SAFETY DATA SHEET

1. Identification

Product identifier Startect® Broad Spectrum Oral Drench for Sheep

Other means of identification

Synonyms Derquantel / Abamectin oral drench * STARTECT® * STARTECT Dual Active Oral Solution for Sheep

Recommended use of the chemical and restrictions on use

Recommended use Veterinary product used as anti-worm agent (anthelmintic)

Restrictions on use Not for human use

Details of manufacturer or importer

Company Name (AU) Zoetis Australia Pty Ltd
ABN 94 156 476 425
Level 6, 5 Rider Boulevard
Rhodes NSW 2138 AUSTRALIA

Tel 1800 814 883
Fax (02) 8876 0444
Email australia.animalhealth@zoetis.com
Emergency Phone 1800 814 883 (all hours)
Police and Fire Brigade Dial 000
If ineffective Dial Poisons Information Centre (13 1126 from anywhere in Australia)

2. Hazard(s) identification

Classification of the hazardous chemical

Physical hazards Not classified.
Health hazards Not classified.
Environmental hazards Hazardous to the aquatic environment, acute hazard Category 1
Hazardous to the aquatic environment, long-term hazard Category 3

Label elements, including precautionary statements

Hazard symbol(s) Environment

Signal word Warning

Hazard statement(s) Very toxic to aquatic life. Harmful to aquatic life with long lasting effects.

Precautionary statement(s)

Prevention Avoid release to the environment.
Response Collect spillage.
Storage Store away from incompatible materials.
Disposal Dispose of contents/container in accordance with local/regional/national/international regulations.

Other hazards which do not result in classification None known.

Supplemental information None.

3. Composition/information on ingredients

Mixture

Material name: Startect® Broad Spectrum Oral Drench for Sheep
<table>
<thead>
<tr>
<th>Identity of chemical ingredients</th>
<th>CAS number and other unique identifiers</th>
<th>Concentration of ingredients (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Butylated hydroxytoluene</td>
<td>128-37-0</td>
<td>&lt;0.1</td>
</tr>
<tr>
<td>Abamectin</td>
<td>71751-41-2</td>
<td>1 mg/ml</td>
</tr>
<tr>
<td>Derquantel</td>
<td>187865-22-1</td>
<td>10 mg/ml</td>
</tr>
<tr>
<td>Glycerol formal</td>
<td>5464-28-8</td>
<td>*</td>
</tr>
<tr>
<td>Glycerol triacetate</td>
<td>102-76-1</td>
<td>*</td>
</tr>
<tr>
<td>Propylene glycol dicaprylate-caprate</td>
<td>68583-51-7</td>
<td>*</td>
</tr>
</tbody>
</table>

Composition comments

* Non-hazardous Ingredients

4. First-aid measures

Description of necessary first aid measures

**Inhalation**
Move to fresh air. Call a physician if symptoms develop or persist. For breathing difficulties, oxygen may be necessary.

**Skin contact**
Wash off with soap and plenty of water. If skin irritation or rash occurs: Get medical advice/attention. Wash contaminated clothing before reuse.

**Eye contact**
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Remove contact lenses, if present and easy to do.

**Ingestion**
Rinse mouth. Call a physician or poison control centre immediately. Only induce vomiting at the instruction of medical personnel. Never give anything by mouth to an unconscious person.

Personal protection for first-aid responders

If exposed or concerned: Get medical advice/attention. For personal protection, see section 8 of the SDS. You should call The Poisons Information Centre if you feel that you may have been poisoned, burned or irritated by this product. The number is 13 1126 from anywhere in Australia (0800 764 766 in New Zealand) and is available at all times. Have this SDS with you when you call. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

Symptoms caused by exposure
Direct contact with eyes may cause temporary irritation. Exposed individuals may experience eye tearing, redness, and discomfort. Mild skin irritation. May cause central nervous system effects.

Medical attention and special treatment
Provide general supportive measures and treat symptomatically. Symptoms may be delayed.

5. Fire-fighting measures

Extinguishing media

**Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).**

Unsuitable extinguishing media

Do not use water jet as an extinguisher, as this will spread the fire.

Specific hazards arising from the chemical

During fire, gases hazardous to health may be formed. C1 combustible (AS 1940).

