Section 1: IDENTIFICATION of CHEMICAL PRODUCT and COMPANY

Product Name: **Troika Mineralised Combination Drench for Sheep**

Product Identifier: A combination oral anthelmintic liquid containing abamectin, albendazole, levamisole, iodine, cobalt, copper, zinc and selenium, dosed at 1 ml/5 kg.

Product Code: 504355 (20L).

Recommended Use: Mineralised oral drench for the treatment and control in sheep of susceptible gastrointestinal roundworms, lungworm, tapeworms, adult liver fluke, nasal bot and itch mite.

Restrictions on Use: For animal treatment only.

Company Identification: Jurox New Zealand Limited.

Address: 8 Kordel Place,
East Tamaki, Auckland 2013,
New Zealand.

Email: Jurox: customerservice@jurox.co.nz
Zoetis: nzcontactus@zoetis.com

Customer Centre: Jurox: 0800 587 696 (Business hours)
Zoetis: 0800 963 847 (Business hours)

National Poisons Information Centre: 0800 POISON (0800 764 766) (24hr)

Emergency Telephone Number: 0800 CHEMCALL (0800 243 622) (24hr)

Section 2: HAZARDS IDENTIFICATION

Hazard Classifications: This product has been assessed according to GHS and is classified as follows:

GHS Category	Hazard code	Hazard Statement
Skin Sensitization: Category 1	H317	May cause an allergic skin reaction
Germ Cell Mutagenicity: Category 2	H341	Suspected of causing genetic defects
Reproductive Toxicity: Category 1	H360	May damage fertility or the unborn child
Reproductive Toxicity: effects on or via lactation	H362	May cause harm to breast-fed children
Specific Target Organ Toxicity (repeat exposure): Category 2	H373	May cause damage to organs through prolonged or repeated exposure
Aquatic toxicity (acute): Category 1	H400	Very toxic to aquatic life
Aquatic toxicity (chronic): Category 1	H410	Very toxic to aquatic life with long lasting effects

Signal word: DANGER

GHS Pictograms:


Exclamation Mark


Health Hazard


Environment

Precautionary statements:

General

P101	If medical advice is needed, have product container or label at hand.
P102	Keep out of reach of children.

Prevention

P202	Do not handle until all safety precautions have been read and understood.
P260	Do not breathe vapours.
P263	Avoid contact during pregnancy and while nursing.
P264	Wash hands thoroughly after handling.
P272	Contaminated work clothing should not be allowed out of the workplace.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.

Response

P314	Get medical advice/attention if you feel unwell.
P302 + P352	IF ON SKIN: wash with plenty of water.
P333 + P313	If skin irritation or rash occurs: Get medical advice/attention.
P308 + P313	IF exposed or concerned: Get medical advice/attention.
P362 + P364	Take off contaminated clothing and wash if before reuse.
P391	Collect spillage.

Storage

P405	Store locked up.

Disposal

P501	Dispose of contents/container in accordance with local regulations.

Other hazards: None known.

Section 3: COMPOSITION / INFORMATION on INGREDIENTS

INGREDIENT	CAS No.	CONTENT
Abamectin	71751-41-2	0.1%
Albendazole	54965-21-8	2.5%
Levamisole hydrochloride	16595-80-5	4.0%
Cobalt chelate	15137-09-4	0.15%
Copper chelate	14025-15-1	1.46%
Zinc chelate	14025-21-9	0.4%
Sodium selenate	13410-01-0	0.12%
Iodine EDDI	5700-49-2	0.125%
Benzyl alcohol	100-51-6	3.0%
Ingredients not contributing to the hazards	-	80 – 90%

Section 4: FIRST AID MEASURES

General Information: Consult the National Poisons Centre on 0800 POISON (0800 764 766) or a doctor immediately in every case of suspected chemical poisoning. Never give fluids or induce vomiting if a patient is unconscious or convulsing regardless of cause of injury. If medical advice/attention is needed, have this SDS, product container or label at hand.

