



MATERIAL SAFETY DATA SHEET

Section 1 - Identification of Chemical Product and Company

Ancare Australia Pty Limited
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Phone: 1800 001 973
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Substance: Abamectin is a macrocyclic lactone; Albendazole is an benzimidazole derivative.
Trade Name: **Bionic™ Controlled Release Combination Capsules for Adult Sheep 40 to 80kg**
Product Use: Controlled release preparation for adult sheep to be used as described on the product label.
Creation Date: **June, 2007**
Revision Date: **March, 2010**

Section 2 - Hazards Identification

Statement of Hazardous Nature

This product is classified as: N, Dangerous to the environment. Hazardous according to the criteria of ASCC.

Not a Dangerous Good according to the Australian Dangerous Goods (ADG) Code.

Risk Phrases: R61, R51/53. May cause harm to the unborn child. Toxic to aquatic organisms, may cause long-term adverse effects to the aquatic environment.

Safety Phrases: S60, S61. This material and its container must be disposed of as hazardous waste. Avoid release to the environment. Refer to special instructions/Safety Data Sheets.

SUSDP Classification: S6

ADG Classification: None allocated. Not a Dangerous Good under the ADG Code.

UN Number: None allocated

Emergency Overview

Physical Description & Colour: Tabletted preparation within a plastic capsule. Capsule is whitish with taped "wings", sealed except for a small orifice at one end.

Odour: No data.

Major Health Hazards: Symptoms of Abamectin poisoning observed in laboratory animals include pupil dilation, vomiting, convulsions and/or tremors, and coma. Abamectin acts on insects by interfering with the nervous system. At very high doses, it can affect mammals, causing symptoms of nervous system depression such as incoordination, tremors, lethargy, excitation, and pupil dilation. Very high doses have caused death from respiratory failure. Abamectin is not readily absorbed through skin. This product may cause harm to unborn children.

Potential Health Effects

Although the ingredients of this preparation may suggest that harm may come about due to contact, the nature of the device makes it most unlikely that physical contact will come about in normal use.

Inhalation:

Short Term Exposure: Available data indicates that this product is not harmful. In addition product is unlikely to cause any discomfort or irritation.

Long Term Exposure: No data for health effects associated with long term inhalation.

Skin Contact:

Short Term Exposure: Available data indicates that this product is not harmful. It should present no hazards in normal use. In addition product is unlikely to cause any discomfort in normal use.

Long Term Exposure: No data for health effects associated with long term skin exposure.

Eye Contact:

Short Term Exposure: This product is likely to be mechanically irritating. If exposure is minor or brief, no long term effects should result. However, if material is not removed promptly, scratches to surface of the eye may result with long term consequences.

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Long Term Exposure: No data for health effects associated with long term eye exposure.

Ingestion:

Short Term Exposure: Significant oral exposure is considered to be unlikely. However, this product may be irritating to mucous membranes but is unlikely to cause anything more than transient discomfort.

Long Term Exposure: No data for health effects associated with long term ingestion.

Carcinogen Status:

ASCC: No significant ingredient is classified as carcinogenic by ASCC.

NTP: No significant ingredient is classified as carcinogenic by NTP.

IARC: No significant ingredient is classified as carcinogenic by IARC.

Section 3 - Composition/Information on Ingredients

Ingredients	CAS No	Conc †	TWA (mg/m ³)	STEL (mg/m ³)
Abamectin	71751-41-2	160mg	not set	not set
Albendazole	54965-21-8	4.62g	not set	not set
Selenium compounds		24mg *	0.2	not set
Cobalt compounds		120mg *	not set	not set
Other non hazardous ingredients	secret	to 100%	not set	not set

† These values indicate the content of each capsule.

* These values are for elemental Se and Co respectively. Actual compounds are present at higher concentrations.

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

The ASCC TWA exposure value is the average airborne concentration of a particular substance when calculated over a normal 8 hour working day for a 5 day working week. The STEL (Short Term Exposure Limit) is an exposure value that may be equalled (but should not be exceeded) for no longer than 15 minutes and should not be repeated more than 4 times per day. There should be at least 60 minutes between successive exposures at the STEL. The term "peak" is used when the TWA limit, because of the rapid action of the substance, should never be exceeded, even briefly.

