

SAFETY DATA SHEET

Zoetis New Zealand Limited
Level 3, 14 Normanby Road, Mt Eden, Auckland



Section 1: Identification of the Substance and Supplier

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| Trade Name: | STARTECT® |
| ACVM Registration No.: | A010353 |
| Classification: | Unrestricted |
| Recommended Use: | Oral endectocide for treatment and control of a broad range of susceptible adult and immature GI nematodes of sheep, including those resistant to macrocyclic lactones (ML), levamisole/morantel (clear), benzimidazoles (white) and closantel based drenches, and combinations of these. For treatment and control of lungworm, nasal bot and itch mite. |
| Company Details: | Zoetis New Zealand Limited |
| Address: | Level 3,14 Normanby Road Mt Eden Auckland 1024 New Zealand |
| Telephone No.: | 0800 650 277 (Business Hours) |
| Emergency Telephone No.: | National Poisons Centre: 0800 POISON (0800 764 766) Emergency Services: In an emergency dial 111 |
| Date of Preparation: | 13 February 2013 |

Section 2: Hazards Identification

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| Hazard Classification: | 6.8B, 9.1A, 9.4A |
| Priority Identifier(s): | WARNING – KEEP OUT OF REACH OF CHILDREN ECOTOXIC |
| Secondary Identifier(s): | 6.8B Suspected of damaging fertility or the unborn child from repeated oral exposure. 9.1A Very toxic to aquatic organisms. Avoid contamination of any water supply with product or empty container. 9.4A Very toxic to terrestrial invertebrates. |

Section 3: Composition / Information on Ingredients

Chemical Identity of Ingredients

| Ingredient | CAS No. | Concentration |
|---|-------------|---------------|
| Derquantel | 187865-22-1 | 10.0 g/L |
| Abamectin | 71751-41-2 | 1.0 g/L |
| Butylated hydroxytoluene | 128-37-0 | Proprietary |
| Other ingredients determined not to be hazardous. | - | - |

This is a commercial product whose exact ratio of components may vary.
Trace quantities of impurities are also likely.

Section 4: First Aid Measures

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| Necessary First Aid Measures: | <p>For advice contact the National Poisons Centre at 0800 POISON (0800 764 766) or a doctor immediately. If the patient is not breathing begin artificial respiration and seek medical advice immediately. Never give fluids or induce vomiting if a patient is unconscious or convulsing, regardless of injury.</p> <p>Ingestion: DO NOT induce vomiting. If the patient is conscious wash mouth out with water. Do not give anything by mouth to an unconscious person. Seek medical advice immediately.</p> <p>Eye Contact: Flush the eye(s) out with running water for at least 15 minutes. Removal of contact lenses should be done with caution within 5 minutes of exposure. If symptoms develop seek medical advice immediately.</p> <p>Skin Contact: Remove any contaminated clothing and wash the affected area immediately with soap and water. If symptoms develop seek medical advice immediately.</p> <p>Inhalation: Move the patient to fresh air. If symptoms develop seek medical advice immediately.</p> |
| Poisoning Symptoms: | Adverse effects most commonly reported in clinical use include vomiting, dilated pupils, convulsions, decrease in blood pressure (hypotension), coma, and respiratory arrest (based on components). |
| Workplace Facilities: | No specific facilities required. Standard emergency equipment must be available. |
| Hygiene Practices: | Avoid ingestion, contact with skin and eyes, and inhalation of dusts, mists or vapours. Do not eat, drink or smoke while using this product. Wash hands and exposed skin before eating, drinking or smoking and after work. Wash any protective clothing after use. |
| Notes for Medical Personnel: | Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Note the nature of this product. |

Section 5: Fire-Fighting Measures

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| Type of hazard: | This product is not flammable. Fine particles (such as dusts or mists) may fuel fires / explosions. |
| Fire Hazard Properties: | Irritating and possibly toxic gases may be generated by thermal decomposition or combustion. |
| Regulatory Requirements: | Not applicable. |
| Extinguishing Media & Methods: | Use dry chemical, carbon dioxide or water spray to extinguish fires involving this product. |
| Hazchem Code: | 3Z |
| Recommended Protective Clothing: | During large-scale fire fighting operations wear approved positive pressure, self-contained breathing apparatus and full protective turn-out gear. |