Special protective equipment and precautions for fire fighters

Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Fire fighting equipment/instructions

Move containers from fire area if you can do so without risk.

Hazchem Code

3Z

General fire hazards

No unusual fire or explosion hazards noted.

Specific methods

Use standard firefighting procedures and consider the hazards of other involved materials.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Keep unnecessary personnel away. Local authorities should be advised if significant spillages cannot be contained.

For emergency responders

Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Ensure adequate ventilation. Use personal protection recommended in Section 8 of the SDS. Avoid breathing mist or vapour. Avoid contact with eyes, skin, and clothing. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.
Environmental precautions
Avoid release to the environment. Inform appropriate managerial or supervisory personnel of all environmental releases. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

Methods and materials for containment and cleaning up
Ensure adequate ventilation. Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Prevent product from entering drains. Prevent entry into waterways, sewer, basements or confined areas.

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Clean surface thoroughly to remove residual contamination.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.

7. Handling and storage

Precautions for safe handling
Do not handle until all safety precautions have been read and understood. Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Use only outdoors or in a well-ventilated area. Wear personal protective equipment. Avoid breathing mist or vapour. Avoid contact with eyes, skin, and clothing. Do not taste or swallow. Avoid prolonged exposure. Observe good industrial hygiene practices. When using, do not eat, drink or smoke. Wash thoroughly after handling. Avoid release to the environment.

Conditions for safe storage, including any incompatibilities
Store locked up. Store in a well-ventilated place. Store below 30°C (86°F). Keep away from heat, sparks and open flame. Store in original tightly closed container. Keep away from food, drink and animal feeding stuffs. Store away from incompatible materials (see Section 10 of the SDS). Keep out of the reach of children.

8. Exposure controls and personal protection

Control parameters
Follow standard monitoring procedures.

Occupational exposure limits

<table>
<thead>
<tr>
<th>Zoetis Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>TWA Derquantel (CAS 187865-22-1)</td>
<td></td>
<td>10 µg/m³</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Australia. National Workplace OELs (Workplace Exposure Standards for Airborne Contaminants, Appendix A) Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>TWA Butylated hydroxytoluene (CAS 128-37-0)</td>
<td></td>
<td>10 mg/m³</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Australia. OELs. (Adopted National Exposure Standards for Atmospheric Contaminants in the Occupational Environment) Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>TWA Butylated hydroxytoluene (CAS 128-37-0)</td>
<td></td>
<td>10 mg/m³</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>US. ACGIH Threshold Limit Values Components</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>TWA Butylated hydroxytoluene (CAS 128-37-0)</td>
<td></td>
<td>2 mg/m³</td>
<td>Inhalable fraction and vapor.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>UK. EH40 Workplace Exposure Limits (WELs) Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>TWA Butylated hydroxytoluene (CAS 128-37-0)</td>
<td></td>
<td>10 mg/m³</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Germany. DFG MAK List (advisory OELs). Commission for the Investigation of Health Hazards of Chemical Compounds in the Work Area (DFG) Components</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>TWA Butylated hydroxytoluene (CAS 128-37-0)</td>
<td></td>
<td>10 mg/m³</td>
<td>Vapor and aerosol, inhalable fraction.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Biological limit values</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>No biological exposure limits noted for the ingredient(s).</td>
<td></td>
</tr>
</tbody>
</table>
Appropriate engineering controls
Ensure adequate ventilation, especially in confined areas. Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. General ventilation normally adequate.

Individual protection measures, for example personal protective equipment (PPE)
- **Eye/face protection**
  If contact is likely, safety glasses with side shields are recommended.

- **Skin protection**
  - **Hand protection**
    Wear appropriate chemical resistant gloves. Impervious gloves.
  - **Other**
    Wear suitable protective clothing. Impervious protective clothing is recommended if skin contact with drug product is possible and for bulk processing operations.

- **Respiratory protection**
  In case of insufficient ventilation, wear suitable respiratory equipment. Whenever air contamination (mist, vapor or odor) is generated, respiratory protection is recommended as a precaution to minimize exposure. If the applicable Occupational Exposure Limit (OEL) is exceeded, wear an appropriate respirator with a protection factor sufficient to control exposures to below the OEL. Chemical respirator with organic vapour cartridge, full facepiece, dust and mist filter.

- **Thermal hazards**
  Not applicable.

