SECTION 1 IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY / UNDERTAKING

Product Identifier

<table>
<thead>
<tr>
<th>Product name</th>
<th>Duocare LV Plus Selenium Oral Anthelmintic for Sheep</th>
</tr>
</thead>
<tbody>
<tr>
<td>Synonyms</td>
<td>APVMA No: 55633</td>
</tr>
<tr>
<td>Other means of identification</td>
<td>Not Available</td>
</tr>
</tbody>
</table>

Relevant identified uses of the substance or mixture and uses advised against

| Relevant identified uses | Use according to manufacturer's directions. |

Details of the supplier of the safety data sheet

<table>
<thead>
<tr>
<th>Registered company name</th>
<th>Virbac (Australia) Pty Limited</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address</td>
<td>361 Horsley Road Milperra NSW 2214 Australia</td>
</tr>
<tr>
<td>Telephone</td>
<td>1800 242 100</td>
</tr>
<tr>
<td>Fax</td>
<td>+61 2 9772 9773</td>
</tr>
<tr>
<td>Website</td>
<td><a href="http://www.virbac.com.au">www.virbac.com.au</a></td>
</tr>
<tr>
<td>Email</td>
<td><a href="mailto:au_customerservice@virbac.com.au">au_customerservice@virbac.com.au</a></td>
</tr>
</tbody>
</table>

Emergency telephone number

<table>
<thead>
<tr>
<th>Association / Organisation</th>
<th>Poisons Information Centre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emergency telephone numbers</td>
<td>13 11 26</td>
</tr>
<tr>
<td>Other emergency telephone numbers</td>
<td>Not Available</td>
</tr>
</tbody>
</table>

SECTION 2 HAZARDS IDENTIFICATION

Classification of the substance or mixture

<table>
<thead>
<tr>
<th>Poisons Schedule</th>
<th>96</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classification</td>
<td>Acute Toxicity (Oral) Category 4, Acute Toxicity (Dermal) Category 4, Carcinogenicity Category 2</td>
</tr>
</tbody>
</table>


Label elements

<table>
<thead>
<tr>
<th>Hazard pictogram(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>!</td>
</tr>
</tbody>
</table>

SIGNAL WORD: WARNING

Hazard statement(s)

| H302         | Harmful if swallowed. |
| H312         | Harmful in contact with skin. |
| H351         | Suspected of causing cancer. |

Precautionary statement(s) Prevention

| P201         | Obtain special instructions before use. |
| P281         | Use personal protective equipment as required. |
| P270         | Do not eat, drink or smoke when using this product. |
| P280         | Wear protective gloves/protective clothing/eye protection/face protection. |

Precautionary statement(s) Response

| P308+P313   | IF exposed or concerned: Get medical advice/attention. |

Continued...
**SECTIONS 3-4 continued...**

**PRECAUTIONARY STATEMENTS**

**Storage**

P405 Store locked up.

**Disposal**

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

**SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS**

### Substances

See section below for composition of Mixtures

### Mixtures

<table>
<thead>
<tr>
<th>CAS No</th>
<th>% [weight]</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>5086-74-8</td>
<td>&lt;10</td>
<td>tetramisole hydrochloride</td>
</tr>
<tr>
<td>43210-67-9</td>
<td>&lt;5</td>
<td>fenbendazole</td>
</tr>
<tr>
<td>13410-01-0</td>
<td>&lt;1</td>
<td>sodium selenate, anhydrous</td>
</tr>
<tr>
<td>balance</td>
<td></td>
<td>Ingredients determined not to be hazardous</td>
</tr>
</tbody>
</table>

**SECTION 4 FIRST AID MEASURES**

### Description of first aid measures

#### Eye Contact

If this product comes in contact with the 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.
- Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

#### Skin Contact

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.

#### Inhalation

- If fumes, aerosols or combustion products are inhaled remove from contaminated area.

#### Ingestion

- IF SWALLOWED, REFER FOR MEDICAL ATTENTION, WHERE POSSIBLE, WITHOUT DELAY.
- For advice, contact a Poisons Information Centre or a doctor.
- Emergency 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.
- If the services of a medical officer or medical doctor are readily available, the patient should be placed in his/her care and a copy of the SDS should be provided. Further action will be the responsibility of the medical specialist.
- If medical attention is not available on the worksite or surroundings send the patient to a hospital together with a copy of the SDS.
  - **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.
  - **NOTE:** Wear a protective glove when inducing vomiting by mechanical means.