Section 6: Accidental Release Measures

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| Personal Precautions: | Personnel involved in clean-up should wear appropriate personal protective equipment to minimise exposure. This may include eye protection, chemically resistant gloves, boots and overalls. |
| Environmental Precautions: | Prevent material from entering surface water drains or waterways. If a significant quantity of material enters drains, advise emergency services. |
| Procedure for Spills: | <ol style="list-style-type: none">1. Non-essential personnel should be evacuated from the affected area.2. Stop leak and contain the source of spill if it is safe to do so. Reposition any leaking containers to minimise further leakage.3. Absorb the spill with an absorbent material (e.g. sand).4. Collect the spilled material into labelled containers for disposal, minimising dust generation.5. Decontaminate the spill area thoroughly with detergent and water, preventing runoff from entering drains. |
| Procedure for Disposal: | Contaminated material must be disposed of at an approved landfill or other approved facility in accordance with local, regional and national requirements. Avoid contamination of any water supply with product or empty container. |

Section 7: Handling and Storage

Handling

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| Precautions for Safe Handling: | Keep exposure to this product to a minimum and minimise the quantities kept in work areas. Ensure the personal protective measures outlined in Section 8 are followed, and avoid contact or contamination with incompatible materials listed in Section 10. The measures detailed under "Storage" below should be followed during handling to minimise risks to persons using the product in the workplace. |
| Regulatory Requirements: | Not required. |
| Handling Practices: | Avoid ingestion, contact with skin and eyes, and inhalation of dusts, mists or vapours. Do not eat, drink or smoke while handling this product. Wash hands and exposed skin before eating, drinking or smoking and after work. Wash any protective clothing after use. |
| Approved Handlers: | Approved handlers are not required for this product. |

Storage

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| Conditions for Safe Storage: | Store below 30°C (Room Temperature). Protect from light. Keep out of reach of children. Store in a well ventilated area in the original container, tightly closed, away from foodstuffs. |
| Store Site Requirements: | A requirement for an emergency management plan, secondary containment and signage is applicable when quantities of 100 L or more are stored. |
| Packaging: | Packaging Schedule 3 (UN Packing Group III) for quantities <5L (Hazardous Substances Packaging Regulations 2001). Store in the original container, away from foodstuffs. |

Section 8: Exposure Control / Personal Protection

Always Read and Follow the Label Instructions and Warnings

Workplace Exposure Guidelines

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| Workplace Exposure Standards: | Derquantel: <ul style="list-style-type: none">Pfizer OEL TWA-8 Hr: 10 µg/m³ Butylated hydroxytoluene: <ul style="list-style-type: none">Australian TWA: 10 µg/m³ |
| Application in the Workplace: | The nature of this product makes it unlikely that this level will be approached during normal handling. |
| Exposure Standards Outside the Workplace: | None set. |
| Engineering Controls: | Engineering controls should be used as the primary means to control exposures. Use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. |
| Personal Protection: | <p>The following instructions are for those coming into frequent and / or lengthy contact with this product. For occasional handling employ precautions suitable for the conditions under which the product is being handled.</p> <p>Hands: Impervious gloves are recommended if skin contact is possible and for bulk processing operations.</p> <p>Eyes: It is always prudent to utilise protective eyewear.</p> <p>Skin: When prolonged or frequently repeated contact could occur, utilise chemically protective clothing. Selection of specific items such as a face shield, gloves, boots, or overalls will depend on the situation.</p> <p>Respiratory: Respiratory protection is not normally required; however, if necessary utilise an air-purifying respirator that complies with NZ standards.</p> |
| General Hygiene: | Change work clothes regularly. Avoid ingestion, contact with skin and eyes, and inhalation of dusts, mists or vapours. Do not eat, drink or smoke while handling this product. Wash hands and exposed skin before eating, drinking or smoking and after work. Wash any protective clothing after use. |

Section 9: Physical and Chemical Properties

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| Appearance: | A clear to hazy, colourless to light yellow-brown solution. |
| Odour: | No information available. |
| Specific Gravity / Density: | 1.11 – 1.21 @ 20°C (abamectin). |
| Melting Point: | Not applicable. |
| Boiling Point: | No information available. |
| pH: | No information available. |
| Solubility in Water: | 0.007 – 0.01 mg/L at 20°C (abamectin) |
| Flashpoint: | Not applicable. This product is not flammable. |
| Oxidising Properties: | Not applicable. This product is not an oxidiser. |
| Corrosive Properties: | Not applicable. This product is not corrosive. |
| Vapour Pressure: | 7.5 x (-8) mmHg at 25°C (abamectin). |

Section 10: Stability and Reactivity

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| Stability of the Substance: | This product is stable under normal conditions of use. |
| Conditions to Avoid: | Store as recommended. No specific conditions to avoid. |
| Material to Avoid: | No specific materials to avoid. |
| Hazardous Decomposition Products: | This product is unlikely to spontaneously decompose. |
| Hazardous Polymerisation: | This product is unlikely to spontaneously polymerise. |
| Specific Data: | No specific data available. |

Section 11: Toxicological Information

HSNO Classifications

6.8B Suspected of damaging fertility or the unborn child from repeated oral exposure.