Symptoms and Effects of Exposure: Accidental ingestion of the material may be damaging to the health of the individual. Benzimidazole carbamate anthelmintics, used at doses for treatment, have produced allergic reactions (which may be associated with destruction of parasites), raised liver enzyme values, and may be associated with loss of white cells and hair. Extremely large doses may produce intestinal cramping, loss of appetite, lethargy, lung bleeding, oedema, liver and epicardial bleeding, nausea, vomiting and diarrhoea. Skin contact with the material may be harmful; systemic effects may result following absorption. Entry into the blood stream through, for example, cuts, abrasions or lesions may produce systemic injury with harmful effects. Developmental disorders are directly caused by human exposure to the material.

Inhalation: If fumes or combustion products are inhaled remove patient from contaminated area. Lay patient down and keep warm and rested. Prostheses such as false teeth, which may block airway, should be removed where possible prior to initiating first aid procedures. Apply artificial respiration if not breathing, and perform CPR if necessary. Transport to hospital or doctor.

Ingestion: IF SWALLOWED, REFER FOR MEDICAL ATTENTION, WHERE POSSIBLE, WITHOUT DELAY. For advice, contact the National Poisons Centre on 0800 POISON (0800 764 766) or a doctor. Urgent hospital treatment is likely to be needed. In the mean time, qualified first-aid personnel should treat the patient following observation and employing supportive measures as indicated by the patient's condition. The patient should be placed in the care of a medical officer or medical doctor and a copy of the SDS should be provided. If medical attention is not available on the worksite or surroundings send the patient to a hospital with a copy of the SDS. **Where medical attention is not immediately available, or where the patient is more than 15 minutes from a hospital, or unless instructed otherwise:** INDUCE vomiting with fingers down the back of the throat, ONLY IF CONSCIOUS. Lean patient forward or place on left side (head down position, if possible) to maintain open airway and prevent aspiration. Wear protective gloves when inducing vomiting by mechanical means.

Skin: If skin contact occurs: Immediately remove all contaminated clothing, including footwear. Flush skin and hair with running water (and soap if available). Seek medical attention in event of irritation.

Eye: If this product comes into contact with eyes, wash out immediately with fresh running water. Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids. Continue flushing for at least 20 minutes. If eye irritation persists, get medical advice/attention. Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

Recommended First Aid Facilities: Ready access to running water and soap is required. Accessible eyewash is required.

Advice to Doctor: No specific antidote. Treat symptomatically. Contains abamectin (avermectin). Toxicity following accidental ingestion may be minimised by emesis-induction within 30 minutes of exposure. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. Since abamectin is thought to bind glutamate-gated chloride ion channels it would be wise to avoid drugs that also interact with other ligand-gated chloride channels, including those that enhance GABA activity in patients with potentially toxic abamectin exposure (barbiturate, benzodiazepines, valproic acid, etc.).
Following administration of albendazole, intestinal and hepatic albendazole metabolism leads to albendazole sulfoxide (active metabolite) and albendazole sulfone (inactive metabolite) formation.

Section 5: FIRE FIGHTING MEASURES

Flash Point: Not combustible.

Hazardous Combustion Products: If involved in a fire, may emit poisonous and/or corrosive fumes.

Extinguishing Media: There is no restriction on the type of extinguisher which may be used. Use extinguishing media suitable for the surrounding area.

Protective Equipment: Breathing apparatus and protective gloves.

HAZCHEM Code: 3Z

Section 6: ACCIDENTAL RELEASE MEASURES

Spills and Disposal: Wear gloves and appropriate protective clothing. Clean up all spills immediately. Avoid breathing vapours and contact with skin and eyes. For small spills, contain and absorb spill with sand, earth, inert material or vermiculite. Wipe up and place in a suitable, labelled container for waste disposal. For large spills, clear area of personnel and move upwind. Alert fire brigade and tell them the location and nature of the hazard. Prevent, by any means available, spillage from entering drains or water courses. Stop leak if safe to do so.

