



SAFETY DATA SHEET

Product Name: BOSS® Dual Combination Mineralised Drench for Sheep

SECTION 1: IDENTIFICATION OF THE SUBSTANCE AND SUPPLIER

Product name:	BOSS® Dual Oral Drench
Recommended use:	Oral anthelmintic for sheep
Company name:	Alleva Animal Health Limited
Address:	1/116a Harris Road, East Tamaki, Auckland, 2013, New Zealand
Telephone:	0064-9-4181405
Emergency telephone number:	National Poisons Centre: 0800 764 766 (0800 POISON) Fire Service, Ambulance: Dial 111
Date of Preparation	27 February 2025 v2
Restrictions of Use	Refer to Section 15

SECTION 2: HAZARDS IDENTIFICATION

This substance is hazardous according to the EPA Hazardous Substances (Classification) Notice 2020

EPA Approval Code: Veterinary Medicines (Non-Dispersive Closed System Application) – HSR100758

Pictograms



Signal Word: **DANGER**

GHS Classification and Category	Hazard Code	Hazard Statement
Respiratory sensitisation Cat. 1	H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Specific target organ toxicity – single exposure Cat. 3 respiratory tract irritation	H335	May cause respiratory irritation.
Skin sensitisation Cat. 1	H317	May cause an allergic skin reaction.
Germ cell mutagenicity Cat. 2	H341	Suspected of causing genetic defects.
Carcinogenicity Cat. 2	H351	Suspected of causing cancer.



Reproductive toxicity Cat. 2	H361	Suspected of damaging fertility or the unborn child.
Effects on or via lactation	H362	May cause harm to breast-fed children.
Specific target organ toxicity – repeated exposure Cat. 2	H373	May cause damage to organs through prolonged or repeated exposure.
Hazardous to the aquatic environment chronic Cat. 3	H412	Harmful to aquatic life with long lasting effects.

Prevention Code	Prevention Statement
P103	Read label before use.
P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P260	Do not breathe fumes, vapours and spray.
P263	Avoid contact during pregnancy/while nursing.
P264	Wash hands thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P272	Contaminated work clothing should not be allowed out of the workplace.
P273	Avoid release to the environment.
P280	Wear protective clothing as detailed in Section 8.
P281	Use personal protective equipment as required.
P285	In case of inadequate ventilation wear respiratory protection.

Response Code	Response Statement
P312	Call a POISON CENTER or doctor/physician if you feel unwell.
P363	Wash contaminated clothing before reuse.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P304 + P341	IF INHALED: If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P333 + P313	If skin irritation or rash occurs: Get medical advice/attention.
P342 + P311	If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.

Storage Code	Storage Statement
P405	Store locked up.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.

Disposal Code	Disposal Statement
P501	Dispose of according to Local Regulations or Authorities



SECTION 3: COMPOSITION

Product Components:		
Name	CAS #	Weight %
Abamectin	71751-41-2	0.10
Levamisole HCl	16595-80-5	4.00
Selenium	13410-01-0	0.05
Disodium cobalt EDTA	15137-09-4	0.22

SECTION 4: FIRST AID MEASURES

First Aid	<p>Skin Contact: Wash with plenty of soap and water. Take off contaminated clothing and wash before re-use. If skin irritation or rash occurs: get medical advice/attention.</p> <p>Eye Contact: Rinse cautiously with water for 15 minutes. If eye irritation persists: Get medical advice.</p> <p>Ingestion: If swallowed, immediately flush mouth with water. Never give anything to the mouth of an unconscious person. Seek medical advice.</p> <p>Inhaled: Remove person to fresh air. Remove contaminated clothing and loosen remaining clothing. Allow person to assume most comfortable position and keep warm. Keep at rest until fully recovered. Get medical advice if breathing becomes difficult or if you feel unwell.</p>
Most important symptoms and effects, both acute and delayed	<p>Ingestion: Not applicable</p> <p>Inhalation: May cause asthma or breathing difficulties if inhaled. May cause respiratory irritation.</p> <p>Skin: May cause an allergic skin reaction.</p> <p>Eye: Not applicable.</p> <p>Chronic: Suspected of causing genetic defects. Suspected of causing cancer. Suspected of damaging fertility or the unborn child. May cause harm to breast-fed children. Causes damage to organs through prolonged or repeated exposure.</p>



SECTION 5: FIRE FIGHTING MEASURES

Type of hazard:	This material is non-flammable or combustible.
Fire hazard properties:	Hazardous fumes when heated to decomposition
Extinguishing media and methods:	Treat the fire as for the other materials present.
Hazchem code:	None Allocated
Recommended protective clothing for firefighters:	When fighting a major fire wear full protective clothing including breathing apparatus.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions:	Personnel involved in clean-up should wear appropriate personal protective equipment as detailed in Section 8 to minimise exposure. Restrict access to contaminated area.
Environmental Precautions:	Prevent material from entering surface water drains or waterways.
Procedure for Spills:	Contain the spill and prevent further dispersion. Retrieve intact containers from site. Place damaged containers into containment devices. Absorb spills with inert material and place in waste containers. Wash the area with water and absorb with further inert material. Collect spilled material and place in sealable containers for subsequent disposal.
Procedure for Disposal:	Dispose of according to Local Regulations detailed in Section 13.