### Indication of any immediate medical attention and special treatment needed

As in all cases of suspected poisoning, follow the ABCDEs of emergency medicine (airway, breathing, circulation, disability, exposure), then the ABCDEs of toxicology (antidotes, basics, change absorption, change distribution, change elimination).

**For poisons (where specific treatment regime is absent):**

**BASIC TREATMENT**

- Establish a patent airway with suction where necessary.
- Watch for signs of respiratory insufficiency and assist ventilation as necessary.
- Administer oxygen by non-rebreather mask at 10 to 15 L/min.
- Monitor and treat, where necessary, for pulmonary oedema.
- Monitor and treat, where necessary, for shock.
- Anticipate seizures.

  - **DO NOT** use emetics. Where ingestion is suspected rinse mouth and give up to 200 ml water (5 ml/kg recommended) for dilution where patient is able to swallow, has a strong gag reflex and does not drool.

**ADVANCED TREATMENT**

- Consider orotracheal or nasotracheal intubation for airway control in unconscious patient or where respiratory arrest has occurred.
- Positive-pressure ventilation using a bag-valve mask might be of use.
- Monitor and treat, where necessary, for arrhythmias.
- Start an IV D5W TKO. If signs of hypovolaemia are present use lactated Ringers solution. Fluid overload might create complications.
SECTION 5 FIREFIGHTING MEASURES

Extinguishing media

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

Special hazards arising from the substrate or mixture

<table>
<thead>
<tr>
<th>Fire Incompatibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result</td>
</tr>
</tbody>
</table>

Advice for firefighters

**Fire Fighting**

- Alert Fire Brigade and tell them location and nature of hazard.
- Wear breathing apparatus plus protective gloves in the event of a fire.
- Prevent, by any means available, spillage from entering drains or water courses.
- Use fire fighting procedures suitable for surrounding area.
- DO NOT approach containers suspected to be hot.
- Cool fire exposed containers with water spray from a protected location.
- If safe to do so, remove containers from path of fire.
- Equipment should be thoroughly decontaminated after use.

**Fire/Explosion Hazard**

- Non combustible.
- Not considered to be a significant fire risk.
- Expansion or decomposition on heating may lead to violent rupture of containers.
- Decomposes on heating and may produce toxic fumes of carbon monoxide (CO).
- May emit acrid smoke.
- Decomposition may produce toxic fumes of:
  - carbon dioxide (CO2)
  - nitrogen oxides (NOx)
  - sulfur oxides (SOx)
  - other pyrolysis products typical of burning organic material.
- May emit poisonous fumes.
- May emit corrosive fumes.

**HAZCHEM**

Not Applicable

SECTION 6 ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

See section 8

Environmental precautions

See section 12

Methods and material for containment and cleaning up

**Minor Spills**

- Clean up all spills immediately.
- Avoid breathing vapours and contact with skin and eyes.
- Control personal contact with the substance, by using protective equipment.
- Contain and absorb spill with sand, earth, inert material or vermiculite.
- Wipe up.
- Place in a suitable, labelled container for waste disposal.

**Major Spills**

- Moderate hazard.
- Clear area of personnel and move upwind.
- Alert Fire Brigade and tell them location and nature of hazard.
- Wear breathing apparatus plus protective gloves.
- Prevent, by any means available, spillage from entering drains or water course.
- Stop leak if safe to do so.
- Contain spill with sand, earth or vermiculite.
- Collect recoverable product into labelled containers for recycling.
- Neutralise/decontaminate residue (see Section 13 for specific agent).
- Collect solid residues and seal in labelled drums for disposal.
- Wash area and prevent runoff into drains.
- After clean up operations, decontaminate and launder all protective clothing and equipment before storing and re-using.

- If contamination of drains or waterways occurs, advise emergency services.

Personal Protective Equipment advice is contained in Section 8 of the SDS.

SECTION 7 HANDLING AND STORAGE

Precautions for safe handling

Continued...
Safe handling

- DO NOT allow clothing wet with material to stay in contact with skin
- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of exposure occurs.
- Use in a well-ventilated area.
- Avoid contact with moisture.
- Avoid contact with incompatible materials.
- When handling, DO NOT eat, drink or smoke.
- Keep containers securely sealed when not in use.
- Avoid physical damage to containers.
- Always wash hands with soap and water after handling.
- Work clothes should be laundered separately. Launder contaminated clothing before re-use.
- Use good occupational work practice.
- Observe manufacturer's storage and handling recommendations contained within this SDS.
- Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.