Section 4 - First Aid Measures

General Information:

You should call The Poisons Information Centre if you feel that you may have been poisoned, burned or irritated by this product. The number is 13 1126 from anywhere in Australia (0800 764 766 in New Zealand) and is available at all times. Have this MSDS with you when you call.

Inhalation: First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor.

Skin Contact: First aid is not generally required.

Eye Contact: First aid is not generally required. Obtain medical attention if irritation persists, or if particles are lodged in surface of the eye(s). Take special care if exposed person is wearing contact lenses.

Ingestion: If product is swallowed, seek medical attention. If product gets in mouth, do NOT induce vomiting; wash mouth with water and give some water to drink. If symptoms develop, or if in doubt contact a Poisons Information Centre or a doctor.

Section 5 - Fire Fighting Measures

Fire and Explosion Hazards: There is no risk of an explosion from this product under normal circumstances if it is involved in a fire.

Fire decomposition products from this product may be toxic if inhaled. Take appropriate protective measures.

Extinguishing Media: Preferred extinguishing media are carbon dioxide, dry chemical, foam, water fog.

Fire Fighting: If a significant quantity of this product is involved in a fire, call the fire brigade.

Flash point: May be combustible.

Upper Flammability Limit: No data.

Lower Flammability Limit: No data.

Autoignition temperature: No data.

Flammability Class: No data.

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Section 6 - Accidental Release Measures

Accidental release: This product is sold in small packages, and the accidental release from one of these is not usually a cause for concern. For disposal or minor spills, refer to product label for specific instructions. No special protective clothing is normally necessary because of this product. However it is good practice to wear latex or rubber gloves when handling this product. In the event of a major spill, prevent spillage from entering drains or water courses and call emergency services. DO NOT CONTAMINATE DAMS, RIVERS OR STREAMS

Section 7 - Handling and Storage

Handling: Keep exposure to this product to a minimum, and minimise the quantities kept in work areas. Check Section 8 of this MSDS for details of personal protective measures, and make sure that those measures are followed. The measures detailed below under "Storage" should be followed during handling in order to minimise risks to persons using the product in the workplace. Also, avoid contact or contamination of product with incompatible materials listed in Section 10.

Storage: This product is a Scheduled Poison. Observe all relevant regulations regarding sale, transport and storage of this schedule of poison. Store packages of this product in a cool (below 30°C) place. Make sure that containers of this product are kept tightly closed. Keep containers dry and away from water. Protect this product from light. Make sure that the product does not come into contact with substances listed under "Incompatibilities" in Section 10. Some liquid preparations settle or separate on standing and may require stirring before use. Check packaging - there may be further storage instructions on the label.

Section 8 - Exposure Controls and Personal Protection

The following Australian Standards will provide general advice regarding safety clothing and equipment:

Respiratory equipment: **AS/NZS 1715**, Protective Gloves: **AS 2161**, Industrial Clothing: **AS2919**, Industrial Eye Protection: **AS1336** and **AS/NZS 1337**, Occupational Protective Footwear: **AS/NZS2210**.

ASCC Exposure limits	TWA (mg/m ³)	STEL (mg/m ³)
Selenium	0.2	not set

The ADI for Abamectin is set at 0.0005mg/kg/day. The corresponding NOEL is set at 0.5mg/kg/day.

The ADI for Albendazole is set at 0.05mg/kg/day. The corresponding NOEL is set at 5mg/kg/day. ADI means Acceptable Daily Intake and NOEL means No-observable-effect-level. Values taken from Australian ADI List, Dec 2006.

No special equipment is usually needed when occasionally handling small quantities. The following instructions are for bulk handling or where regular exposure in an occupational setting occurs without proper containment systems.

Ventilation: This product should only be used where there is ventilation that is adequate to keep exposure below the TWA levels. If necessary, use a fan.

Eye Protection: Eye protection is not normally necessary when this product is being used. However, if in doubt, wear suitable protective glasses or goggles.

