information

No data available for mixture. Data for ingredients or related materials are presented.
### Toxicity to fish

Monensin sodium:

- **LC$_{50}$/96h / Rainbow Trout**: 9.0 mg/L
- **LC$_{50}$/96h / Bluegill**: 16.6 mg/L

### Toxicity to algae

Monensin sodium:

- **EC$_{50}$/72 h / Green algae (S. capricornutum) (average specific growth rate)**: 4.33 mg/L

### Toxicity to daphnia

Monensin sodium:

- **EC$_{50}$/48 h / Daphnia magna**: 10.7 mg/L

### Toxicity to earthworms

Monensin sodium:

- **LC$_{50}$/14d / Earthworm**: >264.2 mg/kg

### Toxicity to birds

Monensin sodium:

- **LC$_{50}$/14d oral / Bobwhite**: 85.7 mg/kg
- **LC$_{50}$/5d dietary / Bobwhite**: 1090 ppm
- **LC$_{50}$/5d dietary / Mallard**: >5000 ppm

### Any other relevant information available

Monensin sodium:

- 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)
- 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 (pH 5, 7, 9)
- Soil degradation half-life (days): 7.5
- Soil adsorption coefficient (log Koc): >5.63 (pH 4.5, 6)
- Greater than 50% loss in sandy, silt and clay loam soils in less than 14 days
- Bioconcentration factor (calculated): 72.4

- Monensin sodium:
  - No volatility expected. Not expected to bioconcentrate in aquatic organisms.
  - Adsorbs strongly to soil. Not persistent in the environment due to biodegradation and photolysis.

### Section 13 - Disposal Considerations

Preferably dispose of product by use. Otherwise dispose of product as part of an approved chemical disposal program. Burn empty packaging if conditions such as wind direction permit. Otherwise dispose of packaging at an approved landfill facility.
Section 14 - Transport Information

<table>
<thead>
<tr>
<th>Mode of Transport</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land Transport</td>
<td>Not regulated</td>
</tr>
<tr>
<td>Air Transport</td>
<td>Not regulated</td>
</tr>
<tr>
<td>Sea Transport</td>
<td>Not regulated</td>
</tr>
<tr>
<td>UN Number</td>
<td>Not assigned</td>
</tr>
<tr>
<td>Proper Shipping Name</td>
<td>Not assigned</td>
</tr>
<tr>
<td>DG Class</td>
<td>Not assigned</td>
</tr>
<tr>
<td>Subsidiary Risk</td>
<td>Not assigned</td>
</tr>
<tr>
<td>Packing Group</td>
<td>III</td>
</tr>
<tr>
<td>HAZCHEM Code</td>
<td>2X</td>
</tr>
<tr>
<td>Marine Pollutant</td>
<td>No</td>
</tr>
</tbody>
</table>

Carriage on public transport is prohibited.

Section 15 - Regulatory Information

Rumensin Capsule is approved pursuant to the ACVM Act 1997 (A9676). See www.foodsafety.govt.nz for registration conditions.

A Safety Data Sheet must be provided whenever any amount of Rumensin Capsules are sold or supplied.

Section 16 – Other Information

This SDS is effective as of 20 October 2011.

Sections updated or revised: Formatting of entire document. ACVM website updated.

Due for revision within 5 years.

Further information

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
0800 352 626