Protective Clothing: For appropriate personal protective equipment see section 8.

Environmental Precautions: Prevent from entering drains, waterways or sewers. If spill does enter waterways contact local authority.

Section 7: HANDLING AND STORAGE

Handling: Avoid all personal contact, including inhalation. Wear protective clothing when risk of exposure occurs. Use in a well-ventilated area. Avoid contact with moisture and incompatible materials. DO NOT eat, drink or smoke when handling this product. DO NOT allow clothing wet with material to stay in contact with skin.

Storage: Keep out of reach of children. Store locked up in securely sealed, original containers in a cool, dry, well-ventilated area. Store away from incompatible material and foodstuffs. Protect containers against physical damage and check regularly for leaks.

Other Information: Avoid contact with incompatible substances as listed in Section 10. Always read the label before use.

Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

This SDS describes personal protective measures relating to long term industrial and manufacturing exposure and emergency situations, such as accidents and spills. See product label for personal protective measures during normal use of the marketed product.

Exposure Limits: No exposure limits have been assigned for this product. Known exposure limits for ingredients are as follows:

INGREDIENT	TEEL-1	TEEL-2	TEEL-3
Benzyl alcohol	30 ppm	52 ppm	740 ppm
Sodium selenate	1.4 mg/m^3	1.6 mg/m^3	2 mg/m^3

Engineering Controls: Handle in a well-ventilated area. Ensure that the work environment remains clean.

Personal Protective Equipment (PPE):

Eye protection: Safety glasses with side shields or chemical goggles.

Skin protection: Prevent skin contact by wearing chemical protective gloves e.g. PVC. Wear safety footwear or safety gumboots, e.g. Rubber.

Respiratory protection: Not required for the normal use of this product.

Other: Overalls, PVC apron, barrier cream and skin cleansing cream. Have eyewash unit at hand.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Pale blue liquid suspension.	**Lower flammability limits:**	Not applicable
Odour:	Not available	**Vapour Pressure:**	Not available
Odour threshold:	Not available	**Vapour density:**	Not available
pH:	5.0 – 5.5	**Relative density:**	Approx. 1.1
Melting Point:	Not available	**Specific Gravity:**	Approx. 1.08
Boiling Point:	Not available	**Solubility in Water:**	Miscible
Flash Point:	Not applicable	**Partition coefficient:**	Not available
Evaporation Rate:	Not available	**Auto-ignition temperature:**	Not available
Flammability:	Not applicable	**Decomposition temperature:**	Not available
Upper flammability limits:	Not applicable	**Viscosity:**	Not available

Section 10: STABILITY AND REACTIVITY

Reactivity: This product is unlikely to react or polymerise under normal storage conditions.

Stability: When stored appropriately this product should show no significant degradation within the expiry period shown on the label.

Conditions to Avoid: Extreme temperatures.

Incompatible Materials: Oxidising agents.

Hazardous Decomposition Products: Decomposes on heating and produces toxic fumes of carbon dioxide and other pyrolysis products typical of burning organic material.

Section 11: TOXICOLOGICAL INFORMATION

Acute Toxicity:

Ingestion: Ingestion of the material may be harmful. No data for the mixture is available. Based on the available data for the ingredients, the mixture is not considered to be acutely toxic by the oral route.

Abamectin : Oral LD_{50} : 10 mg/kg (rat), 13.6 mg/kg (mouse);
Albendazole : Oral LD_{50} : 2400 mg/kg (rat), 1500 mg/kg (mouse);
Benzyl alcohol : Oral LD_{50} : 1230 mg/kg (rat), 1360 mg/kg (mouse);
Cobalt chelate : Oral LD_{50} : > 6671 mg/kg (rat);
Levamisole hydrochloride : Oral LD_{50} : 180 mg/kg (rat), 223 mg/kg (mouse);
Sodium selenate : Oral LD_{50} : 1.6 mg/kg (rat).