SECTION 7: HANDLING AND STORAGE


Precautions for safe handling:	<ul style="list-style-type: none"> • Read label before use. • Obtain special instructions before use. • Do not handle until all safety precautions have been read and understood. • Apply with well-maintained and calibrated equipment. Handle with care. • Do not breathe fumes, vapours and spray. • Use only outdoors or in a well-ventilated area. • Avoid contact during pregnancy/while nursing. • Wash hands thoroughly after handling. • Do not eat, drink or smoke when using this product. • Contaminated work clothing should not be allowed out of the workplace. • Avoid release to the environment. • Wear protective clothing as detailed in Section 8. • Use personal protective equipment as required. • In case of inadequate ventilation wear respiratory protection.
Certified handlers:	Not Required
Conditions for safe storage:	<ul style="list-style-type: none"> • Store away from incompatible materials listed in Section 10. • Keep out of reach of children. • Store locked up. • Store in a well-ventilated place. Keep container tightly closed. • Store at temperature <25°C.

SECTION 8: EXPOSURE CONTROL/PERSONAL PROTECTION

WORKPLACE EXPOSURE STANDARDS (provided for guidance only)

Substance	TWA		STEL	
	ppm	mg/m ³	ppm	mg/m ³
Butylated hydroxytoluene [128-37-0]	-	10	-	-
Propane-1,2-diol, Particulates Only [57-55-6]	-	10	-	-
Propane-1,2-diol, Vapour and Particulates [57-55-6]	150	474	-	-

Workplace Exposure Standard – Time Weighted Average (WES-TWA). The time-weighted average exposure standard designed to protect the worker from the effects of long-term exposure. Workplace Exposure Standard – Short-Term Exposure Limit (WESSTEL). The 15-minute average exposure standard. Applies to any 15- Minute period in the working day and is designed to protect the worker against adverse effects of irritation, chronic or irreversible tissue change, or narcosis that may increase the likelihood of accidents. The WES-STEL is not an alternative to the WES-TWA; both the short-term and time-weighted average exposures apply. Workplace Exposure Standards and Biological Exposure Indices Feb 2025 15TH EDITION.

Engineering controls:	Ensure that ventilation maintains dust levels below WES using adequate ventilation.
Personal protection: 	Respiratory protection: Respirator is required. Hand protection: Wear impervious gloves and overalls with long sleeves. Eye protection: Goggles or face shield when mixing and loading.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Purple Liquid
Odour	Not available
Odour Threshold	Not applicable
pH	~4
Boiling Point	Not applicable
Melting Point	Not applicable
Freezing Point	Not applicable
Flash Point	Not applicable
Flammability	Non flammable
Upper and Lower Explosive Limits	Not applicable
Vapour Pressure	Not applicable
Vapour Density	Not applicable
Specific Gravity	~1.05 g/ml
Water Solubility	Miscible



Partition Coefficient:	Not applicable
Auto-ignition Temperature	Not applicable
Decomposition Temperature	Not applicable
Kinematic Viscosity	Not applicable

SECTION 10: STABILITY AND REACTIVITY

Stability of the substance:	This product is stable under normal conditions.
Conditions to avoid:	None known.
Material to avoid:	None known.
Hazardous decomposition products:	No hazardous products are expected, except when heated to.

SECTION 11: TOXICOLOGICAL INFORMATION

Acute effects:	
Swallowed	Not applicable.
Dermal	Not applicable.
Inhalation	May cause asthma symptoms or breathing difficulties if inhaled. May cause respiratory irritation.
Eye	Not applicable.
Skin	May cause an allergic skin reaction.
Chronic and long-term effects:	
Reproductive	Suspected of damaging fertility or the unborn child. May cause harm to breast-fed children.
Systemic	
Carcinogenicity	Suspected of causing cancer.
Aspiration	Not applicable.
Germ Cell Mutagenicity	Suspected of causing genetic defects
STOT/RE	May cause damage to organs (oral, inhalation) through prolonged or repeated exposure.

Abamectin: Abamectin is an acute oral toxin [LD50 (oral) 8.7-12.8mg/kg]. Ingestion of a single large dose of abamectin by humans (100mg/kg) was associated with coma, hypotension and respiratory failure. Clinical signs in repeated-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 0.12mg/kg/d).

