Section 1 - Identification of Chemical Product and Company

COMPANY DETAILS:

Novartis Animal Health Australasia Pty Limited
A.C.N. 076 745 198
54 Waterloo Road
North Ryde NSW 2113

Product Name: Pyrimide 3-Way Combination Drench for Sheep
Active Ingredients: Abamectin 0.8 g/L, levamisole 25.5 g/L (as levamisole hydrochloride), albendazole 20 g/L, with selenium 0.4 g/L (as sodium selenate) and 1.76 g/L cobalt (as cobalt EDTA).
Product Use: For the treatment and control of gastrointestinal parasites in sheep, including those with single or dual resistance to avermectin/milbemycin, benzimidazole or levamisole/morantel drug families.
Issue Date: October 2009

Section 2  Hazards Identification

Hazard classification: Hazardous Substance
Non-Dangerous Goods

Risk Phrases: R21/22, R52/53. Harmful in contact with skin and if swallowed. Harmful to aquatic organisms, may cause long-term adverse effects to the aquatic environment.

Safety Phrases: S20, S37, S61, S24/25. When using, do not eat or drink. Wear suitable gloves. Avoid release to the environment. Refer to special instructions/Safety Data Sheets. Avoid contact with skin and eyes.

SUSDP Classification: 6
UN Number: None Allocated

Section 3  Composition / Information on Ingredients

<table>
<thead>
<tr>
<th>Product components</th>
<th>CAS No.</th>
<th>Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Albendazole</td>
<td>54965-21-8</td>
<td>20g/L</td>
</tr>
<tr>
<td>Levamisole HCl</td>
<td>16595-80-5</td>
<td>30g/L</td>
</tr>
<tr>
<td>Abamectin</td>
<td>71751-41-2</td>
<td>0.8g/L</td>
</tr>
<tr>
<td>Sodium Selenate</td>
<td>13410-01-0</td>
<td>0.96g/L</td>
</tr>
<tr>
<td>Disodium cobalt EDTA</td>
<td>15137-09-4</td>
<td>12.6g/L</td>
</tr>
</tbody>
</table>

This is a commercial product whose exact ratio of components may vary slightly. Minor quantities of other non hazardous ingredients are also possible.

Section 4  First Aid Measures

Label regulated First Aid Statement: If eye or skin contact occurs, remove contaminated clothing and wash thoroughly. If swallowing or poisoning occurs, contact a doctor, or Poisons Information Centre (Phone 131126).

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Scheduled poisons: Product is a S6 scheduled poison. Poisons Information Centres in each State capital city can provide additional assistance for scheduled poisons (Phone 131126).

Inhalation: Move affected person to fresh air and seek medical attention.

Swallowed: If swallowed contact a doctor, or Poisons Information Centre (Phone 131126). Do not induce vomiting.

Skin Contact: Remove contaminated clothing and wash affected area thoroughly with soap and water.

Eye contact: Product may irritate eyes. If product is in eyes flush with large amounts of clean tap for at least 15 minutes.

Advice to doctor: No specific antidote is known. Treat symptomatically.

Section 5 Fire Fighting Measures

Fire and explosion hazards: This product is non-flammable, non-explosive and non-combustible.

Extinguishing Media: Use extinguishing media that is appropriate for the materials that are burning.

Fire Fighting: Fight fire in the early stages if safe to do so. Wear respiratory protection to protect from fumes. Contain fire-fighting water. Do not allow the fire-water to enter drains.

Section 6 Accidental Release Measures

Accidental Release: In case of spillage it is important to take all steps necessary to:

Avoid eye and skin contact and avoid contamination of waterways

Procedure for spill

Keep all bystanders away. Wear full length clothing and PVC gloves. Reposition any leaking containers so as to minimise further leakage. Dam and absorb spill with an absorbent material (e.g. sand or soil). Shovel the absorbed spill into drums. Disposal of the absorbed material will depend upon the extent of the spill. For quantities up to 50L of product bury in a secure landfill site. For quantities greater than 50L seek advice (use emergency contact number below) from the manufacturer before attempting disposal. Contain in a secure location until disposal method is established. Decontaminate the spill area with detergent and water and rinse with the smallest volume of water practicable. Do not eat, drink or smoke during the clean-up operation.

Section 7 Handling and Storage

Safe Handling: May irritate the eyes. Avoid contact with eyes. Wash hands after use.

Storage: Keep out of reach of children. Store below 30°C (Room temperature), in original containers away from direct sunlight and oxidising materials. Store away from food, drink and food preparation areas.

Section 8 Exposure Controls / Personal Protection

Exposure Limits: Exposure standards for the ingredient Selenium compounds, as Se TWA 0.1 mg/m3; Cobalt metal dust and fumes, as Co TWA 0.05 mg/m3. No exposure standards have been set for other ingredients in this product.