Skin Protection: The information at hand indicates that this product is not harmful and that normally no special skin protection is necessary. However, we suggest that you routinely avoid contact with all chemical products and that you wear suitable gloves (preferably elbow-length) when skin contact is likely.

Protective Material Types: We suggest that protective clothing be made from the following materials: rubber, PVC.

Respirator: Usually, no respirator is necessary when using this product. However, if you have any doubts consult the Australian Standard mentioned above.

Section 9 - Physical and Chemical Properties:

Physical Description & colour: Tableted preparation within a plastic capsule. Capsule is whitish with taped "wings", sealed except for a small orifice at one end.

Odour: No data.

Boiling Point: Not applicable.

Freezing/Melting Point: No specific data. Solid at normal temperatures.

Volatiles: No data.

Vapour Pressure: Negligible at normal ambient temperatures.

Vapour Density: Negligible at normal ambient temperatures.

Specific Gravity: No data.

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Water Solubility:	Tablet breaks down slowly in water.
pH:	Not applicable.
Volatility:	No data.
Odour Threshold:	No data.
Evaporation Rate:	No data.
Coeff Oil/water Distribution:	No data.
Autoignition temp:	No data.

Section 10 - Stability and Reactivity

Reactivity: This product is unlikely to react or decompose under normal storage conditions. However, if you have any doubts, contact the supplier for advice on shelf life properties.

Conditions to Avoid: This product should be kept in a cool place, preferably below 30°C. Keep containers tightly closed. Containers should be kept dry. Protect this product from light.

Incompatibilities: No particular Incompatibilities.

Fire Decomposition: Carbon dioxide, and if combustion is incomplete, carbon monoxide and smoke. Nitrogen and its compounds, and under some circumstances, oxides of nitrogen. Occasionally hydrogen cyanide gas in reducing atmospheres. Water. Carbon monoxide poisoning produces headache, weakness, nausea, dizziness, confusion, dimness of vision, disturbance of judgment, and unconsciousness followed by coma and death.

Polymerisation: This product will not undergo polymerisation reactions.

Section 11 - Toxicological Information

Toxicity: Acute toxicity: Abamectin is highly toxic to insects and may be highly toxic to mammals as well. Emulsifiable concentrate formulations may cause slight to moderate eye irritation and mild skin irritation. Symptoms of poisoning observed in laboratory animals include pupil dilation, vomiting, convulsions and/or tremors, and coma. Abamectin acts on insects by interfering with the nervous system. At very high doses, it can affect mammals, causing symptoms of nervous system depression such as incoordination, tremors, lethargy, excitation, and pupil dilation. Very high doses have caused death from respiratory failure. Abamectin is not readily absorbed through skin. Tests with monkeys show that less than 1% of dermally applied Abamectin was absorbed into the bloodstream through the skin. Abamectin does not cause allergic skin reactions. The oral LD₅₀ for Abamectin in rats is 10 mg/kg, and in mice ranges from 14 mg/kg to greater than 80 mg/kg. The dermal LD₅₀ for technical Abamectin in rats and rabbits is greater than 330 mg/kg.

Chronic toxicity: In a 1-year study with dogs given oral doses of Abamectin, dogs at the 0.5 and 1 mg/kg/day doses exhibited pupil dilation, weight loss, lethargy, tremors, and recumbency. Similar results were seen in a 2-year study with rats fed 0.75, 1.5, or 2 mg/kg/day. Rats at all the dosage levels exhibited body weight gains significantly higher than the controls. A few individuals in the high dose group exhibited tremors. When mice were fed 8 mg/kg/day for 94 weeks, the males developed dermatitis and changes in blood formation in the spleen, while females exhibited tremors and weight loss.

Reproductive effects: Rats given 0.40 mg/kg/day of Abamectin had increased stillbirths, decreased pup viability, decreased lactation, and decreased pup weights. These data suggest that Abamectin may have the potential to cause reproductive effects at high enough doses.

