



SAFETY DATA SHEET

Product Name: BOSS® Triple Combination Mineralised Drench for Sheep

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: | 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 | 2 September 2021 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



Toxic



Chronic



Ecotoxic

Signal Word: **DANGER**

| GHS Classification and Category | Hazard Code | Hazard Statement |
|---------------------------------|-------------|-----------------------|
| Acute oral toxicity Cat. 4 | H302 | Harmful if swallowed. |

Product name: BOSS® Triple Combination Mineralised Drench for Sheep

Safety Data Sheet

Last reviewed on: 2 September 2021



| | | |
|---|----------|--|
| Respiratory sensitisation Cat. 1 | H334 | May cause allergy or asthma symptoms or breathing difficulties if inhaled. |
| 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 acute/chronic Cat. 1 | H400/410 | Very toxic to aquatic life with long lasting effects. |
| Hazardous to soil organisms | H423 | Hazardous to soil organisms |
| Hazardous to terrestrial vertebrates | H433 | Hazardous to terrestrial vertebrates |
| Hazardous to terrestrial invertebrates | H441 | Hazardous 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, | <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> |



| | |
|-------------------------------|--|
| both acute and delayed | Chronic: Suspected of causing cancer. Suspected of 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

| | |
|---------------------------------------|--|
| 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. • 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 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 2020 12TH 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

Very toxic to aquatic life with long lasting effects
Hazardous to soil organisms
Hazardous to terrestrial vertebrates
Hazardous 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

Product name: BOSS® Triple Combination Mineralised Drench for Sheep **Safety Data Sheet**

Last reviewed on: 2 September 2021



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
 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: | Veterinary Medicines (Non-Dispersive Closed System Application) – HSR100758 |
| HSW (HS) Regulations 2017 | Trigger Quantity |
| Certified Handler | Not required |
| Location Certificate | Not required |
| Tracking Trigger Quantities | Not required |
| Signage Trigger Quantities | 100kg |
| Emergency Response Plan | 100kg |
| Secondary Containment | 100kg |
| HSNO Additional Controls (Restrictions of use) | |
| | None |
| 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

| | |
|------|---|
| 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 Nov 2020 12th 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: 2 September 2021

Review Date: 2 September 2026