Hygiene measures
Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

**Appearance**
- **Physical state**
  Liquid.
- **Form**
  Liquid.
- **Colour**
  Clear. Light yellow.
- **Odour**
  Not available.
- **Odour threshold**
  Not available.
- **pH**
  Not available.
- **Melting point/freezing point**
  Not available.
- **Initial boiling point and boiling range**
  Not available.
- **Flash point**
  Not available.
- **Evaporation rate**
  Not available.
- **Flammability (solid, gas)**
  Not applicable.

**Upper/lower flammability or explosive limits**
- **Flammability limit - lower (%)**
  Not available.
- **Flammability limit - upper (%)**
  Not available.
- **Explosive limit - lower (%)**
  Not available.
- **Explosive limit – upper (%)**
  Not available.
- **Vapour pressure**
  Not available.
- **Vapour density**
  Not available.
- **Relative density**
  Not available.
- **Solubility(ies)**
  - **Solubility (water)**
    Not available.
  - **Partition coefficient (n-octanol/water)**
    Not available.
- **Auto-ignition temperature**
  Not available.
- **Decomposition temperature**
  Not available.
- **Viscosity**
  Not available.
Other physical and chemical parameters

Explosive properties  Not explosive.
Oxidising properties  Not oxidising.
Specific gravity  1.016 @ 20C/68F

10. Stability and reactivity

Reactivity  The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability  Material is stable under normal conditions.
Possibility of hazardous reactions  No dangerous reaction known under conditions of normal use.
Conditions to avoid  Contact with incompatible materials. Excessive heat. Sunlight. Keep away from heat, sparks and open flame. Do not allow material to freeze.
Incompatible materials  Strong oxidising agents.
Hazardous decomposition products  Irritating and/or toxic fumes and gases may be emitted upon the product's decomposition.

11. Toxicological information

Information on possible routes of exposure

Inhalation  Prolonged inhalation may be harmful.
Skin contact  Prolonged skin contact may cause temporary irritation.
Startect® Broad Spectrum Oral Drench for Sheep  OECD 404
Result: Irritation
Species: Rabbit
Severity: Mild
Abamectin  Severity: Mild
Butylated hydroxytoluene  Species: Rabbit
Severity: Moderate
Derquantel  Species: Rabbit
Severity: No effect

Eye contact  Direct contact with eyes may cause temporary irritation.
Startect® Broad Spectrum Oral Drench for Sheep  OECD 405
Result: Irritation
Species: Rabbit
Severity: Minimal
Abamectin  Severity: Moderate
Derquantel  Species: Rabbit
Severity: Minimal
Butylated hydroxytoluene  Species: Rabbit
Severity: Moderate

Ingestion  May be harmful if swallowed. However, ingestion is not likely to be a primary route of occupational exposure.

Symptoms related to exposure  Direct contact with eyes may cause temporary irritation. Exposed individuals may experience eye tearing, redness, and discomfort. Mild skin irritation. May cause central nervous system effects.

Acute toxicity  May be harmful if swallowed.

<table>
<thead>
<tr>
<th>Product</th>
<th>Species</th>
<th>Test results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Startect® Broad Spectrum Oral Drench for Sheep</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dermal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LD50</td>
<td>Rat</td>
<td>&gt; 3045 mg/kg</td>
</tr>
<tr>
<td>Product</td>
<td>Species</td>
<td>Test results</td>
</tr>
<tr>
<td>------------------</td>
<td>---------</td>
<td>---------------------------------------------------</td>
</tr>
<tr>
<td><strong>Inhalation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Mist</em></td>
<td>Rat</td>
<td>&gt; 5.04 mg/l</td>
</tr>
<tr>
<td><strong>Oral</strong></td>
<td>Rat</td>
<td>9000 mg/kg</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Components</th>
<th>Species</th>
<th>Test results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abamectin (CAS 71751-41-2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Acute</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Dermal</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Inhalation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Dust</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Oral</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>LD50</strong></td>
<td>Mouse</td>
<td>14 mg/kg</td>
</tr>
<tr>
<td><strong>LD50</strong></td>
<td>Rat</td>
<td>8.7 mg/kg</td>
</tr>
</tbody>
</table>