Teratogenic effects: Abamectin produced cleft palate in the offspring of treated mice and rabbits, but only at doses that were also toxic to the mothers. There were no birth defects in the offspring of rats given up to 1 mg/kg/day. Abamectin is unlikely to cause teratogenic effects except at doses toxic to the mother.

Mutagenic effects: Abamectin does not appear to be mutagenic. Mutagenicity tests in live rats and mice were negative. Abamectin was shown to be nonmutagenic in the Ames test.

Carcinogenic effects: Abamectin is not carcinogenic in rats or mice. The rats were fed dietary doses of up to 2 mg/kg/day for 24 months, and the mice were up to 8 mg/kg/day for 22 months. These represent the maximum tolerated doses.

Organ toxicity: Animal studies indicate that Abamectin may affect the nervous system.

Fate in humans and animals: Tests with laboratory animals show that ingested avermectin B1a is not readily absorbed into the bloodstream by mammals and that it is rapidly eliminated from the body within 2 days via the faeces. Rats given single oral doses of avermectin B1a excreted 69 to 82% of the dose unchanged in the faeces. The average half-life of avermectin B1a in rat tissue is 1.2 days. Lactating goats given daily oral doses for 10 days excreted 89% of the administered avermectin, mainly in the faeces. Less than 1% was recovered in the urine.

Benzimidazoles prevent tubulin polymerization or spindle movement and their administration can result in aneuploidy. They are weak mutagens. Albendazole has low acute oral toxicity [LD₅₀ (oral) = 2910 mg/kg]. In repeated dose studies main effects were hepatotoxicity and testicular atrophy. Teratogenicity has been demonstrated in animal

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studies (lowest NOEL was 5 mg/kg/day). Women in the first trimester of pregnancy were inadvertently given a single oral dose of 400 mg Albendazole/person without adverse effect to mother or child. Identified as a potential skin sensitiser.

Selenium is an essential trace element. LD₅₀ ranges between 1.5 and 6 mg/kg for many selenium compounds and animal species. Acute poisoning exhibits as dyspnea, spasms and death from respiratory failure. Selenium poisoning in humans has been described and gastrointestinal and neurological symptoms predominated. Selenium may cause congenital malformations eg. foals and lambs born with deformed hoofs.

Section 12 - Ecological Information

Toxic to aquatic organisms, this product may cause long-term adverse effects to the aquatic environment.

Effects on birds: Abamectin is practically nontoxic to birds. The LD₅₀ for Abamectin in bobwhite quail is >2000 mg/kg. The dietary LC₅₀ is 3102 ppm in bobwhite quail. There were no adverse effects on reproduction when mallard ducks were fed dietary doses of 3, 6, or 12 ppm for 18 weeks.

Effects on aquatic organisms: Abamectin is highly toxic to fish and extremely toxic to aquatic invertebrates. Its LC₅₀ (96-hour) is 0.003 mg/L in rainbow trout, 0.0096 mg/L in bluegill sunfish, 0.015 mg/L in sheepshead minnows, 0.024 mg/L in channel catfish, and 0.042 mg/L in carp. Its 48-hour LC₅₀ in *Daphnia magna*, a small freshwater crustacean, is 0.003 mg/L. The 96-hour LC₅₀ for Abamectin is 0.0016 mg/L in pink shrimp, 430 mg/L in eastern oysters, and 153 mg/L in blue crab. While highly toxic to aquatic organisms, actual concentrations of Abamectin in surface waters adjacent to treated areas are expected to be low. Abamectin did not bioaccumulate in bluegill sunfish exposed to 0.099 µg/L for 28 days in a flow-through tank. The levels in fish were from 52 to 69 times the ambient water concentration, indicating that Abamectin does not accumulate or persist in fish.

Effects on other organisms: Abamectin is highly toxic to bees, with a 24-hour contact LC₅₀ of 0.002 µg/bee and an oral LD₅₀ of 0.009 µg/bee.