Inhalation: No data for the mixture is available. Based on available data for the ingredients, the mixture is not considered to be acutely toxic by the inhalation route. Nevertheless, inhalation of vapours generated by the material during the course of normal handling, may be damaging to the health of the individual, and good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting.

Abamectin: Inhalation LC_{50}: 1.1 mg/l/4h (rat);
Benzyl alcohol: Inhalation LC_{50}: > 4.178 mg/l/4h (rat).

Dermal: No data for the mixture is available. Based on available data for the ingredients, the mixture is not considered to be acutely toxic by the dermal route.

Abamectin: Dermal LD_{50}: > 330 mg/kg (rat);
Benzyl alcohol: Dermal LD_{50}: 2000 mg/kg (rabbit).

Skin Corrosion / Irritation: No data for the mixture is available. Based on available data for the ingredients, the mixture is not thought to cause skin corrosion or irritation.

Serious Eye Damage / Irritation: No data for the mixture is available. Based on available data for the ingredients, the mixture is not thought to cause serious eye damage or irritation. Direct contact with the eye may produce transient discomfort characterised by tearing or conjunctival redness.

Respiratory or Skin Sensitisation: No data for the mixture is available. Based on available data for the ingredients, the mixture is classified as **Skin sensitization, Category 1.** Chronic exposure to the material may cause a sensitisation reaction in some people. Sensitisation may result in allergic dermatitis responses including rash, itching, hives or swelling of extremities. Animal studies have found that albendazole is a potential skin sensitiser and studies in humans have found that levamisole is a contact sensitiser. Cobalt chelate and copper chelate have also been found to produce contact sensitisation.

Germ Cell Mutagenicity: No data for the mixture is available. Based on available data for the ingredients, the mixture is classified as **Germ Cell Mutagenicity, Category 2.** Albendazole is a suspected mutagen based on results of an *in vivo* mouse bone marrow micronucleus test. Levamisole has been shown to produce chromosome gaps and breaks in human lymphocytes both *in vitro* and *in vivo*. Sodium selenate has also been shown to produce chromosome breaks and spindle disturbances in mouse bone marrow cells.

Carcinogenicity: No data for the mixture is available. Based on available data for the ingredients, the mixture is not considered to be carcinogenic.

Reproductive Toxicity: No data for the mixture is available. Based on available data for the ingredients, the mixture is classified as **Reproductive toxicity, Category 1** and **Reproductive Toxicity, Effects on or via Lactation**. Abamectin has been shown to cause maternotoxicity, fetotoxicity and teratogenic effects in rats. Adverse effects have also been shown in rat pups during early lactation. Developmental studies in mice, rats, rabbits and sheep have also shown albendazole to be teratogenic.

STOT: Single exposure: No data for the mixture is available. Based on available data for the ingredients, the mixture is not classified as a specific organ toxicant after single exposure.

STOT: Repeat exposure: No data for the mixture is available. Based on available data for the ingredients, the mixture is classified as **STOT: Repeat Exposure, Category 2**. Abamectin causes CNS toxicity at fairly low doses in dogs, rats and mice. Long term albendazole exposure has been found to cause reduced food intake and weight gain, reduced haemoglobin, haematocrit, erythrocyte and leucocyte counts, decreased uterine and testes weights and increased relative liver and kidney weights in dogs. The commonest and most severe effect produced by levamisole is agranulocytosis, which can be fatal. Some cobaltous salts have been implicated as a causative agent in certain forms of cardiac disease. Copper salts have been

shown to cause a reduction in growth, hyperplasia and hyperkeratosis in the forestomach, and liver and kidney effects in rats. Sodium selenate is toxic to the liver based on studies on rats.

Aspiration Hazard: No data for the mixture is available. Based on available data for the ingredients, the mixture is not considered to be an aspiration hazard.