| Chronic          |         |                                                   |
| **Oral**         |         |                                                   |
| **LOEL**         | Mouse   | 8 mg/kg/day, 94 weeks [Target organ(s): Spleen, Skin, Central Nervous System] |
| **NOEL**         | Dog     | 0.25 mg/kg/day, 1 years [Target organ(s): None identified] |
| **Mouse**        |         |                                                   |
| **Rat**          |         |                                                   |

| Permethrin       |         |                                                   |
| **Acute**        |         |                                                   |
| **Intraperitoneal** |       |                                                   |
| **LD50**         | Mouse   | 138 mg/kg                                         |
| **Oral**         |         |                                                   |
| **LD50**         | Mouse   | 650 mg/kg                                          |
| **LD50**         | Rat     | 1700 mg/kg                                         |
| **Rat**          |         |                                                   |
| **Chronic**      |         |                                                   |
| **Oral**         |         |                                                   |
| **LOAEL**        | Mouse   | 2000 mg/kg, 4 days Liver Kidney Ureter Bladder    |
| **Rat**          |         |                                                   |

| Butylated hydroxytoluene (CAS 128-37-0) |         |                                                   |
|**Acute**        |         |                                                   |
| **Intraperitoneal** |       |                                                   |
| **LD50**         | Mouse   | 138 mg/kg                                         |
| **Oral**         |         |                                                   |
| **LD50**         | Mouse   | 650 mg/kg                                          |
| **LD50**         | Rat     | 1700 mg/kg                                         |
| **Rat**          |         |                                                   |

| Chronic          |         |                                                   |
| **Oral**         |         |                                                   |
| **LOAEL**        | Mouse   | 2000 mg/kg, 4 days Liver Kidney Ureter Bladder    |
| **Rat**          |         |                                                   |

| Derquantel (CAS 187865-22-1) |         |                                                   |
|**Acute**        |         |                                                   |
| **Dermal**       |         |                                                   |
| **Inhalation**   |         |                                                   |
| **Rat**          |         |                                                   |
| **Oral**         |         |                                                   |
| **Dog**          |         |                                                   |
| **Mouse**        |         |                                                   |
| **Rat**          |         |                                                   |
### Components

<table>
<thead>
<tr>
<th>Test results</th>
<th>Species</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Chronic</strong></td>
<td></td>
</tr>
<tr>
<td>Oral</td>
<td></td>
</tr>
<tr>
<td>NOAEL</td>
<td>Rat</td>
</tr>
<tr>
<td>NOEL</td>
<td>Rat</td>
</tr>
<tr>
<td><strong>Subacute</strong></td>
<td></td>
</tr>
<tr>
<td>Oral</td>
<td></td>
</tr>
<tr>
<td>NOAEL</td>
<td>Rat</td>
</tr>
<tr>
<td>NOEL</td>
<td>Dog</td>
</tr>
<tr>
<td><strong>Subchronic</strong></td>
<td></td>
</tr>
<tr>
<td>Oral</td>
<td></td>
</tr>
<tr>
<td>NOAEL</td>
<td>Dog</td>
</tr>
</tbody>
</table>

Glycerol formal (CAS 5464-28-8)

**Acute**

<table>
<thead>
<tr>
<th>Oral</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50</td>
</tr>
</tbody>
</table>

**Skin corrosion/irritation**

- Prolonged skin contact may cause temporary irritation.

**Severity**

- Startect® Broad Spectrum Oral Drench for Sheep: OECD 404
  - Result: Irritation
  - Species: Rabbit
  - Severity: Mild

- Abamectin: Severity: Mild

- Derquantel: Species: Rabbit
  - Severity: No effect

**Serious eye damage/irritation**

- Direct contact with eyes may cause temporary irritation.