Other information

- Store in original containers.
- Keep containers securely sealed.
- Store in a cool, dry, well-ventilated area.
- Store away from incompatible materials and foodstuff containers.
- Protect containers against physical damage and check regularly for leaks.
- Observe manufacturer's storage and handling recommendations contained within this SDS.

Conditions for safe storage, including any incompatibilities

Suitable container

- Glass container is suitable for laboratory quantities
- Polyethylene or polypropylene container.
- Packing as recommended by manufacturer.
- Check all containers are clearly labelled and free from leaks.

Storage incompatibility

- Avoid reaction with oxidising agents

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

OCCUPATIONAL EXPOSURE LIMITS (OEL)

INGREDIENT DATA

<table>
<thead>
<tr>
<th>Source</th>
<th>Ingredient</th>
<th>Material name</th>
<th>TWA</th>
<th>STEL</th>
<th>Peak</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia Exposure Standards</td>
<td>sodium selenate, anhydrous</td>
<td>Selenium compounds (as Se) excluding hydrogen selenide</td>
<td>0.1 mg/m³</td>
<td>Not Available</td>
<td>Not Available</td>
<td>Not Available</td>
</tr>
</tbody>
</table>

EMERGENCY LIMITS

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Material name</th>
<th>TEEL-1</th>
<th>TEEL-2</th>
<th>TEEL-3</th>
</tr>
</thead>
<tbody>
<tr>
<td>sodium selenate, anhydrous</td>
<td>Sodium selenate; (Disodium selenite)</td>
<td>1.4 mg/m³</td>
<td>1.6 mg/m³</td>
<td>2 mg/m³</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Original IDLH</th>
<th>Revised IDLH</th>
</tr>
</thead>
<tbody>
<tr>
<td>tetramisole hydrochloride</td>
<td>Not Available</td>
<td>Not Available</td>
</tr>
<tr>
<td>fenbendazole</td>
<td>Not Available</td>
<td>Not Available</td>
</tr>
<tr>
<td>sodium selenate, anhydrous</td>
<td>1 mg/m³</td>
<td>Not Available</td>
</tr>
</tbody>
</table>

MATERIAL DATA

Exposure controls

For potent pharmacological agents:

- Solutions Handling:
  - Solutions can be handled outside a containment system or without local exhaust ventilation during procedures with no potential for aerosolisation. If the procedures have a potential for aerosolisation, an air-purifying respirator is to be worn by all personnel in the immediate area.
  - Solutions used for procedures where aerosolisation may occur (e.g., vortexing, pumping) are to be handled within a containment system or with local exhaust ventilation.
  - In situations where this is not feasible (may include animal dosing), an air-purifying respirator is to be worn by all personnel in the immediate area. If using a ventilated enclosure that has not been validated, wear a half-mask respirator equipped with HEPA cartridges until the enclosure is validated for use.
  - Ensure gloves are protective against solvents in use.

Unless written procedures, specific to the workplace are available, the following is intended as a guide:

- For Laboratory-scale handling of Substances assessed to be toxic by inhalation. Quantities of up to 25 grams may be handled in Class II biological safety cabinets*; Quantities of 25 grams to 1 kilogram may be handled in Class II biological safety cabinets* or equivalent containment systems; Quantities exceeding 1 kg may be handled either using specific containment, a hood or Class II biological safety cabinet*.
- HEPA terminated local exhaust ventilation should be considered at point of generation of dust, fumes or vapours.
- The need for respiratory protection should also be assessed where accidental or accidental exposure is anticipated. Depending on levels of contamination, PAPR, full face air purifying devices with P2 or P3 filters or air supplied respirators should be evaluated. When handling Quantities of up to 25 grams, an approved respirator with HEPA filters or cartridges should be considered; Quantities of 25 grams to 1 kilogram, a half-face negative pressure, full negative pressure, or powered helmet-type air purifying respirator should be considered. Quantities in excess of 1 kilogram, a full face negative pressure, helmet-type air purifying, or supplied air respirator should be considered.

Written procedures, specific to a particular work-place, may replace these recommendations.

* For Class II Biological Safety Cabinets, Types B2 or B3 should be considered. Where only Class I, open fronted Cabinets are available, glove panels may be added. Laminar flow cabinets do not provide sufficient protection when handling these materials unless especially designed to do so.