Levamisole HCL: Levamisole is a broad-spectrum anthelmintic with a long history of use in cattle and sheep. It has moderate to high acute toxicity [LD50 (oral, rats & mice) = 200-500 mg/kg]. A potential mutagen [levamisole] induced chromosome gaps and breaks in human lymphocytes in vitro and in vivo and levamisole hydrochloride induced an increase in the mitotic index, numerical chromosomal changes (aneuploidy, polyploidy) and structural chromosomal changes]. Haemolytic anaemic was the main toxic effect demonstrated in repeated dose animal studies (LOAEL 1.25mg/kg/day). In humans, levamisole has been associated with various non-specific effects (nausea, vomiting, rashes). Levamisole has induced leucopenia and agranulocytosis (idiosyncratic) at low doses.

Sodium selenate: Sodium selenate is acutely toxic [LD50 (oral) 25mg/kg]. Dusts are toxic if inhaled and irritant to 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 0.37mg/kg/day (liver toxicity).

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

SECTION 12: ENVIRONMENTAL INFORMATION

Harmful to aquatic life with long lasting effects

Persistence and degradability	No data available
Bioaccumulation	No data available
Mobility in Soil	No data available
Other adverse effects	No data available
Precautions	Do not allow to enter waterways



Component Data

Abamectin:

Abamectin is a highly effective insecticide and acaricide produced by the soil microbe *Streptomyces avermitilis*. It is highly toxic to invertebrates in the aquatic, soil and terrestrial environments. Aquatic organisms: Abamectin is highly toxic to fish and extremely toxic to aquatic invertebrates [LC50 Rainbow trout is 3.6ppb (96hrs); EC50 *Daphnia magna* 0.34ppb (48hrs)]. Persist: yes. Soil organisms: Dung beetle Terrestrial fate value 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) = 200-500 mg/kg]. Not toxic to fish or honey bees. Levamisole does not bioaccumulate in biological systems. In soil, levamisole has a half-life of five to seventy five days depending on sunlight, soil type and climatic conditions. Levamisole does not leach in soils and is readily degraded by hydrolysis and microbial action.

Disodium cobalt EDTA: Cobalt is toxic to fish and other aquatic life [LC50 (96hr, Trout) 1.406mg/L; EC50 (48hr, *Daphnia magna*) 1.11mg/L]. Not readily biodegradable, cobalt persists.

SECTION 13: DISPOSAL CONSIDERATIONS

Product disposal:	Preferably dispose of the product by use. Otherwise dispose of product and packaging at an approved landfill or other approved facility. Burn empty container in an appropriate incinerator, if circumstances such as wind direction permit. Otherwise crush or puncture and bury in a suitable landfill.
Precautions:	Do NOT use container for any other purpose. Do not flush into drain or natural waterways. Do not reuse container.

SECTION 14: TRANSPORT INFORMATION

This product is NOT classified as a Dangerous Good for transport in NZ; NZS 5433:2020

SECTION 15: REGULATORY INFORMATION

Regulatory status:	Veterinary Medicines (Non-Dispersive Closed System Application) – HSR100758
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HSW (HS) Regulations 2017	Trigger Quantity
Certified Handler	Not required
Location Certificate	Not required
Tracking Trigger Quantities	Not required
Signage Trigger Quantities	1000 L
Emergency Response Plan	1000 L
Secondary Containment	1000 L
HSNO Additional Controls (Restrictions of use)	
	None
ACVM Approval No:	*Not Allocated*

SECTION 16: OTHER INFORMATION

Glossary

CAT	Category
EC50	Median effective concentration.
EEL	Environmental Exposure Limit.
EPA	Environmental Protection Authority
HSNO	Hazardous Substances and New Organisms.
HSW	Health and Safety at Work.
LC50	Lethal concentration that will kill 50% of the test organisms inhaling or ingesting it.
LD50	Lethal dose to kill 50% of test animals/organisms.
LEL	Lower explosive level.
OSHA	American Occupational Safety and Health Administration.
TEL	Tolerable Exposure Limit.
TLV	Threshold Limit Value-an exposure limit set by responsible authority.
UEL	Upper Explosive Level
WES	Workplace Exposure Limit

References:

1. EPA Hazardous Substances (Safety Data Sheets) Notice 2017
2. Workplace Exposure Standards and Biological Exposure Indices Feb 2025 15th edition.
3. Assigning a hazardous substance to a HSNO Approval (Aug 2013).
4. Transport of Dangerous goods on land NZS 5433:2020
5. HSW (Hazardous Substances) Regulations 2017

This 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. ALLEVA



Animal Health Limited makes no warranty with respect hereto and disclaims all liability from reliance thereon.

Each user should read this SDS 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.

PLEASE READ ALL LABELS CAREFULLY BEFORE USING PRODUCT.

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