Narcotic Effects: No data for the mixture is available. Based on available data for the ingredients, the mixture is not considered to have any narcotic effects.

Section 12: ECOLOGICAL INFORMATION

Ecotoxicity: No data for the mixture is available. Based on available data for the ingredients, the mixture is classified as **Aquatic Toxicity (acute), Category 1** and **Aquatic Toxicity (chronic), Category 1**.

Fish
Abamectin: LC_{50} (96h): 0.0036 mg/L, LOEC: 0.0000093 mg/L;
Benzyl alcohol: LC_{50} (96h): 10 mg/L, NOEC (336h): 5.1 mg/L;
Cobalt chelate: LC_{50} (96h): 1.406 mg/L;
Copper chelate: LC_{50} (96h): 1-592 mg/L, NOEC (96h) 1 mg/L;
Sodium selenate: LC_{50} (96h): 0.002 – 0.06 mg/L;
Zinc chelate: LC_{50} (96h): 1-592 mg/L, NOEC (96h) 1 mg/L.

Crustacean
Abamectin: EC_{50} (48h): 0.430 mg/L (Eastern Oyster, *Crassostrea virginica*);
Abamectin: EC_{50} (48h): 0.00034 mg/L (*Daphnia magna*);
Abamectin: NOEC (21 days): 0.00003 mg/L (*Daphnia magna*);
Benzyl alcohol: EC_{50} (48h): 230 mg/L;
Cobalt chelate: EC_{50} (48h): 1.11 mg/L;
Copper chelate: EC_{50} (48h): 100.9 mg/L;
Sodium selenate: EC_{50} (48h): 0.001 – 0.969 mg/L;
Zinc chelate: EC_{50} (48h): 100.9 mg/L.

Algae and other aquatic plants
Abamectin: EC_{50} (96h): 7.3096 mg/L;
Benzyl alcohol: EC_{50} (96h): 76.828 mg/L;
Cobalt chelate: EC_{50} (96h): 23.8 mg/L;
Sodium selenate: EC_{50} (96h): 0.006 – 0.32 mg/L, NOEC (240h): 0.001 – 0.03 mg/L.

Ingredient	Persistence: Water/Soil	Persistence: Air	Bioaccumulation	Mobility
Abamectin	No data available	No data available	No data available	No data available
Albendazole	HIGH	HIGH	LOW (LogKOW = 3.14)	LOW (KOC = 1871)
Benzyl alcohol	LOW	LOW	LOW (LogKOW = 1.1)	LOW (KOC = 15.66)
Cobalt chelate	No data available	No data available	No data available	No data available
Copper chelate	HIGH	HIGH	LOW (LogKOW = -10.24)	LOW (KOC = 465.2)
Iodide EDDI	No data available	No data available	No data available	No data available
Levamisole hydrochloride	HIGH	HIGH	LOW (LogKOW = 1.84)	LOW (KOC = 8652)
Sodium selenate	HIGH	HIGH	LOW (LogKOW = -3.18)	LOW (KOC = 48.64)
Zinc chelate	No data available	No data available	No data available	No data available

Section 13: DISPOSAL INFORMATION

Product Disposal: Dispose of product only by using according to label or at an approved landfill. DO NOT allow wash water from cleaning or process equipment to enter drains. It may be necessary to collect all wash water for treatment before disposal. Where in doubt contact the responsible authority.

Container Disposal: Crush or puncture and bury in an approved landfill if an approved recycling system is not available.

Section 14: TRANSPORT INFORMATION

RAIL/ROAD:
UN Number: 3082
Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Contains ABAMECTIN)
DG Class: 9
Packing Group: III

SEA (IMDG Code):
UN Number: 3082
Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Contains ABAMECTIN)
DG Class: 9
Packing Group: III
Marine Pollutant: Yes

AIR: (ICAO/IATA)
UN Number: 3082
Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Contains ABAMECTIN)
DG Class: 9
Packing Group: III

Section 15: REGULATORY INFORMATION

ACVM Registration No.: A010598

EPA Group Standard No.: HSR100758 (previously HSR100146)

HSNO Classification.: 6.5B, 6.6B, 6.8A, 6.8C, 6.9B, 9.1A.