**Severity**

- Startect® Broad Spectrum Oral Drench for Sheep: OECD 405
  - Result: Irritation
  - Species: Rabbit
  - Severity: Minimal

- Abamectin: Severity: Moderate

- Derquantel: Species: Rabbit
  - Severity: Minimal

- Butylated hydroxytoluene: Species: Rabbit
  - Severity: Moderate

**Respiratory or skin sensitisation**

- Startect® Broad Spectrum Oral Drench for Sheep: OECD 406
  - Result: Non-sensitizing
  - Species: Guinea pig

---

Material name: Startect® Broad Spectrum Oral Drench for Sheep

SDS AUSTRALIA

3410
### Skin sensitisation

<table>
<thead>
<tr>
<th>Product</th>
<th>GPMT</th>
<th>Species: Guinea Pig</th>
<th>Severity: negative</th>
</tr>
</thead>
</table>

### Germ cell mutagenicity

No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

### Mutagenicity

<table>
<thead>
<tr>
<th>Product</th>
<th>Test</th>
<th>Result</th>
<th>Species</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abamectin</td>
<td>In Vitro Bacterial Mutagenicity (Ames)</td>
<td>negative</td>
<td>Salmonella</td>
</tr>
<tr>
<td>Derquantel</td>
<td>In Vitro Bacterial Mutagenicity (Ames)</td>
<td>negative</td>
<td>Salmonella</td>
</tr>
<tr>
<td>Abamectin</td>
<td>In Vitro Chromosome Aberration</td>
<td>negative</td>
<td>Chinese Hamster Ovary (CHO) cells</td>
</tr>
<tr>
<td>Derquantel</td>
<td>In Vitro Chromosome Aberration</td>
<td>Positive without activation</td>
<td>Human lymphocytes</td>
</tr>
<tr>
<td>Abamectin</td>
<td>In Vitro Direct DNA Damage</td>
<td>positive</td>
<td>Rat Hepatocyte</td>
</tr>
<tr>
<td>Abamectin</td>
<td>In Vitro Mammalian Cell Mutagenicity</td>
<td>negative</td>
<td>Hamster</td>
</tr>
<tr>
<td>Derquantel</td>
<td>In Vivo Micronucleus</td>
<td>negative</td>
<td>Mouse Bone Marrow</td>
</tr>
</tbody>
</table>

### Carcinogenicity

Due to partial or complete lack of data the classification is not possible.

**ACGIH Carcinogens**

- Butylated hydroxytoluene (CAS 128-37-0) A4 Not classifiable as a human carcinogen.

**IARC Monographs. Overall Evaluation of Carcinogenicity**

- Butylated hydroxytoluene (CAS 128-37-0) 3 Not classifiable as to carcinogenicity to humans.

### Reproductive toxicity

Based on available data, the classification criteria are not met.

**Developmental effects**

<table>
<thead>
<tr>
<th>Product</th>
<th>Exposure</th>
<th>Effect</th>
<th>Route</th>
<th>Species</th>
<th>Organ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Derquantel</td>
<td>1 mg/kg/day Embryo / Fetal Development, Maternal Toxicity</td>
<td>Developmental toxicity</td>
<td>Oral</td>
<td>Rabbit</td>
<td>Rat</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>No route specified</td>
</tr>
<tr>
<td>Abamectin</td>
<td>1 mg/kg/day Embryo / Fetal Development, teratogenic</td>
<td>NOEL</td>
<td>Rat</td>
<td>No route specified</td>
<td></td>
</tr>
</tbody>
</table>
### Developmental effects

**Derquantel**
- 5 mg/kg/day Fertility and Embryonic Development, Maternal Toxicity Not Teratogenic
- Result: NOAEL
- Species: Rat
- Organ: Oral

**Butylated hydroxytoluene**
- 6 g/kg Embryo / Fetal Development, teratogenic
- Result: LOEL
- Species: Rat
- Organ: Oral

**Derquantel**
- 70 mg/kg/day Embryo / Fetal Development, Maternal toxicity Developmental toxicity
- Result: NOAEL
- Species: Rat
- Organ: Oral

### Reproductivity

**Abamectin**
- 0.12 mg/kg/day Reproductive & Fertility, Fetotoxicity
- Result: NOEL
- Species: Rat
- Organ: No route specified

### Specific target organ toxicity - single exposure
- Not classified.

### Specific target organ toxicity - repeated exposure
- Based on available data, the classification criteria are not met. This product may affect Nervous system through prolonged or repeated exposure.

### Aspiration hazard
- Not an aspiration hazard.

### Chronic effects
- Prolonged inhalation may be harmful.

### 12. Ecological information

#### Ecotoxicity
- Very toxic to aquatic life. Harmful to aquatic life with long lasting effects. Avoid release to the environment.