Exposure Potential: Swallowing is unlikely under normal conditions of usage.
Ventilation: Ensure that ventilation maintains dust below WES
Skin protection: Avoid contact with skin by wearing long sleeve cotton clothing and rubber gloves as required. Wear full protective clothing (cap, overalls, rubber boots and rubber gloves) when handling spilled materials.
General advice: May irritate the eyes. Avoid contact with eyes. Wash hands after use.

Section 9 - Physical and Chemical Properties

<table>
<thead>
<tr>
<th>Physical State:</th>
<th>Suspoemulsion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colour:</td>
<td>Opaque pink to bluish-pink liquid</td>
</tr>
<tr>
<td>Odour:</td>
<td>Non-specific</td>
</tr>
<tr>
<td>Specific gravity (20°C):</td>
<td>0.98 to 1.02</td>
</tr>
<tr>
<td>Boiling point:</td>
<td>100°C</td>
</tr>
<tr>
<td>pH</td>
<td>~4.0</td>
</tr>
</tbody>
</table>

Section 10 - Stability and Reactivity

Chemical Stability: Product is stable under normal conditions of use.
Incompatible Materials: Store away from oxidising materials.

Section 11 – Toxicological Information

Summaries of data: Abamectin
Abamectin is an acute oral toxin (LD₅₀ oral rat 8.7 – 12.8 mg/kg). Ingestion of a single large dose of abamectin by humans (100 mg/kg) was associated with coma, hypotension and respiratory failure. Clinical signs in repeat dose laboratory animal studies included ataxia, tremor, mydriasis, emesis, pupil dilation and coma. High doses produced respiratory failure and deaths. The critical adverse effects in multigenerational reproductive studies were mortality and reduced weight gain of pups in early lactation (NOAEL 0.12 mg/kg).

Levamisole HCl
Toxicity to mammals: Acute oral LD₅₀ (rats) 180 mg/kg
Reproductive effects: Studies did not show any treatment-related effects on male or female fertility or offspring normality. There was no effect on litter parameters, and no embryo toxicity or postnatal growth was observed.
Teratogenic effects: Studies did not show any treatment-related effects on dams or fetuses. No treatment-related embryo toxicity or teratogenicity effects were observed.
Mutagenic effects: Studies did not show any treatment-related effects on offspring normality.
Carcinogenic effects: Studies did not show any treatment-related tumors or the incidence of various types of tumors.
The Acceptable Daily Intake (ADI) of levamisole hydrochloride for a human is 0.003 mg/kg/day, set for the public daily, lifetime exposure. This is based on the NOEL of 6 mg/kg/day.
Albendazole
Toxicity to mammals:
Acute oral LD50 (rats) 1320 to 2400 mg/kg
Acute oral LD50 (mice) >3000 mg/kg
Acute oral LD50 (rabbits) >500 mg/kg

This material was classified as a non-irritant to rabbit skin and eye. There was no evidence of skin or eye irritation following direct application in rabbits. This material was categorized as a non-sensitiser or guinea pig skin (Buehler Test). Allergic reactions rarely occur in humans.

Reproductive effects: Rat reproductive toxicity studies showed only minimum effects on male female reproduction.

Teratogenic effects: Teratogenic effects (birth defects) or toxicity to developing offspring occurred in studies with rats, rabbits, sheep and pigs. These effects usually occurred at dose levels that also produced maternal toxicity.

Mutagenic effects: This material was not mutagenic in bacteria (Ames test) or animal cells (cell-mediated Chinese hamster ovary test).

Carcinogenic effects: Lifetime studies with mice and rats demonstrated no evidence of carcinogenicity.

The Acceptable Daily Intake (ADI) of albendazole for a human is 0.05 mg/kg/day set for the public for daily, lifetime exposure. This is based on the NOEL of 5 mg/kg/day

Sodium selenate
Toxicity to mammals
Acute oral LD50 (rats) 25 mg/kg
OSHA Standard – air TWA 0.2 mg (as Se)/m3

Dusts are toxic if inhaled and irritant to the eyes. Acute poisoning exhibits as dyspnea, spasms and death from respiratory failure. Selenium poisoning in humans has been described and gastrointestinal and neurological symptoms predominated. Potential mutagen. Repeated dose testing in laboratory species identified a lowest NOAEL of 0.37 mg/kg/day (liver toxicity).

