



SAFETY DATA SHEET

SECTION 1: IDENTIFICATION OF THE SUBSTANCE AND SUPPLIER

Product name:	BOSS® Triple Combination Mineralised Drench for Sheep
Recommended use:	For the treatment and control of internal parasites in sheep, including those with single or dual resistance to Avermectin/Milbemycin, Benzimidazole or Levamisole/Morantel families.
Company name:	Alleva Animal Health Limited
Address:	15 Calman Place, Birkenhead, Auckland
Telephone:	0064-9-4181405
Emergency telephone number:	National Poisons Centre: 0800 764 766 (0800 POISON) Fire Service, Ambulance: Dial 111
Date of Preparation	3 December 2018
Restrictions of Use	Refer to Section 15

SECTION 2: HAZARDS IDENTIFICATION

This substance is hazardous according to the EPA Hazardous Substances (Classification) Notice 2017

EPA Approval No: HSR100758

Pictograms



Toxic



Chronic



Ecotoxic

Signal Word: **DANGER**

HSNO Classification	Hazard Code	Hazard Statement	GHS Category
6.1D (oral)	H302	Harmful if swallowed.	Acute Tox. 4
6.5A	H334	May cause allergy or asthma symptoms or breathing difficulties if	Resp. Sens. 1



		inhaled.	
6.5B	H317	May cause an allergic skin reaction.	Skin Sens. 1
6.6B	H341	Suspected of causing genetic defects	Muta. 2
6.7B	H351	Suspected of causing cancer.	Carc. 2
6.8B	H361	Suspected of damaging fertility or the unborn child.	Repr. 2
6.8C	H362	May cause harm to breast-fed children.	Lact.
6.9B	H373	May cause damage to organs (oral, inhalation) through prolonged or repeated exposure.	STOT RE 2
9.1A	H400	Very toxic to aquatic life.	Aquatic Acute 1
9.2C	H423	Harmful to the soil environment.	-
9.3C	H433	Harmful to terrestrial vertebrates.	-
9.4A	H441	Very toxic to terrestrial invertebrates.	-

Prevention Code	Prevention Statement
P102	Keep out of reach of children.
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.
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
P101	If medical advice is needed, have product container or label at hand.
P330	Rinse mouth.
P363	Wash contaminated clothing before reuse.
P391	Collect spillage.
P301 + P312	IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
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.

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

SECTION 3: COMPOSITION

Product Components:		
Name	CAS #	Concentration
Abamectin	71751-41-2	1g/L
Levamisole HCl	16595-80-5	40g/l
Oxfendazole	53716-50-0	22.7g/l
Selenium	13410-01-0	0.5g/l
Disodium cobalt EDTA	15137-09-4	2.2g/l
Non hazardous		To bal

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. Do not induce vomiting. 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: Harmful if swallowed.</p> <p>Inhalation: May cause asthma or breathing difficulties if inhaled.</p> <p>Skin: May cause an allergic skin reaction.</p> <p>Eye: Not applicable.</p> <p>Chronic: Suspected of causing cancer. Suspected of</p>



	damaging fertility or the unborn child. May cause harm to breast-fed children. Suspected of causing genetic defects. Causes damage to organs through prolonged or repeated exposure.
--	---

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:	3Z
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



<p>Precautions for safe handling:</p>	<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. • 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.
<p>Certified handlers:</p>	<p>Not Required</p>
<p>Conditions for safe storage:</p>	<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 cool place below 25°C with top secured.

SECTION 8: EXPOSURE CONTROL/PERSONAL PROTECTION

WORKPLACE EXPOSURE STANDARDS (provided for guidance only)


Substance	TWA ppm mg/m ³	STEL ppm mg/m ³
------------------	-------------------------------------	--------------------------------------

No substance has exposure limits

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 NOV 2017 9TH EDITION.

Engineering controls:	Ensure that ventilation maintains dust levels below WES.
Personal protection: 	Respiratory protection: Not 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	Light pink to pink liquid
Odour	Not available
Odour Threshold	Not applicable
pH	~4
Boiling Point	Ca. 100°C
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	0.9 – 1.1g/ml
Water Solubility	Insoluble
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	Harmful if swallowed.
Dermal	Not applicable.
Inhalation	May cause asthma symptoms or breathing difficulties if inhaled.
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.

Oxfendazole: Oxfendazole has low acute oral toxicity [LD50 (oral) > 6400mg/kg]. In repeated oral dose studies hepatocellular lipid vacuolation was



identified as an early toxic effect (lowest NOEL was 0.7 mg/kg/day). Teratogenicity and foetal toxicity has been demonstrated in laboratory animal studies (lowest NOEL was 0.9mg/kg/day).

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

HSNO Classes: 9.1A: Very toxic to aquatic life.
9.2C = Harmful to the soil environment.
9.3C = Harmful to terrestrial vertebrates.
9.4A = Very toxic to terrestrial invertebrates.

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.

Oxfendazole: Benzimidazoles are not toxic to birds or honey bees, but are moderately toxic to aquatic life [Oxfendazole: LC₅₀ Daphnia magna 0.52mg/L (48hrs)]. 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 crustacea [LC₅₀ (48hr, Grammarus pseudolimnaeus) 83µg/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 an 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) 1.406mg/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 classified as a Dangerous Good for transport in NZ; NZS 5433:2012

Road and Rail Transport

UN No: 3082
Class-primary 9
Packing Group III
Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Abamectin 0.1%)

Air Transport

UN No: 3082

Product name: BOSS® Triple Combination Mineralised Drench for Sheep
Safety Data Sheet
Last reviewed on: 3 December 2018



Class-primary 9
 Packing Group III
 Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE,
 LIQUID, N.O.S. (Abamectin 0.1%)

Marine Transport

UN No: 3082
 Class-primary 9
 Packing Group III
 Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE,
 LIQUID, N.O.S. (Abamectin 0.1%)

Limited Quantities Statement:

If the product's individual container is below 5kg, it can be transported as a non-DG as long as the product packaging is still labelled as per DG requirements and the driver is given safety information in accordance with Chapter 3.4 of the UNRTDG.

SECTION 15: REGULATORY INFORMATION	
Regulatory status:	Approved pursuant to the HSNO Act, EPA Approval Code HSR100758 See www.epa.govt.nz for approval conditions.
HSW (HS) Regulations 2017	Trigger Quantity
Certified Handler	Not required
Location Certificate	Not required
Tracking Trigger Quantities	Not required
Signage Trigger Quantities	100kg (9.1A)
Emergency Response Plan	100kg (9.1A)
Secondary Containment	100kg (9.1A)
HSNO Additional Controls (Restrictions of use)	
77A	Refer to Controls document on EPA website for HSR100758
Hazardous Property Controls Notice 2017	
HPC Notice Part 4 Clause 47	Equipment for class 9 substances must be appropriate
HPC Notice Part 4 Clause 48	Records of application of class 9 pesticides and plant growth regulators
HPC Notice Part 4 Subpart A	Site and storage controls for class 9 substances
ACVM Approval No:	A011614. See www.foodsafety.govt.nz for registration controls



SECTION 16: OTHER INFORMATION

Glossary

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 Nov 2017 edition.
3. Assigning a hazardous substance to a HSNO Approval (Aug 2013).
4. Transport of Dangerous goods on land NZS 5433:2012
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.

® Registered trademark of Alleva Animal Health Limited.

Issued Date: 3 December 2018

Review Date: 3 December 2023