Acute Effects

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| Acute Toxicity: | (Species, Route, End Point, Dose) |
| | Abamectin: |
| | <ul style="list-style-type: none">• Rat Oral LD50 8.7 mg/kg• Mouse Oral LD50 14 mg/kg• Rabbit Dermal LD50 > 330 mg/kg |
| | Butylated hydroxytoluene: |
| | <ul style="list-style-type: none">• Rat Oral LD50 1700 mg/kg• Mouse Oral LD50 650 mg/kg• Rabbit Oral LD50 890 mg/kg• Mouse Intraperitoneal LD50 138 mg/kg |
| | Derquantel: |
| | <ul style="list-style-type: none">• Rat Oral Minimum Symptomatic Dose 500 mg/kg• Mouse Oral Minimum Symptomatic Dose 12.5 mg/kg• Rat Dermal LD50 > 2000 mg/kg• Dog Oral Minimum Symptomatic Dose 5 mg/kg• Rat Inhalation Minimum Symptomatic Dose 2.4 mg/L |
| | A greater than symbol (>) indicates that the toxicity endpoint being tested was not achievable at the highest dose used in the test. |
| Irritation / Sensitisation: | (Study Type, Species, Severity) |
| | Abamectin: |
| | <ul style="list-style-type: none">• Eye Irritation Moderate• Skin Irritation Mild |
| | Butylated hydroxytoluene: |
| | <ul style="list-style-type: none">• Eye Irritation Rabbit Moderate• Skin Irritation Rabbit Moderate |
| | Derquantel: |
| | <ul style="list-style-type: none">• Skin Irritation Rabbit No effect• Skin Sensitisation - GPMT Guinea Pig Negative• Eye Irritation Rabbit Minimal |

Chronic / Long Term Effects

Repeated Dose Toxicity:

(Duration, Species, Route, Dose, End Point, Target Organ)

Abamectin:

- 1 Year(s) Dog Oral 0.25 mg/kg/day NOEL None identified
- 2 Year(s) Rat Oral 2 mg/kg/day NOEL None identified
- 94 Week(s) Mouse Oral 8 mg/kg/day LOEL Spleen, Skin, CNS

Butylated hydroxytoluene:

- 4 Week(s) Rat Oral 5185 mg/kg LOAEL Liver
- 4 Day(s) Mouse Oral 2000 mg/kg LOAEL Liver, Kidney, Ureter, Bladder

Derquantel:

- 1 Year(s) Rat Oral 5 mg/kg/day NOAEL Liver, Kidney, Male reproductive system, Bile duct
- 28 Day(s) Rat Oral < 20 mg/kg/day NOAEL Liver, Blood, Nervous System
- 1 Month(s) Dog Oral 0.1 mg/kg/day NOEL No effects at max dose
- 1 Year(s) Rat Oral 0.01 mg/kg/day NOEL Bile duct
- 3 Month(s) Dog Oral 1.0 mg/kg/day NOAEL Heart, Kidney, Nervous System

Reproductive & Developmental Toxicity:

(Study Type, Species, Route, Dose, End Point, Effect(s))

Abamectin:

- Reproductive & Fertility Rat No route specified 0.12 mg/kg/day NOEL Fetotoxicity
- Embryo / Foetal Development Rat No route specified 1 mg/kg/day NOEL Teratogenic

Butylated hydroxytoluene:

- Embryo / Foetal Development Rat Oral 6 g/kg LOEL Teratogenic

Derquantel:

- Embryo / Foetal Development Rat Oral 70 mg/kg/day NOAEL Maternal toxicity, Developmental toxicity
- Embryo / Foetal Development Rabbit Oral 1 mg/kg/day NOAEL Maternal toxicity, Developmental toxicity
- Fertility & Embryonic Development Rat Oral 5 mg/kg/day NOAEL Maternal toxicity, Not teratogenic

Genetic Toxicity:

(Study Type, Cell Type / Organism, Result)

Abamectin:

- *In Vitro* Bacterial Mutagenicity (Ames) *Salmonella* Negative
- *In Vitro* Chromosome Aberration Chinese Hamster Ovary (CHO) cells -ve
- *In Vivo* Bone Marrow Metaphase Analysis Mouse Negative
- *In Vitro* Mammalian Cell Mutagenicity Hamster Negative
- *In Vitro* Direct DNA Damage Rat Hepatocyte Positive