Disodium Cobalt EDTA
Cobalt and cobalt compounds are possible carcinogens. In repeated dose studies cobalt salts have been implicated in cardiac disease (oral doses, NOAEL 0.02 mg/kg/d) and cobalt metal dust caused pulmonary toxicity when inhaled (LOAEL 0.02 mg/L/d. Cobalt is a known skin and respiratory sensitizer. Cobalt metal fume and dust irritates the respiratory tract. Cobalt metal is irritant the eyes and skin. In a reproductive study in rats cobalt was embryo toxic when fed at 0.05 mg/kg/d throughout gestation (decreased foetal weight).
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**Potential environmental interactions**

Very toxic to aquatic organisms and very toxic to terrestrial invertebrates.

**Summary of data**

**Abamectin**

Abamectin is a highly effective and potent insecticide and acaricide. It acts by stimulating the release of gamma-aminobutyric acid an inhibitory neurotransmitter, causing paralysis of the parasite. It is highly toxic to invertebrates in the aquatic, soil and terrestrial environments. Abamectin is highly toxic to fish and extremely toxic to aquatic invertebrates (LC50 rainbow trout 3.6ppb (96 hrs); EC50 Daphina magna 0.34ppb (48hrs)). Persistent. Soil organisms: Dung beetle terrestrial fate value is 20 – 40. Abamectin is toxic to mammals (LD50 (oral rats) 8.7mg/kg), but is less toxic to birds (LC50 Bobwhite quail >2000mg/kg). Abamectin is highly toxic to bees (LD50 (oral) 0.0094ug/bee; LD50 (contact) 0.002ug/bee).

**Levamisole HCl**

Levamisole is potentially toxic to terrestrial vertebrates based on LD50 data: (LD50 (oral, rats & mice)) = 200-500mg/kg). Not toxic to fish or honeybees. Levamisole does not bioaccumulate in biological systems. In soil levamisole has a half-life of 5 to seventy five days depending on sunlight, soil type and climatic conditions. Levamisole binds strongly to soil particles and organic matter. It does not leach in soils and is readily degraded by hydrolysis and microbial action.

**Albendazole**

Albendazole may be toxic to terrestrial vertebrates based on LD50 data (LD50 (oral rabbit) 500-1250mg/kg). Not toxic to fish or honeybees. The potential for bioaccumulation is low and benzimidazoles are degraded in soil and probably also in water.

**Sodium selenate**

Very toxic to fish (LC50 (96hr, flathead minnow 690ug/L) to crustacean (LC50 (48hr, Grammarus pseudolimnaeus) 83ug/L) and algae (EC50 (96hr, green algae) 0.2mg/L). Toxic to plants (EC20 (22D) 0.1mg/kg soil). Toxic to terrestrial vertebrates based on acute oral LD50 (rats) of 25 mg/kg. Selenium is bioaccumulative and persists.

**Disodium cobalt EDTA**

Cobalt is toxic to fish and other aquatic life (LC50 (96hr, trout) 1.4mg/L; EC50 (48hr, Daphnia magna) 1.11mg/L). Not readily biodegradable, cobalt persists.

**Environmental risk and safety phrases**

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S (Sodium selenate 0.09%, Abamectin 0.08%)

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**Section 13 - Disposal Considerations**

**After intended use:**

The container can be recycled if it is clean, dry, free of visible residues and has the drumMUST logo visible. Triple or pressure rinse container for disposal. Dispose of rinsate or any undiluted chemical according to State legislative requirements. Wash outside of the container and the cap. Store cleaned container in a sheltered place with cap removed. It will then be acceptable for recycling at any drumMuster collection or similar container management program site. The cap should not be replaced but may be taken separately. DO NOT burn empty containers or product.
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Section 14 - Transport Information

UN Number: None allocated
UN proper shipping name: None allocated
Class & Subsidiary Risk: None allocated
Packaging Group: None allocated
HAZCHEM Code: None allocated

Section 15 - Regulatory Information

Australia: Product registered with the Australian Pesticides and Veterinary Medicines Authority

Section 16 - Other Information

This MSDS contains only safety-related information. For other data see product literature.

Acronyms

CAS Number: Chemical Abstracts Service Registry Number
Hazchem Number: Emergency action code of numbers and letters that provide information to emergency services especially fire-fighters
STEL Short-term Exposure Limit
SUSDP Standard for the Uniform Scheduling of Drugs & Poisons
TWA Time Weighted Average
UN Number United Nations Number

Note:
This product is a registered veterinary chemical and must therefore be used in accordance with the container label directions. A comprehensive package of toxicological and environmental data for the active ingredients of this product has been submitted to the Federal health and environment authorities and has been evaluated by expert toxicologists and environmental scientists.

This Material Safety Data Sheet summarises our best knowledge of the health and safety hazard information of the product and how to safely handle and use the product in the workplace. Each user should read this MSDS and consider the information in the context of how the product will be handled and used in the workplace including in conjunction with other products.

If clarification or further information is needed to ensure that an appropriate risk assessment can be made, the user should contact this company.

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