<table>
<thead>
<tr>
<th>Components</th>
<th>Species</th>
<th>Test results</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Abamectin (CAS 71751-41-2)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EC50</td>
<td>Daphnia Magna (Water Flea)</td>
<td>0.0001 mg/l, 48 Hours</td>
</tr>
<tr>
<td></td>
<td>Pseudokirchneriella subcapitata (Green Alga)</td>
<td>1.59 mg/l, 72 Hours (ErC50)</td>
</tr>
<tr>
<td>LC50</td>
<td>Lepomis macrochirus (Bluegill Sunfish)</td>
<td>0.096 mg/l, 96 Hours</td>
</tr>
<tr>
<td></td>
<td>Mysidopsis bahia (Mysid Shrimp)</td>
<td>&lt; 0.0001 mg/l, 96 Hours</td>
</tr>
<tr>
<td></td>
<td>Oncorhynchus mykiss (Rainbow Trout)</td>
<td>0.003 mg/l, 96 Hours</td>
</tr>
<tr>
<td>Chronic</td>
<td>NOEC Daphnia magna (Water Flea)</td>
<td>0.01 mg/l, 21 day(s)</td>
</tr>
<tr>
<td><strong>Derquantel (CAS 187865-22-1)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EC50</td>
<td>Daphnia magna (Water Flea)</td>
<td>21.17 mg/l, 48 Hours</td>
</tr>
<tr>
<td></td>
<td>Pseudokirchneriella subcapitata (Green Alga)</td>
<td>&gt; 47.1 mg/l, 72 Hours (ErC50)</td>
</tr>
<tr>
<td></td>
<td>Skeletonema costatum (Marine Diatom)</td>
<td>55 mg/l, 96 Hours</td>
</tr>
<tr>
<td>LC50</td>
<td>Cyprinodon variegatus (Sheepshead Minnow)</td>
<td>&gt; 2.2 mg/l, 96 Hours</td>
</tr>
<tr>
<td></td>
<td>Oncorhynchus mykiss (Rainbow Trout)</td>
<td>57.7 mg/l, 96 Hours</td>
</tr>
<tr>
<td>NOEC</td>
<td>Activated sludge</td>
<td>&gt; 100 mg/l (Surrogate)</td>
</tr>
<tr>
<td></td>
<td>Daphnia magna (Water Flea)</td>
<td>0.044 mg/l, 21 day(s) (Effect: Reproduction)</td>
</tr>
</tbody>
</table>

#### Persistence and degradability
- In the environment, the active ingredient in this formulation is expected to biodegrade at a moderate rate in soil.

Material name: Startect® Broad Spectrum Oral Drench for Sheep

SDS AUSTRALIA

3410
Bioaccumulative potential

Not expected to bioaccumulate.

Partition coefficient

n-octanol / water (log Kow)

Abamectin 4.4

Derquantel 2.96, @ pH 6.83

Mobility in soil

No data available for this product.

Other adverse effects

No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal methods

Avoid release to the environment. Do not discharge into drains, water courses or onto the ground. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Considering the relevant known environmental and human health hazards of the material, review and implement appropriate technical and procedural waste water and waste disposal measures to prevent occupational exposure and environmental release. It is recommended that waste minimization be practiced. The best available technology should be utilized to prevent environmental releases. This may include destructive techniques for waste and wastewater. Dispose of contents/container in accordance with local/regional/national/international regulations.

Residual waste

Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging

Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

ADG

Not regulated as dangerous goods.

RID

UN number 3082
UN proper shipping name Environmentally hazardous substance, liquid, n.o.s. (Abamectin)
Transport hazard class(es)

Class 9
Subsidiary risk -
Label(s) 9
Packing group III
Environmental hazards Yes
Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

IATA

UN number 3082
UN proper shipping name Environmentally hazardous substance, liquid, n.o.s. (Abamectin)
Transport hazard class(es)

Class 9
Subsidiary risk -
Packing group III
Environmental hazards Yes
ERG Code 9L
Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

Other information

Passenger and cargo aircraft Allowed with restrictions.
Cargo aircraft only Allowed with restrictions.