Derquantel:

- *In Vitro* Bacterial Mutagenicity (Ames) *Salmonella* Negative
- *In Vivo* Micronucleus Mouse Bone Marrow Negative
- *In Vitro* Chromosome Aberration Human Lymphocytes Positive without activation
- *In Vivo* Micronucleus Rat Hepatocyte Negative

Carcinogenicity:

(Duration, Species, Route, Dose, End Point, Effect(s))

Abamectin:

- 24 Month(s) Rat Oral 2 mg/kg/day NOEL Not carcinogenic
- 22 Month(s) Mouse Oral 8 mg/kg/day NOEL Not carcinogenic

None of the components in this formulation are listed as a carcinogen by IARC, NTP or OSHA.

Section 12: Ecotoxicity Information

HSNO Classifications

- 9.1A** Very toxic to aquatic organisms. Avoid contamination of any water supply with product or empty container.
- 9.4A** Very toxic to terrestrial invertebrates.

The environmental characteristics of this material have not been fully evaluated.
Avoid contamination of any water supply with product or empty container.

Ecotoxicity Effects

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| Partition Coefficients: | Abamectin: <ul style="list-style-type: none">• 4.4 (calculated – Log Pow / Log Kow) Derquantel: <ul style="list-style-type: none">• 2.96 @ pH 6.83 (Measured – Log Pow / Log Kow) |
| Aquatic Toxicity: | (Species, Method, End Point, Duration, Result) Abamectin: <ul style="list-style-type: none">• <i>Oncorhynchus mykiss</i> (Rainbow Trout) OECD LC50 96 Hours 0.0030 mg/L• <i>Lepomis macrochirus</i> (Bluegill Sunfish) LC50 96 Hours 0.096 mg/L• <i>Daphnia magna</i> (Water Flea) OECD EC50 48 Hours 0.00012 mg/L• <i>Mysidopsis bahia</i> (Mysid Shrimp) LC50 96 Hours 0.000022 mg/L• <i>Pseudokirchneriella subcapitata</i> (Green Alga) OECD EC50 72 Hours 1.59 mg/L• <i>Daphnia magna</i> (Water Flea) NOEC 21 Days 0.01 mg/L Derquantel: <ul style="list-style-type: none">• <i>Daphnia magna</i> (Water Flea) OECD EC50 48 Hours 21.17 mg/L• <i>Cyprinodon variegates</i> (Sheepshead Minnow) OECD LC50 96 Hours >2.2 mg/L• <i>Oncorhynchus mykiss</i> (Rainbow Trout) OECD LC50 96 Hours 57.7 mg/L• <i>Daphnia magna</i> (Water Flea) OECD NOEC 21 Days 0.044 mg/L• <i>Pseudokirchneriella subcapitata</i> (Green Alga) OECD EC50 72 Hours 47.1 mg/L <p>A greater than symbol (>) indicates that the aquatic toxicity was not observed at the maximum dose tested.</p> |
| Bacterial Inhibition: | (Species, Method, End Point, Duration, Result) Derquantel: <ul style="list-style-type: none">• Activated sludge Surrogate NOEC 3 Hours > 100 mg/L |

Environmental Fate

No further information available.

Section 13: Disposal Considerations

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| Product Disposal: | Preferably dispose of product by use in accordance with label directions. Otherwise dispose of product at an approved landfill, or other approved facility in accordance with local, regional and national regulations. Avoid contamination of any water supply with product. |
| Container Disposal: | Dispose of empty containers by wrapping in paper and putting in garbage for disposal at an approved landfill, or other approved facility in accordance with local, regional and national regulations. Avoid contamination of any water supply with empty container. |

Section 14: Transport Information

Dangerous Goods Classification

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

Section 15: Regulatory Information

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| HSNO Approval No.: | HSR100110 |
| HSNO Controls: | See www.epa.govt.nz for controls |
| ACVM Registration No.: | A010353 |
| ACVM Controls: | See www.foodsafety.govt.nz for registration conditions |

Section 16: Other Information

Note: This product is a veterinary medicine and must therefore be used in accordance with the container label directions. A comprehensive package of toxicological and environmental data for the active ingredients of this product has been submitted to the Government health and environment authorities and has been evaluated by expert toxicologists and environmental scientists.

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| CONTACT POINT: | Zoetis New Zealand Limited: | 0800 650 277 (Business Hours) |
| | National Poisons Centre: | 0800 POISON (0800 764 766) |
| | Emergency Services: | Dial 111 |

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. 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.

If clarification of further information is needed to ensure that an appropriate risk assessment can be made, the user should contact this company.

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