Pilot Plant and Production

- Wear appropriate gloves; lab coat, nylon coveralls or disposable Tyvek suit; safety glasses, safety shoes, and disposable booties. Use good manufacturing practices (i.e., cGMPs).
- Protective garment (coveralls, Tyvek, lab coat) is not to be worn outside the work area.
- Clean/dirty decontamination areas to be established.
- Negative/positive air pressure relationships and buffer zones required (i.e., ante-rooms/degowning room/airlock).
- Area access is to be restricted.
### Hands/feet protection
- High-energy operations such as milling, particle sizing, spraying or fluidising should be done within an approved emission control or containment system.
- Develop cleaning procedures and techniques that limit potential exposure

#### Powders
To prevent contamination and overexposure, no open handling of powder should be allowed.
- Powder handling operations are to be done in a powders weighing hood, a glove box, or other equivalent ventilated containment system.
- In situations where these ventilated containment hoods have not been installed, a non-ventilated enclosed containment hood should be used.
- Pending changes resulting from additional air monitoring data, up to 300 mg can be handled outside of an enclosure provided that no grinding, crushing or other dust-generating process occurs.
- An air-purifying respirator should be worn by all personnel in the immediate area in cases where non-ventilated containment is used, where significant amounts of material (e.g., more than 2 grams) are used, or where the material may become airborne (as through grinding, etc.).
- Powder should be put into solution or a closed or covered container after handling.
- If using a ventilated enclosure that has not been validated, wear a half-mask respirator equipped with HEPA cartridges until the enclosure is validated for use.

#### Solutions Handling:
Solutions can be handled outside a containment system or without local exhaust ventilation during procedures with no potential for aerosolisation. If the procedures have a potential for aerosolisation, an air-purifying respirator is to be worn by all personnel in the immediate area.
- Solutions used for procedures where aerosolisation may occur (e.g., vortexing, pumping) are to be handled within a containment system or with local exhaust ventilation.
- In situations where this is not feasible (may include animal housing), an air-purifying respirator is to be worn by all personnel in the immediate area. If using a ventilated enclosure that has not been validated, wear a half-mask respirator equipped with HEPA cartridges until the enclosure is validated for use.
- Ensure gloves are protective against solvents in use.

### Personal protection
- Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.

### Eye and face protection
- When handling very small quantities of the material eye protection may not be required.
  - Chemical goggles.
  - Face shield. Full face shield may be required for supplementary but never for primary protection of eyes.
  - Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate imitants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lenses should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly.[CDC NIOSH Current Intelligence Bulletin 59], [AS/NZS 1336 or national equivalent](https://www.hse.gov.au/health-safety/workplaces/personal-protection-equipment/protection-eyes-lips.html)
- Face shield. Full face shield may be required for supplementary but never for primary protection of eyes.
  - Chemical goggles.
  - Chemical goggles.
  - Chemical goggles.
- Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739, AS/NZS 2161.1 or national equivalent).
  - When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.
  - When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.
  - Some glove polymer types are less affected by movement and this should be taken into account when considering gloves for long-term use.
- Contaminated gloves should be replaced.
- For general applications, gloves with a thickness typically greater than 0.35 mm, are recommended. It should be emphasised that glove thickness is not necessarily a good predictor of glove resistance to a specific chemical, as the permeation efficiency of the glove will be dependent on the exact composition of the glove material. Therefore, glove selection should also be based on consideration of the task requirements and knowledge of breakthrough times.
- Thin gloves (down to 0.1 mm or less) may be required where a high degree of manual dexterity is needed. However, these gloves are only likely to give short duration protection and would normally be just for single use applications, then disposed of.
- Thicker gloves (up to 3 mm or more) may be required where there is a mechanical (as well as a chemical) risk i.e. where there is abrasion or puncture potential
- Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.
- Rubber gloves (nitrile or low-protein, powder-free latex, latex/nitrile). Employees allergic to latex gloves should use nitrile gloves in preference.
- Double gloving should be considered.
- PVC gloves.
- Change gloves frequently and when contaminated, punctured or torn.
- Wash hands immediately after removing gloves.

### Body protection
- See Other protection below

### Skin protection

**NOTE:**
- The material may produce skin sensitisation in predisposed individuals. Care must be taken, when removing gloves and other protective equipment, to avoid all possible skin contact.
- Contaminated leather items, such as shoes, belts and watch-bands should be removed and destroyed.
- The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
- The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice.
- Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.

**Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include:**
- Frequency and duration of contact.
- Chemical resistance of glove material.
- Glove thickness and dexterity.

<table>
<thead>
<tr>
<th>Hands/feet protection</th>
<th>Body protection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contaminated gloves should be replaced.</td>
<td>See Other protection below</td>
</tr>
<tr>
<td>For general applications, gloves with a thickness typically greater than 0.35 mm, are recommended. It should be emphasised that glove thickness is not necessarily a good predictor of glove resistance to a specific chemical, as the permeation efficiency of the glove will be dependent on the exact composition of the glove material. Therefore, glove selection should also be based on consideration of the task requirements and knowledge of breakthrough times.</td>
<td>For laboratory, large scale or bulk handling or where regular exposure in an occupational setting occurs:</td>
</tr>
<tr>
<td>Thin gloves (down to 0.1 mm or less) may be required where a high degree of manual dexterity is needed. However, these gloves are only likely to give short duration protection and would normally be just for single use applications, then disposed of.</td>
<td>Gloves can be handled outside a containment system or without local exhaust ventilation during procedures with no potential for aerosolisation. If the procedures have a potential for aerosolisation, an air-purifying respirator is to be worn by all personnel in the immediate area.</td>
</tr>
<tr>
<td>Thicker gloves (up to 3 mm or more) may be required where there is a mechanical (as well as a chemical) risk i.e. where there is abrasion or puncture potential</td>
<td>Solutions used for procedures where aerosolisation may occur (e.g., vortexing, pumping) are to be handled within a containment system or with local exhaust ventilation.</td>
</tr>
<tr>
<td>Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.</td>
<td>In situations where this is not feasible (may include animal housing), an air-purifying respirator is to be worn by all personnel in the immediate area. If using a ventilated enclosure that has not been validated, wear a half-mask respirator equipped with HEPA cartridges until the enclosure is validated for use.</td>
</tr>
<tr>
<td>Rubber gloves (nitrile or low-protein, powder-free latex, latex/nitrile). Employees allergic to latex gloves should use nitrile gloves in preference.</td>
<td>Ensure gloves are protective against solvents in use.</td>
</tr>
<tr>
<td>Double gloving should be considered.</td>
<td>When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.</td>
</tr>
<tr>
<td>PVC gloves.</td>
<td>When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.</td>
</tr>
<tr>
<td>Change gloves frequently and when contaminated, punctured or torn.</td>
<td>Some glove polymer types are less affected by movement and this should be taken into account when considering gloves for long-term use.</td>
</tr>
<tr>
<td>Wash hands immediately after removing gloves.</td>
<td>Contaminated gloves should be replaced.</td>
</tr>
</tbody>
</table>
Other protection

- For quantities up to 500 grams a laboratory coat may be suitable.
- For quantities up to 1 kilogram a disposable laboratory coat or coverall of low permeability is recommended. Coveralls should be buttoned at collar and cuffs.
- For quantities over 1 kilogram and manufacturing operations, wear disposable coverall of low permeability and disposable shoe covers.
- For manufacturing operations, air-supplied full body suits may be required for the provision of advanced respiratory protection.
- Eye wash unit.
- Ensure there is ready access to an emergency shower.
- For Emergencies: Vinyl suit

Thermal hazards

Not Available

Respiratory protection


Where the concentration of gas/particulates in the breathing zone, approaches or exceeds the "Exposure Standard" (or ES), respiratory protection is required. Degree of protection varies with both face-piece and Class of filter, the nature of protection varies with Type of filter.

<table>
<thead>
<tr>
<th>Required Minimum Protection Factor</th>
<th>Half-Face Respirator</th>
<th>Full-Face Respirator</th>
<th>Powered Air Respirator</th>
</tr>
</thead>
<tbody>
<tr>
<td>up to 10 x ES</td>
<td>A-US P2</td>
<td>-</td>
<td>A-PAPR-AUS / Class 1 P2</td>
</tr>
<tr>
<td>up to 50 x ES</td>
<td>-</td>
<td>A-US / Class 1 P2</td>
<td>-</td>
</tr>
<tr>
<td>up to 100 x ES</td>
<td>-</td>
<td>A-2 P2</td>
<td>A-PAPR-2 P2 ^</td>
</tr>
</tbody>
</table>