IMDG

UN number 3082
UN proper shipping name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Abamectin), MARINE POLLUTANT (Abamectin)
Transport hazard class(es)

Class 9
Subsidiary risk -
Packing group III
Environmental hazards Marine pollutant Yes
EmS F-A, S-F
Special precautions for user Read safety instructions, SDS and emergency procedures before handling.
Transport in bulk according to Not established.
Annex II of MARPOL 73/78 and IMDG Regulated Marine Pollutant. As of January 1, 2015, materials offered for transport that are classified for transportation only as Marine Pollutants and which are packaged in single or combination packagings containing a net quantity per single or inner packaging of 5 Liters or less for liquids or having a net mass per single or inner packaging of 5 kilograms or less for solids are NOT subject to ICAO/IATA, IMDG, or ADR transport regulations provided the general packaging requirements of those regulations are met. Refer to ICAO/IATA A197, IMDG 2.10.2.7, ADR SP 375. Please refer to the applicable dangerous goods regulations for additional information.
Transport according to the requirements of the appropriate regulatory body.

15. Regulatory information
Safety, health and environmental regulations
National regulations This Safety Data Sheet was prepared in accordance with Australia Model Code of Practice for the preparation of Safety Data Sheets for Hazardous Chemicals (23/12/2011).
Poison Schedule (Product): Schedule 6
APVMA Registration No: 64247
This SDS replaces version: Issued October 2016

Australia Medicines & Poisons Schedule 6
DERQUANTEL (CAS 187865-22-1)
High Volume Industrial Chemicals (HVIC)
Not listed.
Importation of Ozone Deleting Substances (Customs(Prohibited imports) Regulations 1956, Schedule 10)
Not listed.
National Pollutant Inventory (NPI) substance reporting list
Not listed.
Prohibited Carcinogenic Substances
Not regulated.
Prohibited Substances (National Model Regulation for the control of Workplace Hazardous Substances, Schedule 2 NOHSC:1005 (1994) as amended)
- Not listed.

Restricted Importation of Organochlorine Chemicals (Customs(Prohibited Imports) Regulations 1956, Schedule 9)
- Not listed.

Restricted Carcinogenic Substances
- Not regulated.

International regulations
- **Stockholm Convention**
  - Not applicable.
- **Rotterdam Convention**
  - Not applicable.
- **Kyoto protocol**
  - Not applicable.
- **Montreal Protocol**
  - Not applicable.
- **Basel Convention**
  - Not applicable.

International Inventories

<table>
<thead>
<tr>
<th>Country(s) or region</th>
<th>Inventory name</th>
<th>On inventory (yes/no)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Australian Inventory of Chemical Substances (AICS)</td>
<td>No</td>
</tr>
<tr>
<td>Canada</td>
<td>Domestic Substances List (DSL)</td>
<td>No</td>
</tr>
<tr>
<td>Canada</td>
<td>Non-Domestic Substances List (NDSL)</td>
<td>No</td>
</tr>
<tr>
<td>China</td>
<td>Inventory of Existing Chemical Substances in China (IECSC)</td>
<td>No</td>
</tr>
<tr>
<td>Europe</td>
<td>European Inventory of Existing Commercial Chemical Substances (EINECS)</td>
<td>No</td>
</tr>
<tr>
<td>Europe</td>
<td>European List of Notified Chemical Substances (ELINCS)</td>
<td>No</td>
</tr>
<tr>
<td>Japan</td>
<td>Inventory of Existing and New Chemical Substances (ENCS)</td>
<td>No</td>
</tr>
<tr>
<td>Korea</td>
<td>Existing Chemicals List (ECL)</td>
<td>No</td>
</tr>
<tr>
<td>New Zealand</td>
<td>New Zealand Inventory</td>
<td>No</td>
</tr>
<tr>
<td>Philippines</td>
<td>Philippine Inventory of Chemicals and Chemical Substances (PICCS)</td>
<td>No</td>
</tr>
<tr>
<td>United States &amp; Puerto Rico</td>
<td>Toxic Substances Control Act (TSCA) Inventory</td>
<td>No</td>
</tr>
</tbody>
</table>

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s).
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information

**Issue date**
- 24-October-2017

**Disclaimer**
- Zoetis Inc. believes that the information contained in this Safety Data Sheet is accurate, and while it is provided in good faith, it is without warranty of any kind, expressed or implied. If data for a hazard are not included in this document there is no known information at this time. The information in the sheet was written based on the best knowledge and experience currently available.