Breakdown in soil and groundwater: Abamectin is rapidly degraded in soil. At the soil surface, it is subject to rapid photodegradation, with half-lives of 8 hours to 1 day reported. When applied to the soil surface and not shaded, its soil half-life is about 1 week. Under dark, aerobic conditions, the soil half-life was 2 weeks to 2 months. Loss of Abamectin from soils is thought to be due to microbial degradation. The rate of degradation was significantly decreased under anaerobic conditions. Because Abamectin is nearly insoluble in water and has a strong tendency to bind to soil particles, it is immobile in soil and unlikely to leach or contaminate groundwater. Compounds produced by the degradation of Abamectin are also immobile and unlikely to contaminate groundwater.

Breakdown in water: Abamectin is rapidly degraded in water. After initial distribution, its half-life in artificial pond water was 4 days. Its half-life in pond sediment was 2 to 4 weeks. It undergoes rapid photodegradation, with a half-life of 12 hours in water. When tested at pH levels common to surface and groundwater (pH 5, 7, and 9), Abamectin did not hydrolyse.

Breakdown in vegetation: Plants do not absorb Abamectin from the soil. Abamectin is subject to rapid degradation when present as a thin film, as on treated leaf surfaces. Under laboratory conditions and in the presence of light, its half-life as a thin film was 4 to 6 hours.

Albendazole is not toxic to birds, fish or honey bees. The potential for bioaccumulation is low and benzimidazoles are degraded in soil and probably also in water.

Selenium accumulates in living tissues and bioconcentration in aquatic organisms will be moderate to very high. The solubility and mobility of selenium are dependent upon its valence and chemical state. LC₅₀ (*Daphnia magna*) 710 ppb/96 hr (Selenium salts).

Section 13 - Disposal Considerations

Disposal: There are many pieces of legislation covering waste disposal and they differ in each state and territory, so each user must refer to laws operating in their area. In some areas, certain wastes must be tracked. The Hierarchy of Controls seems to be common - the user should investigate: Reduce, Reuse, and Recycle and only if all else fails should disposal be considered. Note that properties of a product may change in use, so that the following suggestions may not always be appropriate. The following may help you in properly addressing this matter for this product. Special help is available for the disposal of Agricultural Chemicals. The product label will give general advice regarding disposal of small quantities, and how to cleanse containers. However, for help with the collection of unwanted rural chemicals, contact ChemClear 1800 008 182 <http://www.chemclear.com.au/> and for help with the disposal of empty drums, contact DrumMuster <http://www.drummuster.com.au/> where you will find contact details for your area.

Section 14 - Transport Information

ADG Code: This product is not classified as a Dangerous Good. No special transport conditions are necessary unless required by other regulations.



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Section 15 - Regulatory Information

AICS: All of the significant ingredients in this formulation are compliant with NICNAS regulations.
The following ingredients: Abamectin, Albendazole, selenium are mentioned in the SUSDP.

Section 16 - Other Information

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

Acronyms:

ADG Code	Australian Code for the Transport of Dangerous Goods by Road and Rail
AICS	Australian Inventory of Chemical Substances
ASCC	Office of the Australian Safety and Compensation Council
CAS Number	Chemical Abstracts Service Registry Number
Hazchem Code	Emergency action code of numbers and letters that provide information to emergency services especially firefighters
IARC	International Agency for Research on Cancer
NOS	Not otherwise specified
NTP	National Toxicology Program (USA)
R-Phrase	Risk Phrase
SUSDP	Standard for the Uniform Scheduling of Drugs & Poisons
UN Number	United Nations Number

THIS MSDS 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 MUST REVIEW THIS MSDS IN THE CONTEXT OF HOW THE PRODUCT WILL BE HANDLED AND USED IN THE WORKPLACE.

IF CLARIFICATION OR FURTHER INFORMATION IS NEEDED TO ENSURE THAT AN APPROPRIATE RISK ASSESSMENT CAN BE MADE, THE USER SHOULD CONTACT THIS COMPANY SO WE CAN ATTEMPT TO OBTAIN ADDITIONAL INFORMATION FROM OUR SUPPLIERS

Please read all labels carefully before using product.

This MSDS is prepared in accord with the ASCC document "National Code of Practice for the Preparation of Material Safety Data Sheets" 2nd Edition [NOHSC:2011(2003)]

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