^ - Full-face
A(All classes) = Organic vapours, B AUS or B1 = Acid gasses, B2 = Acid gas or hydrogen cyanide(HCN), B3 = Acid gas or hydrogen cyanide(HCN), E = Sulfur dioxide(SO2), G = Agricultural chemicals, K = Ammonia(NH3), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 degC)

Cartridge respirators should never be used for emergency ingress or in areas of unknown vapour concentrations or oxygen content. The wearer must be warned to leave the contaminated area immediately on detecting any odours through the respirator. The odour may indicate that the mask is not functioning properly, that the vapour concentration is too high, or that the mask is not properly fitted. Because of these limitations, only restricted use of cartridge respirators is considered appropriate.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Liquid</td>
</tr>
<tr>
<td>Physical state</td>
<td>Liquid</td>
</tr>
<tr>
<td>Relative density (Water = 1)</td>
<td>~1.03</td>
</tr>
<tr>
<td>Odour</td>
<td>Not Available</td>
</tr>
<tr>
<td>Partition coefficient n-octanol / water</td>
<td>Not Available</td>
</tr>
<tr>
<td>Odour threshold</td>
<td>Not Available</td>
</tr>
<tr>
<td>Auto-ignition temperature (°C)</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>pH (as supplied)</td>
<td>Not Available</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>Not Available</td>
</tr>
<tr>
<td>Melting point / freezing point (°C)</td>
<td>Not Available</td>
</tr>
<tr>
<td>Initial boiling point and boiling range (°C)</td>
<td>Not Available</td>
</tr>
<tr>
<td>Molecular weight (g/mol)</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Flash point (°C)</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Taste</td>
<td>Not Available</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Not Available</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>Not Available</td>
</tr>
<tr>
<td>Flammability</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Oxidising properties</td>
<td>Not Available</td>
</tr>
<tr>
<td>Upper Explosive Limit (%)</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Surface Tension (dyn/cm or mN/m)</td>
<td>Not Available</td>
</tr>
<tr>
<td>Lower Explosive Limit (%)</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Volatile Component (%vol)</td>
<td>Not Available</td>
</tr>
<tr>
<td>Vapour pressure (kPa)</td>
<td>Not Available</td>
</tr>
<tr>
<td>Gas group</td>
<td>Not Available</td>
</tr>
<tr>
<td>Solubility in water (g/L)</td>
<td>Not Available</td>
</tr>
<tr>
<td>pH as a solution (1%)</td>
<td>Not Available</td>
</tr>
<tr>
<td>Vapour density (Air = 1)</td>
<td>Not Available</td>
</tr>
<tr>
<td>VOC g/L</td>
<td>Not Available</td>
</tr>
</tbody>
</table>

SECTION 10 STABILITY AND REACTIVITY

Reactivity

See section 7

Chemical stability

- Unstable in the presence of incompatible materials.
- Product is considered stable.
- Hazardous polymerisation will not occur.

Possibility of hazardous reactions

See section 7

Conditions to avoid

See section 7

Incompatible materials

See section 7

Hazardous decomposition products

See section 5

SECTION 11 TOXICOLOGICAL INFORMATION

Information on toxicological effects

Inhaled

The material is not thought to produce either adverse health effects or irritation of the respiratory tract following inhalation (as classified by EC Directives using animal models). Nevertheless, adverse systemic effects have been produced following exposure of animals by at least one other route and good

Continued...
**Carcinogenicity**

The substance is classified by IARC as Group 3: Not classifiable as to its carcinogenicity to humans. Evidence of carcinogenicity may be inadequate or limited in animal testing. Eye effects, general anaesthesia, convulsions, muscle weakness, spasticity, cardiac EKG changes, cyanosis, lung tumours, diarrhoea, impaired liver function tests, leukaemia, specific developmental changes, effects on newborn recorded.

**Reproductivity**

**STOT - Single Exposure**

Eye

Although the liquid is not thought to be an irritant (as classified by EC Directives), direct contact with the eye may produce transient discomfort characterised by tearing or conjunctival redness (as with windburn).

Skin Contact

Skin contact with the material may be harmful; systemic effects may result following absorption.

The material is not thought to be a skin irritant (i.e. is unlikely to produce irritant dermatitis as described in EC Directives using animal models). Temporary discomfort, however, may result from prolonged dermal exposures. Good hygiene practice requires that exposure be kept to a minimum and that suitable gloves be used in an occupational setting.