Section 16: OTHER INFORMATION

This information is based on data believed by Jurox New Zealand Limited to be accurate at the time of writing but is subject to change without notice. It is given in good faith, but no warranty expressed or implied is made as to its accuracy, completeness otherwise and no assumption of liability from howsoever arising is made by Jurox New Zealand Limited by reason of the provision of this information. Every person dealing with the materials referred to herein does so at his/her own risk absolutely and must make independent determinations of suitability and completeness of information from all sources to ensure their proper use.

Legend:

ACVM	Agricultural and Veterinary Medicines.
CAS No.	Chemical Abstracts Service Registry Number.
CCID	Chemical Classification and Information Database.
CNS	Central nervous system.
CPR	Cardiopulmonary resuscitation.
EC_{50}	The median effect concentration, being a statistically derived concentration of a substance that can be expected to cause an adverse reaction in 50% of organisms or a 50% reduction in growth or in the growth rate of organisms.
EPA	Environmental Protection Authority – Te Mana Rauhī Taiao.
GABA	Gamma-aminobutyric acid.
GHS	Globally Harmonized System of Classification and Labelling of Chemicals.
Hazchem Code	Emergency action code of numbers and letters that provide information to emergency services especially firefighters.
HSNO	Hazardous Substances and New Organisms Act, 1996.
ICAO/IATA	International Civil Aviation Organization/International Air Transport Association.
IMDG	International Maritime Dangerous Goods.
KOC	Soil-Water Partition Coefficient. The ratio of a chemical's concentration that is adsorbed in the soil to the concentration of chemical in solution.
KOW	Octanol Water Partition Coefficient. The ratio of a compound's concentration in a known volume of n-octanol to its concentration in a known volume of water after the octanol and water have reached equilibrium.
LC_{50}	The median lethal concentration, being a statistically derived concentration of a substance that can be expected to cause death in 50% of animals.
LD_{50}	The median lethal dose, being a statistically derived single dose of a substance that can be expected to cause death in 50% of animals.
LOEC	Lowest observed effect concentration.
NOEC	No-observable-effect-concentration.
N.O.S.	Not otherwise specified.
PPE	Personal Protective Equipment.
PVC	Polyvinyl chloride.
SDS	Safety Data Sheet.
STOT	Specific Target Organ Toxicity.
SWA	Safe Work Australia.
TEELs	Temporary Emergency Exposure Limits. Guidelines designed to predict the response of members of the general public to different concentrations of a chemical during an emergency response incident.

TEEL-1 The airborne concentration of a substance above which it is predicted that the general population, including susceptible individuals, could experience notable discomfort, irritation, or certain asymptomatic, nonsensory effects. However, these effects are not disabling and are transient and reversible upon cessation of exposure.

TEEL-2 The airborne concentration of a substance above which it is predicted that the general population, including susceptible individuals, could experience irreversible or other serious, long-lasting, adverse health effects or an impaired ability to escape.

TEEL-3 The airborne concentration of a substance above which it is predicted that the general population, including susceptible individuals, could experience life-threatening adverse health effects or death.

References:

ChemID Plus

Chemwatch

EPA New Zealand Chemical Classification and Information Database (CCID)

HSDB (Hazardous Substances Data Bank)

Revision History:

Date of Revision	Reason
13 November 2018	Updated all sections. Added references and revision history.
11 March 2020	Update to DG information
17 November 2020	Update to hazard classifications and to GHS Rev 7 statements. Update to group standard and other minor changes throughout the document.
23 February 2023	Minor revision to include Zoetis contact details.

END OF SDS