Open cuts, abraded or irritated skin should not be exposed to this material. Entry into the blood-stream through, for example, cuts, abrasions, puncture wounds or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.

**STOT - Repeated Exposure**

Chronic

**Eye**

On the basis, primarily, of animal experiments, concern has been expressed that the material may produce carcinogenic or mutagenic effects; in respect of the available information, however, there presently exists inadequate data for making a satisfactory assessment.

Limited evidence suggests that repeated or long-term occupational exposure may produce cumulative health effects involving organs or biochemical systems.

There exists limited evidence that shows that skin contact with the material is capable either of inducing a sensitisation reaction in a significant number of individuals, and/or of producing positive response in experimental animals. A number of benzimidazoles have been shown to also inhibit mammalian tubulin polymerisation and to be aneugenic in vivo. Aneugens affect cell division and the mitotic spindle apparatus resulting in loss or gain of whole chromosomes, thereby inducing an "aneuploidy". Mitotic aneuploidy is a characteristic of many types of tumorgenesis (in cancer). Several benzimidazoles have been shown to be genotoxic. Genotoxicity may arise as aneugens may also be clastogens, or may produce clastogenic metabolites. Clastogens increase the rate of genetic mutation by interfering with the function of nucleic acids. A clastogen is a specific mutagen that causes breaks in chromosomes.

---

**Duocare LV Plus Selenium Oral Anthelmintic for Sheep**

**tetramisole hydrochloride**

**TOXICITY**

<table>
<thead>
<tr>
<th>Species</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral (rat) LD50: 180 mg/kg</td>
<td>Not Available</td>
</tr>
</tbody>
</table>

**IRRITATION**

<table>
<thead>
<tr>
<th>Species</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not Available</td>
<td></td>
</tr>
</tbody>
</table>

**fendbendazole**

**TOXICITY**

<table>
<thead>
<tr>
<th>Species</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral (rat) LD50: &gt;10000 mg/kg</td>
<td>Not Available</td>
</tr>
</tbody>
</table>

**IRRITATION**

<table>
<thead>
<tr>
<th>Species</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not Available</td>
<td></td>
</tr>
</tbody>
</table>

**sodium selenate, anhydrous**

**TOXICITY**

<table>
<thead>
<tr>
<th>Species</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral (rat) LD50: 1.6 mg/kg</td>
<td>Not Available</td>
</tr>
</tbody>
</table>

**IRRITATION**

<table>
<thead>
<tr>
<th>Species</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not Available</td>
<td></td>
</tr>
</tbody>
</table>

**Legend:**

- Value obtained from Europe ECHA Registered Substances - Acute toxicity
- Value obtained from manufacturer's SDS
- Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances

---

**SECTION 12 ECOLOGICAL INFORMATION**

**Toxicity**

<table>
<thead>
<tr>
<th>Duocare LV Plus Selenium Oral Anthelmintic for Sheep</th>
<th>ENDPOINT</th>
<th>TEST DURATION (HR)</th>
<th>SPECIES</th>
<th>VALUE</th>
<th>SOURCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not Available</td>
<td>Not Available</td>
<td>Not Available</td>
<td>Not Available</td>
<td>Not Available</td>
<td>SOURCE</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>tetramisole hydrochloride</th>
<th>ENDPOINT</th>
<th>TEST DURATION (HR)</th>
<th>SPECIES</th>
<th>VALUE</th>
<th>SOURCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not Available</td>
<td>Not Available</td>
<td>Not Available</td>
<td>Not Available</td>
<td>Not Available</td>
<td>SOURCE</td>
</tr>
</tbody>
</table>
**SECTION 13 DISPOSAL CONSIDERATIONS**

**Waste treatment methods**
- Containers may still present a chemical hazard/danger when empty.
- Return to supplier for reuse/ recycling if possible.
- Otherwise:
  - If container cannot be cleaned sufficiently well to ensure that residuals do not remain or if the container cannot be used to store the same product, then puncture containers, to prevent re-use, and bury at an authorised landfill.
  - Where possible retain label warnings and SDS and observe all notices pertaining to the product.

**Legislation addressing waste disposal requirements may differ by country, state and/or territory. Each user must refer to laws operating in their area.**

**A Hierarchy of Controls seems to be common - the user should investigate:**
- Reduction
- Reuse
- Recycling
- Disposal (if all else fails)

- This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. If it has been contaminated, it may be possible to reclaim the product by filtration, distillation or some other means. Shelf life considerations should also be applied in making decisions of this type. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate.
- **DO NOT** allow wash water from cleaning or process equipment to enter drains.
- In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first.
- Where in doubt contact the responsible authority.
- Recycle wherever possible.
- Consult manufacturer for recycling options or consult local or regional waste management authority for disposal if no suitable treatment or disposal facility can be identified.
- Dispose of by: burial in a land-fill specifically licensed to accept chemical and/or pharmaceutical wastes or incineration in a licensed apparatus (after admixture with suitable combustible material).
- Decontaminate empty containers. Observe all label safeguards until containers are cleaned and destroyed.

**SECTION 14 TRANSPORT INFORMATION**

<table>
<thead>
<tr>
<th>Marine Pollutant</th>
<th>HAZCHEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO</td>
<td>Not Applicable</td>
</tr>
</tbody>
</table>
Land transport (ADG): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Air transport (ICAO-IATA / DGR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Sea transport (IMDG-Code / GGVSee): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Transport in bulk according to Annex II of MARPOL and the IBC code

Not Applicable

SECTION 15 REGULATORY INFORMATION

Safety, health and environmental regulations / legislation specific for the substance or mixture

**TETRAMISOLE HYDROCHLORIDE (5086-74-8)** IS FOUND ON THE FOLLOWING REGULATORY LISTS
- Australia Inventory of Chemical Substances (AICS)

**FENBENDAZOLE (43210-67-9)** IS FOUND ON THE FOLLOWING REGULATORY LISTS
- Australia Inventory of Chemical Substances (AICS)

**SODIUM SELENATE, ANHYDROUS (13410-01-0)** IS FOUND ON THE FOLLOWING REGULATORY LISTS
- Australia Exposure Standards
- Australia Hazardous Substances Information System - Consolidated Lists
- International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs

<table>
<thead>
<tr>
<th>National Inventory</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia - AICS</td>
<td>Y</td>
</tr>
<tr>
<td>Canada - DSL</td>
<td>N (tetramisole hydrochloride)</td>
</tr>
<tr>
<td>Canada - NDSL</td>
<td>N (fenbendazole; sodium selenate, anhydrous)</td>
</tr>
<tr>
<td>China - IECSC</td>
<td>N (fenbendazole; tetramisole hydrochloride)</td>
</tr>
<tr>
<td>Europe - EINEC / ELINCS / NLP</td>
<td>Y</td>
</tr>
<tr>
<td>Japan - ENCS</td>
<td>N (fenbendazole)</td>
</tr>
<tr>
<td>Korea - KECI</td>
<td>Y</td>
</tr>
<tr>
<td>New Zealand - NZIoC</td>
<td>Y</td>
</tr>
<tr>
<td>Philippines - PICCS</td>
<td>N (fenbendazole)</td>
</tr>
<tr>
<td>USA - TSCA</td>
<td>N (fenbendazole)</td>
</tr>
</tbody>
</table>

Legend:

Y = All ingredients are on the inventory
N = Not determined or one or more ingredients are not on the inventory and are not exempt from listing (see specific ingredients in brackets)

SECTION 16 OTHER INFORMATION

Ingredients with multiple cas numbers

<table>
<thead>
<tr>
<th>Name</th>
<th>CAS No</th>
</tr>
</thead>
<tbody>
<tr>
<td>tetramisole hydrochloride</td>
<td>5086-74-8, 5036-02-2</td>
</tr>
</tbody>
</table>

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

The SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

Definitions and abbreviations

- PC – TWA: Permissible Concentration-Time Weighted Average
- PC – STEL: Permissible Concentration-Short Term Exposure Limit
- IARC: International Agency for Research on Cancer
- ACGIH: American Conference of Governmental Industrial Hygienists
- STEL: Short Term Exposure Limit
- TEL: Temporary Emergency Exposure Limit
- IDLH: Immediately Dangerous to Life or Health Concentrations
- OSF: Odour Safety Factor
- NOAEL: No Observed Adverse Effect Level
- LOAEL: Lowest Observed Adverse Effect Level
- TLV: Threshold Limit Value
- LOD: Limit Of Detection
- OTC: Odour Threshold Value
- BCF: BioConcentration Factors
- BEI: Biological Exposure Index

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